A Comparison of the Household Sector from the Flow of Funds Accounts and the Survey of Consumer Finances

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Abstract

This paper compares figures on selected assets and liabilities from the FFA household sector with survey-based estimates from the 1989 and 1992 Survey of Consumer Finances (SCF). Comparisons of the FFA asset and liability categories to those constructed from the SCF have proved difficult in the past, and many previous studies have not fully adjusted for definitional differences between the SCF and FFA. This analysis addresses some common misperceptions about the definitions of the various components of the FFA household sector's assets and liabilities, describes more fully the reconciliations between the SCF and FFA measures, provides a more detailed classification of assets and liabilities, and offers alternative explanations for the discrepancies between the SCF and FFA household wealth components. The results show that for some asset and liability categories the SCF and FFA estimates are quite close in 1989 and 1992. The measures of total liabilities match up better than those for total assets.

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I Introduction

Household wealth plays an important role in macroeconomics. Most models of consumption depend in part on a wealth variable, and often the components of the overall household balance sheet are examined to help explain aggregate spending patterns. Thus, the availability of accurate measures of the assets and liabilities of the household sector becomes critical for model building or descriptive information on economic developments.

Time series data from the Flow of Funds Accounts (FFA) are the most widely used source of aggregate data on U.S. household balance sheets.[1] However, the financial assets and liabilities of the household sector in the FFA are largely derived as residuals because reports on the balance sheet activities of households are generally not available, except intermitently. In other words, the FFA starts with known economy-wide totals for individual transaction categories and then, deducts amounts reported to be held by other sectors, leaving the household sector with the remainder. For most transaction categories, such as home mortgage debt and time deposits, this method seems reasonable because the household sector is the largest holder. Nevertheless, the asset and liability estimates in the FFA household sector, at times, have been criticized for their residual nature.

This paper addresses these criticisms by comparing figures on selected assets and liabilities from the FFA household sector with survey-based estimates from the 1989 and 1992 Survey of Consumer Finances (SCF). However, one cannot fall into the trap of assuming that the survey-based estimates yield the true picture of household balance sheets. Aggregate point estimates of assets and liabilities that are generated from micro panel studies of individual households also are subject to error, and neither the FFA nor the SCF estimates are a true benchmark. Nevertheless, the differences between the SCF and FFA estimates provide valuable information on possible measurement errors in both sets of data. Moreover, because the FFA and SCF

1. The Flow of Funds Accounts, Flows and Outstandings Z.1 published by the Federal Reserve Board of Governors is scheduled for release approximately 75 days after the end of the quarter. The Z.1 release reports information on the most recent quarter. Tangible assets are reported in the Federal Reserve Board of Governors annual C.9 statistical release, Balance Sheets for the U.S. Economy.

estimates are derived from different methods, those estimates that are close to each other provide a higher degree of confidence in the accuracy of the data.[2]

The SCF is the most comprehensive wealth survey of its kind. Individual households are asked to detail the current status of their financial assets and liabilities. Moreover, to provide precise estimates of the highly skewed components of wealth, the SCF oversamples the highest income individuals.[3] The SCF compensates for statistically high nonresponse rates among wealthy families by using data from tax files to adjust the sampling weights in the population estimates (Kennickell, McManus, and Woodburn, 1996). This procedure minimizes the known biases found in wealth statistics derived from other surveys, such as the Survey of Income and Participation Program, the Panel Study of Income Dynamics, and the Consumer Expenditure Survey. [4]

Population estimates of assets and liabilities from the SCF are obtained in two steps. First, the individual household responses to the financial questions are weighted by the nonresponse-adjusted sampling weights.[5] Second, these weighted responses are summed to form an aggregate estimate of households' holdings of the asset or liability. Throughout the remainder of the paper, these weighted sums are referred to as the SCF estimates. Standard errors of the SCF

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2. This view disagrees with Eugene Smolensky who questioned "...when the SCF agrees with the FFA, the SCF number is also wrong?"..."It may be." in his comments to Juster, Curtain and Morgan (1989). Smolensky was referring to "ancient" benchmarks used by the FFA in estimating financial assets and liabilities. However, in the last five years the Flow of Funds Section has made great strides in improving the quality of the data by updating benchmarks and by incorporating more statistical information into the FFA estimates. As a result, I believe that agreement between an SCF and an FFA estimate reinforces our confidence in that figure.

3. For the 1989 and 1992 SCF surveys, 3,143 and 3,906 households, respectively, were interviewed. The SCF selects households according to two sampling strategies. The majority of households are chosen via a standard multistage area-probability sample from among the continental United States--72 percent and 63 percent of the 1989 and 1992 sample, respectively, were selected in this fashion. The remaining households for each survey year were chosen from a sample of federal income tax returns using an algorithm to select a stratified sample to overrepresent those that are more likely to be wealthy (Kennickell and Woodburn, 1993).

4. Curtin, Juster, and Morgan (1989), and Eller (1994).

5. For a description of the weighting design for the SCF see Herringa, Conner, and Woodburn (1994); Kennickell and Woodburn (1992); and Kennickell, McManus, and Woodburn (1995).

asset and liability estimate were calculated to gauge the variability of the SCF estimates and, more importantly, to provide some statistical measure of the significance of the difference between the SCF and FFA estimates.[6] The reported standard errors are based on the bootstrap methodology described in Kennickell and Woodburn (1992).

Comparisons of FFA asset and liability categories to those constructed from the SCF have proved difficult in the past. The household sector in the FFA contains assets and liabilities of personal trusts, nonprofit organizations, and unit investment trusts, none of which are included in estimates from the SCF.[7] This analysis pays special attention to stripping the FFA asset and liability categories down to those of a "pure" household sector so that comparisons between the FFA and SCF are more meaningful.

Other researchers have constructed aggregate measures of selected assets and liabilities held by households from surveys and compared these estimates to those reported in the FFA. The study by Avery, Ellihausen, and Kennickell (1987) (hereafter AEK), which examined estimates from the SCF and FFA for the years 1963 and 1983, was the most comprehensive reconciliation and set the pattern for subsequent research. For instance, Curtin, Juster, and Morgan (1989) summarize AEK's results and calculate aggregate estimates of households assets and liabilities from the Panel Study of Income Dynamics (PSID), and the Survey of Income and Program Participation (SIPP) for the years 1983 and 1984. McNeil and Lamas (1989) also construct aggregate estimates from the fourth wave of the SIPP and compare them to the figures reported in the FFA household sector. Scholz (1994) updates the AEK study using the 1989 SCF, and Eller (1994) provides a comparison of the aggregate estimates of households'

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6. The 1989 SCF point estimates in this paper use the SRC-weights available on the public use tape. However, the bootstrap weights necessary for calculating the 1989 standard errors correspond to the FRB-weights used in Kennickell and Shack-Marquez (1992). For consistency with the SRC-weight point estimates, I scaled the bootstrap estimates by the ratio of the SRC-weight point estimate to the FRB-weight point estimate. The 1992 SCF point estimates and standard errors were calculated using FRB-weights; therefore, no adjustments were necessary.

7. The SCF inquires about the value of personal trusts; however, the questions concerning the financial asset composition of the investment are broad and lack sufficient detail to adjust the SCF measures of specific financial assets held directly by households to include those held by personal trusts.

assets and liabilities from the 1988 and 1991 SIPP to the figures reported in the FFA. However, results from these studies generally share the flaw of not adjusting for the definitions of the asset and liability categories in the FFA. In a sense, the studies have too often compared apples and oranges.

This analysis addresses some common misperceptions about the definitions of the various components of the FFA household sector's assets and liabilities. It describes more fully the reconciliations between the SCF and FFA measures, provides a more detailed classification of assets and liabilities, and offers alternative explanations for the discrepancies between the SCF and FFA household wealth components.

The results show that for some asset and liability categories the SCF and FFA estimates are quite close in 1989 and 1992. The measures of liabilities match up better than those for assets. Indeed, estimates of total liabilities differ by only 0.5 percent in 1989 and 1.7 percent in 1992; the measures of home mortgage debt owed by the household sector differ by 1.4 percent in 1989 and by only 0.7 percent in 1992. Differences in total assets are 1.9 percent in 1989 and 2.7 percent in 1992. For some asset categories, such as owner-occupied real estate and pension assets, the FFA and SCF estimates are very close. However, for other assets, such as saving deposits and closely held shares of corporate equity, considerable differences remain due to unresolved definitional issues or measurement error in either data set.

II Assets of the Household Sector

Several adjustments to the SCF and FFA figures are necessary to place them on a comparable basis. These adjustments account for the broader inclusion of assets in the FFA and the different treatment of IRA/Keogh accounts and employer-sponsored private pension assets between the FFA and the SCF.

The most crucial adjustment to the asset categories in the FFA is the exclusion of the assets of personal trusts, nonprofit organizations, and unit investment trusts which are not included in the SCF estimates. These assets account for about 9 percent of the FFA household sector's financial assets in 1989 and 1992. Failure to adjust for these asset holdings results in large discrepancies between the FFA and SCF estimates of several asset categories, such as municipal securities, Treasury securities, publicly traded equities, and corporate bonds.

Adjusting for assets held by personal trusts, nonprofit organizations, and unit investment trusts has become much easier for researchers. Assets of personal trusts administered by banks and nondeposit trust companies were removed from the FFA household sector's direct asset holdings in the September 1992 Z.1 publication; they appear as the claim, "Investments in bank personal trusts", on the household sector balance sheet. [8] Also, the FFA provides supplementary annual estimates of the financial assets of nonprofit organizations over the period 1987 to 1992.[9] Using these estimates, the assets of nonprofit organizations can be easily removed from the FFA household sector.[10] Estimates of assets held in unit investment trusts are available from the Investment Company Institute.

In this analysis, the distribution of IRA/Keogh assets in the SCF relies on several assumptions concerning the roles of financial intermediaries in the economy. In the SCF, IRA/Keogh assets are a separate transaction category, but in the FFA the value of IRA/Keogh accounts are recorded within the asset category that they are held. For example, an IRA/Keogh account in a certificate of deposit would be captured within time and savings deposits in the FFA. In order to compare the SCF and FFA asset estimates on a consistent basis, the SCF responses regarding IRA/Keogh accounts were distributed among time and savings deposits, money market mutual funds, and mutual fund shares based on the type of financial institution that the respondent said held the account. IRA/Keogh accounts at depository institutions were assumed to be held in time deposits; those at brokerage firms were largely assigned to mutual funds.

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8. The assets of the bank personal trusts sector are shown on table L.131 of the Z.1 statistical release. The source for the bank personal trusts assets is <u>Trust Assets of Financial Examination Institutions</u> published by the Federal Financial Institutions Council.

9. The annual estimates shown on table L.100.a were published for the first time in the September 1994 Z.1 publication.

10. The AEK study also attempted to adjust the FFA household sector estimates for the financial asset holdings of nonprofit organizations; however, source data for nonprofit organizations asset holdings are nonexistent for 1963 and very limited for 1983.

Estimates of private pension fund reserves are difficult to reconcile between the FFA and the SCF because of differing treatment of the assets of defined-benefit pension plans. In the FFA, private pension assets include the current value of investments in defined-benefit funds. In the SCF, the assets of defined-benefit plans cannot be measured. Generally, households know only their current benefits or the formula for their expected benefits at retirement, but these liabilities are not indicative of the current value of assets in the defined-benefit pension fund.

At best, only assets in defined-contribution pension plans can be compared on a consistent basis. On this basis, the FFA and SCF pension estimates are quite close in 1989 and 1992. Defined-contribution pension assets in the FFA totalled about $685 billion in 1989 and $922 billion in 1992. The comparable SCF estimates were $720 billion in 1989 with a standard error of $60 billion and $863 billion in 1992 with a standard error of $112 billion.[11] Both FFA estimates are well within one standard error of the corresponding SCF estimate.

Deposits

Total deposits in the FFA are made up of checkable deposits and currency, time and saving deposits, and money market mutual fund shares. The FFA provides estimates of each of these transaction categories separately, and comparable estimates for each deposit type can be calculated from the SCF. As shown in table 1 and table 2, the FFA estimates of total deposits is significantly larger than the SCF estimates--$796 billion (2.2 standard errors) and $870 billion (6 standard errors) above the 1989 and 1992 SCF estimate, respectively.

Much of the difference in total deposits between the SCF and FFA stems from a discrepancy in time and savings deposits. The estimates reported in the FFA are substantially higher than the SCF figures in both 1989 and 1992, even though time and saving deposits derived from the SCF include IRA/Keogh accounts at depository

11. The SCF inquires about defined-contribution pension assets, thrift savings, 401(k), profit sharing and stock purchase plans, and supplemental retirement accounts, specifically excluding IRA/Keogh accounts in these questions.

institutions.[12] For 1989, the FFA reported that households held $2,398 billion in time and savings deposits, while the population estimate from the SCF is $1,555 billion. A similar gap appears in the 1992 FFA and SCF estimates. Although the standard errors of the SCF estimates are quite high at $344 billion and $110 billion for 1989 and 1992, respectively, the FFA estimates are significantly different from the SCF estimates.

Curtin, Juster, and Morgan (1989) pointed out that discrepancies of this magnitude are disturbing because one would expect that households would be able to accurately report their savings deposits. However, validation studies, albeit somewhat dated, have shown that households tend to underreport their savings deposits.[13] The most common problem is that households forget one or more savings accounts.

The authors also conjectured that the FFA figures for time and savings deposits were less reliable than the SCF estimates mainly because they believed that the estimates in the FFA household sector could not be "disentangled" from the value of time and savings deposits held by closely held businesses. However, several observations tend to dispute this claim. First, FFA source data for liquid assets held by nonfinancial corporations, which includes closely held corporations, comes from balance sheet information filed by corporations with the IRS. There should be no reason for closely held corporations to misreport their time and savings deposits. Also, separate work done by Samolyk (1996) using the 1989 National Survey of Small Business Finance showed that unincorporated businesses hold only about half the time and savings deposits that the FFA had previously attributed to them. Moreover, the $800 billion gap between the FFA and SCF estimates is larger than the total amount of financial assets held by all unincorporated businesses and represents over 20 percent of total financial assets held by all nonfinancial corporate businesses. While there is no doubt some misreporting by closely held businesses, both corporate and noncorporate, it is difficult to

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12. Time and savings deposits in the FFA include negotiable certificates of deposit, passbook savings accounts, and money market demand accounts (MMDAs).

13. Ferber (1965, 1966,a, 1966b), Ferber, Forsythe, Guthrie, and Maynes (1969), Mandell and Lundsten (1978), and Maynes (1965). AEK made note of these studies as a possible explanation for the mismatch between the SCF and FFA estimates for savings and time deposits.

imagine that it could explain the considerable difference between the SCF and FFA estimates.

While most of the difference between the SCF and FFA time and savings figures is likely to be attributed to underreporting by households in the SCF, two additional factors may be the asset holdings of nonreporting nonprofit organizations and personal trusts administered by nonbank fiduciaries in the FFA. Nonprofit organizations with less than $25,000 in annual gross receipts, religious organizations and personal trusts administered by individuals (lawyers, friends, or relatives) are not required by law to report balance sheet information. As a result, these assets remain in the FFA "pure" household sector. Although aggregate data on smaller nonprofit and religious organizations are not available, it is likely that their assets are concentrated in deposits rather than riskier financial assets, such as corporate stocks and/or bonds.[14] As for personal trusts administered by individuals, these types of trusts may hold a higher proportion of "safer" assets than their bank counterparts. Individual administrators may be less financially sophisticated and, therefore, unwilling to take risks given current fiduciary responsibility laws. Of course, these reasons for the discrepancy between the FFA and SCF estimates of time and savings deposits are pure conjecture and are only mentioned as further possible explanations.

Also, studies by AEK and Scholz (1994) did not compare definitionally equivalent estimates of time and savings deposits between the FFA and the SCF. The researchers mistakenly categorized money market deposit accounts (MMDAs) as checking accounts in their comparisons to the FFA. Money market deposit accounts are a part of time and savings deposits in the FFA. Their results understated the amount of time and savings deposits derived from the SCF, exacerbating an already significant difference with the FFA. For example, Scholz's total of time and savings deposits from the 1989 SCF is $345 billion lower than the figure estimated in this paper which includes MMDAs.

Within the other deposit categories, the FFA and SCF estimates of checkable deposits are fairly close for 1989, but farther apart for 1992. The difference is only $16 billion (0.6 standard

14. While not remotely considered evidence, the limited number of balance sheet statements of churches that I have seen showed nearly 100 percent of assets in deposits, mainly time and savings deposits.

error) for 1989 and a somewhat larger $87 billion (5.8 standard error) for 1992. The FFA figures reported in tables 1 and 2 exclude currency held outside of depository institutions. As noted in AEK, this adjustment is necessary in order to maintain comparability with the SCF. The SCF only inquires about checking account balances and not cash-on-hand balances. Without the adjustment, the FFA estimates would be nearly twice the SCF estimates.

Also, as pointed out by AEK, there is some mismeasurement in the FFA checkable deposit figures due to float. Measured float occurs when a household writes a check and deducts it from their personal register, and although deposited, the check has not been debited from the household's account by the bank, resulting in a double counting of checkable deposits in process. Float raises the FFA figure relative to the SCF figure because households report their checking balance net of all transactions to the interviewer; whereas, depositories record the total checkable deposit liabilities on their quarterly reports of condition--the benchmark source for checkable deposits in the FFA. The FFA reports a figure for measured float on private domestic deposits, and although float due solely to households inter-sectoral checking transactions cannot be parsed out, transactions by households are most likely responsible for the bulk of measured float. Float on private domestic deposits was $19 billion in 1989 and $48 billion in 1992, accounting for 100 percent and 44 percent of the difference between the FFA and SCF checkable deposit estimates for 1989 and 1992, respectively.

Money market mutual fund shares (MMMFs) were calculated from the SCF by combining an estimate of money market accounts held with brokers[15] and an estimate of IRA/Keogh accounts held in MMMFs. IRA/Keogh accounts held in MMMFs were calculated by taking a portion of the total amount of IRA/Keogh accounts held at brokers.[16] This procedure differs from AEK and Scholz who assumed that all IRA/Keogh accounts at brokers were invested in MMMFs. A more realistic assumption, based on data from the Investment Company Institute, is that IRA/Keogh funds placed with brokers are split between MMMFs and

15. The term "brokers" includes brokerage companies, dealers, money market mutual funds, and investment management companies.

16. For 1989, 23 percent of IRA accounts at mutual funds were invested in MMMFs; this ratio fell to 18 percent by year-end 1992 (Mutual Fund Fact Book, Investment Company Institute).

long-term mutual funds.[17] According to the SCF, households held $369 billion in MMMFs in 1989, about $63 billion (2.3 standard errors) higher than the FFA estimate. For 1992, the SCF figure was $332 billion, only $35 billion (0.7 standard error) higher than the FFA estimate.

Credit Market Instruments

In the FFA, the outstanding amount of bonds are reported at face value net of accumulated premiums or discounts to measure the actual amount of funds raised in credit markets. Also, because most institutional bond holders report the purchase price, more commonly referred to as book value, of the security on their balance sheets, the recorded liability and asset holdings in the FFA are fairly consistent with each other. In order to correspond to the FFA accounting method, households' responses on the face value of their bond holdings were aggregated from the SCF.

The FFA and SCF estimates of credit market instruments match up quite well in 1989, but much less so in 1992. For 1989, the FFA estimate of $898 billion is only $26 billion (0.2 standard error) above the SCF estimate. Within credit market instruments, the 1989 FFA and SCF estimates for each transaction category are insignificantly different, with the exception of savings bonds. The FFA estimate of savings bonds is $24 billion (1.6 standard error) higher than the SCF estimate. The FFA source for savings bonds is very accurate since it is the actual amount sold by the U.S. Treasury. Perhaps, this is another case of underreporting an easily forgotten asset by surveyed households. Otherwise, for households' holdings of U.S. Treasury, U.S. agency, corporate and foreign bond obligations, and mortgage assets, the FFA estimates are within one standard error of the SCF estimates. The 1992 FFA and SCF estimates of credit market instruments, however, diverge dramatically. According to the FFA, households held nearly $1.2 trillion in credit market instruments in

17. Of course, IRA/Keogh accounts may be invested directly in stocks and/or bonds through brokers. Although the SCF provides some information on the type of investment for IRA/Keogh accounts, the asset categories are too broad to distinguish between mutual funds, MMMFs, and stock. Therefore, IRA/Keogh accounts were assumed to be invested only in time deposits, MMMFs, and mutual funds based on the location of the account.

1992, while the SCF reported $766 billion, a difference of $409 billion (4.4 standard errors).

There is no definitive explanation for the puzzling movement in the FFA and SCF estimates from 1989 to 1992. Nevertheless, one could conjecture that given aggregate data on net bond issuance by the government and corporate sectors over the 1990 to 1992 period, it is unlikely that households decreased their bond holdings as suggested by the SCF estimates. From year-end 1989 to year-end 1992, aggregate bond debt increased by nearly $1.9 trillion of which the "pure" FFA household sector purchased, on net, 15 percent.[18] This proportion is not abnormally high relative to the previous three year period, 1987 to 1989, in which the "pure" household sector purchased, on net, 22 percent of the increase in aggregate bond debt. Households tend to supply funds directly to the credit markets. Therefore, it is unusual in a period of bond debt expansion that households would sell off their bond holdings. Also, in order to reconcile the movement in aggregate bond debt with the decline in the SCF figure from 1989 to 1992, the remaining sectors in the economy would have had to increase their 1989 bond holdings by 37 percent or $2 trillion, a substantial amount.

Long-Term Mutual Fund Shares

The definition of long-term mutual funds appears relatively easy to reconcile between the FFA and the SCF. The SCF questions respondents about the market value of any long-term mutual fund shares that they may hold, and categorizes them by type of fund: stock, tax-exempt bond, government and/or government-backed bond, other bond, and combination funds. I have also constructed an additional SCF category of long-term mutual funds that would be invested through IRA/Keogh accounts by including a portion of such accounts placed at brokerage, finance or investment companies.[19] Aggregate SCF estimates of households holdings of these various types of long-term mutual funds are shown on table 3 along with the corresponding FFA estimates.

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18. Bond debt is defined as the outstanding amount of U.S. Treasury securities, U.S. agency securities, municipal securities, corporate bonds, and U.S. residents' holdings of foreign bonds.

19. About 77 percent and 82 percent of IRA accounts were invested in long-term mutual funds in 1989 and 1992, respectively (Mutual Fund Fact Book).

The FFA and SCF estimate of household holdings of long-term mutual funds is quite close for 1989; however, for 1992 the difference between the two measures widens considerably. The 1989 difference is trivial, $20 billion (0.2 standard error). For 1992, the SCF estimate is $130 billion (1.6 standard errors) higher than the SCF estimate.

The wider discrepancy between the 1992 FFA and SCF figures may be due to the rapid growth of variable annuities. Variable annuities, which resemble stock mutual funds, are not contained in the FFA mutual fund estimates. However, SCF respondents may have included variable annuities in their IRA/Keogh responses because they are retirement investment vehicles. Some empirical evidence appears to support this notion. The value of variable annuities totalled only $25 billion in 1989 and can account for the entire difference between the 1989 SCF and FFA estimates. By year-end 1992, variable annuities had grown to $110 billion, accounting for 85 percent of the difference between the 1992 SCF and FFA estimates. Also, the surge in mutual fund IRA/Keogh accounts in the SCF tracks the upswing in economy-wide variable annuities.

Corporate Equities

One common misperception found in previous FFA/SCF comparisons is that corporate equity in the FFA contains only publicly traded stock (AEK, Scholz (1994), Curtin, Juster and Morgan (1989)). The market value of corporate equity in the FFA includes both the value of publicly traded shares, as well as, an estimate of the market value of closely held corporate shares. As a result, previous research compared a narrow SCF definition to a broader FFA classification and concluded that the FFA figures for corporate equity were inexplicably higher than the SCF estimates. In fact, when placed on a definitionally consistent basis, the SCF estimates for total corporate equity are higher than the FFA estimates.[20] The SCF estimate of total corporate equity held by the household sector in 1989 is $666 billion (3.5 standard errors) higher than the FFA

20. The SCF estimate that is definitionally equivalent to the FFA is the sum of the value of publicly traded stock--the SCF question specifically asks respondents to exclude any shares held through mutual funds, pension accounts, trusts, or in business to avoid double counting--and the sales value of privately held subchapter S corporation and other corporate businesses of which the household owns an interest.

estimate of $1.8 trillion. For 1992, the SCF estimate is $163 billion (0.4 standard error) higher the FFA estimate of $2.5 trillion.

The discrepancy between the totals is largely due to different valuations of closely held shares, especially for 1989. For 1989, the SCF estimate of closely held shares is $1 trillion (5.2 standard errors) higher than the FFA estimate. For 1992, the difference between the FFA and SCF estimates, although substantially smaller than in 1989, was still significant at $586 billion (2.2 standard errors).

Two factors may explain the large difference in the FFA and SCF estimates of closely held shares. First, the FFA estimates are based on federal estate tax forms that separate publicly traded shares of corporate equity and mutual funds from privately held corporate shares. Because beneficiaries of estates have an incentive to underreport the value of any inherited closely held businesses, the FFA figures for closely held shares are likely to be downward biased.[21] In fact, work done by Johnson and Woodburn (1994) has shown that asset values based on estate tax returns tend to be lower than those found in micro-panel suveys of households. Second, figures from the SCF may have an upward bias because survey respondents may be more likely to overstate the value of their business to the interviewer. Generally, they do not realize the worth of the business until they actually sell it. The "true" figure for closely held shares is probably somewhere between the SCF and FFA estimates.

As for publicly traded corporate equity, the FFA figures for 1989 and 1992 exceed the SCF estimates. The FFA estimates are $347 billion (6.5 standard errors) and $423 billion (2.9 standard errors) higher than the SCF estimates for 1989 and 1992, respectively. While, this measurement error helps offset some of difference between the FFA and SCF closely held estimates, I do not believe that there exists a mismeasurement relationship in the SCF between the estimates of publicly traded and closely held corporate shares. In other words, the possibility that SCF respondents mixed up their responses to the value of publicly stocks and corporate business interests seems remote. Questions regarding business interests are in a separate

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21. However, some beneficiaries may overvalue the shares in order to establish a high tax basis to minimize future capital gains taxes.

section in the survey and do not resemble those for publicly traded stocks.

Rather, the accounting method used by the Department of Commerce for net purchases of U.S. corporate stock by the rest of the world may be a contributing factor to the discrepancy between the FFA and SCF estimates for publicly traded corporate stock. If a foreign resident owns less than 10 percent of the equity of a U.S. corporation, the Balance of Payments (published by the Dept. of Commerce) records this investment as foreign portfolio stock. However, if a foreign resident owns 10 percent or more, this investment is recorded as foreign direct investment (FDI) in the U.S. In the FFA, only foreign portfolio stock is included in the rest of the world sector holdings of corporate equity. Foreign direct investment is not included because not all FDI is in the form of U.S. corporate equity, and the FFA is unable to apportion total FDI into corporate equity and other forms of financing. Therefore, the FFA household sector's holdings of publicly traded corporate equity may be overstated by the amount of FDI that is held by the rest of the world in the form of corporate shares. FDI totalled $436 billion and $499 billion in 1989 and 1992, respectively, more than enough to bridge the difference between the FFA and SCF estimates of publicly traded corporate equity.

Owner-Occupied Housing

On the aggregate balance sheet, the value of owner-occupied housing contributes the biggest share to household wealth, and often, individual households view the value of their home as an indication of their financial well-being. The value of owner-occupied real estate and changes in the value of owner-occupied real estate can have a significant effect on households spending and saving decisions. Thus, accurate measurement of house values becomes paramount in analyzing feedback effects from changes in household balance sheets.

In the FFA, special effort is made to construct a reliable measure of the market value of owner-occupied real estate. Owner-occupied real estate in the FFA consists of the value of single-family properties, condominiums, cooperatives, vacant homes for sale, and vacant land. Benchmarks for these series are estimated every two years using data from the biennial American Housing Survey

(AHS). The values for the intervening years are based on movements in the FNMA-FHLMC Existing Home Repeat Sales Index and net new invesment in owner-occupied structures available from the Bureau of Economic Analysis. Moreover, the FFA takes into consideration the tendency for survey respondents in the AHS to overstate the value of their home and reduces the AHS estimate by 6 percent.[22]

In this study, the value of owner-occupied real estate estimated from the SCF is simply the population estimate of the value of the principal residence (excluding farms) owned by the respondents. Also, in order to fully reconcile the FFA and SCF estimates, the value of vacant land was deducted from the FFA figure. The FFA and SCF measures of owner-occupied real estate match up extremely well in both 1989 and 1992, differing by only $127 billion and $109 billion, respectively. Also, the FFA estimates are within one standard error of the SCF estimates.

Equity in Noncorporate Business

In the FFA, equity in noncorporate businesses is derived using a balance sheet approach; total assets less liabilities in the noncorporate sector equal equity in noncorporate business. Included in the FFA noncorporate tangible asset figure is the value of one-to-four family rental properties; however, the corresponding mortgage debt for these properties is not included.[23]

In the SCF, the estimate for the value of noncorporate business is based on responses to the question "How much is your family's share of this business worth; that is, how much could you sell it for today?" To derive an estimate from the SCF that is comparable to the FFA, responses on the value of business interests were sorted by form of ownership to separate sole proprietorships, partnerships, limited partnerships, and other noncorporate business arrangements from corporate enterprises. Also, the SCF estimate of the value of one-to-four family rental properties ($963 billion and

22. Using the AHS, Goodman and Ittner (1992) find that the average home owner overestimates the value of his/her house by 6 percent.

23. The source data for tangible assets of the noncorporate sector are from the Bureau of Economic Analysis and include the value of rental property. The source data for the mortgage debt of the noncorporate sector come from the Internal Revenue Service and do not include mortgage debt on the one-to-four family rental properties owned by households.

$1.2 trillion in 1989 and 1992, respectively) was added to the value of noncorporate business interests to obtain the SCF estimate of noncorporate business equity.

For 1989, the FFA estimate of households' noncorporate equity is $219 billion lower than the SCF estimate of $2.8 trillion, but the standard error of the SCF estimate is quite high at $781 billion. More than half of the standard error is the result of imputing a value for noncorporate business equity in the SCF. For 1992, the FFA estimate is $419 billion (1.2 standard error) lower than the SCF estimate.

III Liabilities of the Household Sector

To compare estimates of liabilities of the household sector in the FFA with those in the SCF on a consistent basis requires several adjustments to both datasets. First, liabilities incurred by nonprofit institutions must be removed by eliminating commercial mortgages, trade credit, and most tax-exempt debt from total household liabilities in the FFA.[24] Similarly, deferred and unpaid life insurance premiums were also deducted from the reported FFA total because the SCF does not inquire about this information. Lastly, although the SCF contains information on the amount of multi-family, farm, and commercial mortgage debt held by households, none of this type of debt is included in the SCF figures reported below. The reason is that the household sector in the FFA is not a direct debtor for these types of mortgages.[25]

Once the adjustments are made, total liabilities in the FFA and the SCF are fairly close. For 1989, the FFA estimate of $3,121 billion is only $16 billion (0.2 standard error) different than the SCF estimate. For 1992, the gap between the FFA and SCF estimates is wider with the FFA estimate $63 billion (0.3 standard error) higher than that derived from the SCF.

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24. Seventeen percent of tax-exempt debt in the FFA household sector remained in the adjusted FFA total liabilities because this debt was issued by nonprofit educational institutions to finance student loans and would be included in student loans in the SCF.

25. However, the liabilities of noncorporate business, which includes these types of debt affect the household sector balance sheet through the transaction category, "equity in unincorporated business."

Table 4
Total Household Liabilities
(Billions of Dollars)

	1989	1992
FFA estimate[1]	**3,121**	**3,724**
SCF estimate[2]	**3,105**	**3,661**
	(76)	(225)
Difference[3]	**-16**	**63**

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1. Home mortgage debt, consumer credit, bank loans not elsewhere classified, other loans, security credit, and a portion of tax-exempt debt.
2. Home mortgage debt, consumer credit, bank loans not elsewhere classified, margin loans, and loans against life insurance policies.
3. FFA minus SCF estimate.
4. Number in parentheses is the standard error of the SCF estimate.

Home Mortgages

Estimates of mortgage debt on one-to-four family residences, the largest component of household debt, is the most difficult to reconcile. Careful grouping of the SCF responses on home loans is required to produce an estimate consistent with the FFA. In this study, the SCF estimate of home mortgage debt sums responses on:

; all first mortgages, second mortgages and home equity loans on the respondents' principal residence;

; the utilized portion of home equity lines of credit;

; mortgages on one-to-four family investment (rental) properties owned by the respondents.[26]

; mortgages on real estate that has been sold and mortgages on vacation homes; and

; business loans secured by the owner's principal residence that were not reported under second mortgages or home equity

26. One might expect these mortgages to be a liability of the noncorporate sector in the FFA. However, net income from rental properties not owned by a business is reported on Schedule E of the 1040 Personal Income Tax Form, and the Internal Revenue Service does not include this type of mortgage debt in their data on noncorporate businesses, which is the major source for the noncorporate sector in the FFA.

loans.[27] This last component was determined to be 1/2 of total business loans secured by personal assets based on information from the 1992 survey.[28]

This definition of home mortgage debt in the SCF is broader than that calculated in previous studies. For example, the AEK study does not appear to have included mortgage debt on one-to-four family rental properties and business loans secured by the owner's principal residence. Rather, the estimate of home mortgage debt in AEK was defined as "principal outstanding on mortgages against principal and secondary residences and other small residential properties." Investment properties would not qualify as residences in this definition, and it is unclear whether they would have been included in other small residential properties. The omission of these two sources of mortgage debt may explain why AEK's SCF estimate of home mortgage debt for 1983 was significantly lower than the FFA estimate.

In contrast, if adjusted for definitional differences, the SCF and FFA estimates of home mortgage debt are quite close. For 1989, the FFA estimate of $2,174 billion is about $31 billion (0.6 standard errors) below the SCF estimate. For 1992, the FFA estimate of home mortgage debt was only $19 billion (0.1 standard error) lower than the SCF estimate.

27. Home mortgage debt in the FFA is derived from the balance sheets of commercial banks and thrift institutions and the amount of home mortgages held in federally related mortgage pools. As a result, the ultimate debtor from the lender's perspective is the household, not the business.

28. The 1992 SCF inquires about the type of loan that was used for investment into a business. About 1/2 of these respondents reported second mortgages and home equity lines of credit as the source of funds for their business.

Table 5
Mortgage Debt on One-to-Four Family Residences
(Billions of Dollars)

	1989	1992
FFA estimate	**2,174**	**2,723**
SCF estimate	**2,205**	**2,742**
	(55)	(155)
Comprising:		
Principal residence	1,674	2,106
Home equity lines of credit	81	85
Investment properties	183	246
Real estate sales	11	23
Business loans	257	281
Difference[1]	**-31**	**-19**

1. FFA minus SCF estimate.
2. Number in parentheses is the standard error of the SCF estimate.

Consumer Credit

Consumer credit is the second largest category of household debt. Again, the SCF responses must be grouped carefully to correspond to the definition of consumer credit in the FFA. SCF responses on car loans, credit card debt and charges, student loans, and personal loans for furniture, education, mobile homes, professional expenses, and other items were summed to obtain an estimate of consumer credit from the SCF. In addition, the remaining one-half of business loans secured by personal assets was added to the SCF consumer credit total. This business debt is likely to take the form of a personal loan from a bank or a finance company or reflect personal credit card usage for investment in the business. Such debt would be included in the consumer credit total reported in the FFA.

One adjustment to the FFA consumer credit figures is necessary to achieve comparability between the SCF and the FFA estimates. Student loans granted by nonprofit educational organizations and student loans transferred to the Student Loan Marketing Association (SLMA) must be added to the FFA consumer credit figures.[29] Respondents in the SCF report total student loan debt and generally

29. Consumer credit in the FFA includes only student loans kept on the books of financial institutions or those loans held indirectly by depositories via asset-backed security obligations.

would not know if those loans were funded by a nonprofit organization or subsequently sold to SLMA by their financial institution.

As shown in table 6, the two measures of total consumer credit are extremely close for both 1989 and 1992. For 1989, the difference is only $14 billion (0.4 standard error); for 1992, the gap is a tiny $8 billion (0.1 standard error). Some caution should be used in comparing the FFA and SCF estimates for revolving and other consumer credit. In the SCF figures business loans belong in both these categories, but they cannot be partitioned into revolving and other consumer credit.

Table 6
Consumer Credit
(Billions of Dollars)

	1989	1992
FFA estimate	**807**	**828**
Auto	292	258
Revolving	195	258
Other	290	272
Student loans[1]	29	41
SCF estimate	**822**	**820**
	(34)	(84)
Auto	248	193
Revolving	137	154
Other	180	192
Business loans	257	281
Difference[2]	**-14**	**8**

1. Tax-exempt debt issued by nonprofit educational institutions to fund student loans and student loans held by the Student Loan Marketing Association.
2. FFA minus the SCF estimate.
3. Number in parentheses is the standard error of the SCF estimate.

IV Summary

Although previous researchers have compared FFA and SCF estimates, often the estimates were not on the same definitional basis, leading to mistaken conclusions. For example, FFA estimates of total corporate equity include shares of closely held corporations. Previous research had counted only the value of publicly traded shares and determined that the FFA estimates were inexplicably higher than the SCF estimates. However, when the value of closely held shares is added to the SCF estimate of corporate equity, the SCF estimates are, in fact, higher than the FFA estimates.

After careful adjustments for conceptual and definitional differences in the FFA and SCF transaction categories, I find that the FFA and SCF estimates for total liabilities and total assets are extremely close in 1989. Indeed, the 1989 FFA estimates of home mortgage debt, consumer credit, U.S. Treasury securities, corporate and foreign bonds, pension assets, mortgage assets, checkable deposits, mutual fund shares, money market mutual funds, and owner-occupied real estate are all within one standard error of the SCF estimates. The match up between the FFA and SCF estimates is worse for 1992. Nevertheless, the FFA estimates of money market mutual funds, U.S. agency securities, mortgage assets, pension assets, home mortgage debt, consumer credit, and owner-occupied real estate are within one standard error of the SCF estimate.

The main trouble between the SCF and FFA estimates primarily lies in the consistent and offsetting differences between the SCF and FFA estimates for time and saving deposits and the value of closely held corporate equity. The FFA shows higher time and saving deposits than the SCF, while the SCF shows higher closely held corporate equity. Curtin, Juster, and Morgan (1989) tried to tie the differences between the time and savings deposits and corporate equity together. While appealing, that explanation does not work given recent evidence from the Small Business Survey on how few time and saving deposits small businesses have on their balance sheets. Future work in the SCF and the FFA would be to investigate better measurements for these two transaction categories.

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Table 1
Selected Assets of the Household Sector[1] : 1989
(Billions of Dollars)

	FFA[2]	SCF	Difference	Standard Error of SCF Estimate
Deposits	2,941	2,145	796	361
Checkable	237	221	16	25
Time & savings	2,398	1,555	843	344
MMMFs	306	369	-63	27
Credit mkt. instr.	898	872	26	114
Savings bonds	116	92	24	15
Treasury sec.	138	140	-2	11
Agency sec.	-3	33	-36	58
Municipal sec.[3]	414	376	38	83
Corp. & fgn. bonds	119	97	22	47
Mortgages	114	134	-20	28
Mutual fund shares	447	468	-21	93
Corporate equities[4]	1,752	2,418	-666	192
Publicly traded	1,152	805	347	53
Closely held	600	1,613	-1,013	196
Equity in noncorp. bus.	2,617	2,836	-219	781
Pension assets[5]	685	720	-35	60
Owner-occ. real estate[6]	5,719	5,846	-127	142
Automobiles	589	643	-54	10
Total	15,648	15,948	-300	911

1. Includes only those assets that can be compared on a consistent basis.

2. Average over the last 3 quarters of 1989 from table L.100 in the March 1996 Z.1 publication less annual estimates of nonprofit organizations (table L.100a) and unit investment trusts (Investment Company Institute).

3. FFA estimate also excludes municipal securities held by investment management accounts; data are available from <u>Trust Assets of Financial Institutions</u> published by the Federal Financial Institutions Examination Council.

4. Total of households' direct holdings of publicly traded stock and the value of closely-held shares; shares of closed-end funds are added to mutual fund shares in the FFA figure.

5. Assets of defined-contribution pension plans only. FFA figure also includes the Federal Employees' Retirement System Thrift Savings Plan.

6. Excludes the value of vacant land.

Table 2
Selected Assets of the Household Sector[1] : 1992
(Billions of Dollars)

	FFA[2]	SCF	Difference	Standard Error of SCF Estimate
Deposits	2,961	2,091	870	144
Checkable	299	212	87	15
Time & savings	2,365	1,547	818	110
MMMFs	297	332	-35	48
Credit mkt. instr.	1,175	766	409	94
Savings bonds	151	75	76	10
Treasury sec.	160	93	67	13
Agency sec.	27	24	3	11
Municipal sec.[3]	471	349	122	60
Corp. & fgn. bonds	208	83	125	20
Mortgages	158	142	16	27
Mutual fund shares	699	829	-130	81
Corporate equities[4]	2,498	2,661	-163	364
Publicly traded	1,490	1,067	423	144
Closely held	1,008	1,594	-586	271
Equity in noncorp. bus.	2,450	2,869	-419	345
Pension assets[5]	922	863	59	112
Owner-occ. real estate[6]	6,166	6,275	-109	283
Automobiles	641	705	-64	17
Total	17,512	17,059	453	1,113

1. Includes only those assets that can be compared on a consistent basis.

2. Average over the last 3 quarters of 1992 from table L.100 in the March 1996 Z.1 publication less annual estimates of nonprofit organizations (table L.100a) and unit investment trusts (Investment Company Institute).

3. FFA estimate also excludes municipal securities held by investment management accounts; data are available from Trust Assets of Financial Institutions published by the Federal Financial Institutions Examination Council.

4. Total of households' direct holdings of publicly traded stock and the value of closely held shares; shares of closed-end funds are added to mutual fund shares for the FFA figures.

5. Assets of defined-contribution pension plans. FFA figure includes the Federal Employees' Retirement System Thrift Savings Plan.

6. Excludes the value of vacant land.

Table 3
Households' Holdings of Various Types of Mutual Funds
(Billions of Dollars)

	1989	1992
FFA estimate	**447**	**699**
SCF estimate	**467**	**829**
	(93)	(81)
Comprising:		
Stock funds	110	187
Tax-exempt bond funds	145	128
Govt./govt.-backed bond funds	23	57
Other bond funds	13	31
Combination funds	36	93
IRA/KEOGH funds	140	333
Difference[1]	**-20**	**-130**

1. FFA minus SCF estimate.