

WEALTH CONCENTRATION USING A COMPREHENSIVE MEASURE OF NET WORTH

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ABSTRACT: Wealth and its distribution are sensitive to the elements of net worth that are measured. Two widely-held types of wealth—defined benefit pensions and Social Security—are typically excluded from data due to challenges in measuring these illiquid, non-market forms of wealth; the result is that most measures of wealth inequality are overestimated. This paper develops a new comprehensive wealth concept, augmenting precise net worth data from the Survey of Consumer Finances with estimates of defined benefit (DB) pension and expected Social Security wealth. We use this combined wealth concept to explore the concentration of wealth among “early saver” households ages 40 to 59 and find that (1) including DB pension and Social Security wealth results in markedly lower measures of wealth concentration and (2) trends toward higher wealth inequality over time, while moderated, are still present.

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1. INTRODUCTION

For the purposes of understanding household economic well-being, wealth offers a different perspective than the more commonly used income or consumption. Wealth represents a store of value that can be consumed during an economic shock, and it also comprises a claim on future streams of income. And, when used to measure distributional outcomes, wealth reveals a different story on inequality. However, many components of wealth—savings accounts, housing, stocks, and retirement plans, for example—have very distinct distributions and carry different implications for our understanding of wealth inequality. Most measures of wealth concentration account for only market wealth that, although more straightforward, may be distributed across the population in a way different from less liquid forms of wealth. In this paper we estimate a comprehensive measure of wealth that includes non-market wealth from both defined benefit (DB) pensions and future Social Security for those just beginning the last half of their working life and show what impact using this broad measure of wealth has on estimates of wealth inequality in the United States, as well as trends over time.

In retirement, both defined benefit pension and Social Security make up a large share of resources in retirement (see Poterba et al., 2011 and others)—and may thereby ‘crowd out’ other forms of wealth. Because of this potential crowd out effect on savings decisions well ahead of retirement, the inclusion of both Social Security and DB pension wealth would yield more useful wealth concentration measures. However, because these types of wealth are not directly available in household-level survey data, they are typically excluded. To remedy this, we take data from the Survey of Consumer Finances (SCF), estimate work life histories to predict future Social Security income streams, and combine this with estimated accrued DB assets and other [market] wealth holdings. We look at households with heads aged 40 to 59, who are reaching peak wealth accumulation, prior to the drawdown of assets in retirement.¹ We find that (1) including DB pension and Social Security wealth results in markedly lower measures of wealth concentration and (2) trends toward higher wealth inequality over time, while moderated, are still present. Specifically, the “90/50 ratio” is reduced by nearly one-third for the 40-49 age group and is nearly cut in half for the 50-59 age group when we shift from non-retirement wealth to combined wealth. The share of wealth held by the “top 5 percent” goes from around 63% to 51% when adding DC and DB pension wealth to non-retirement wealth, and down further to 45% when including Social Security benefits for ages 40–59. The inclusion of each measure, however, has somewhat different effects: SS decreases wealth concentration “at the top” whether looking at the

¹We focused on this group of young savers for two main reasons. In some related work, we use the expanded wealth concept to explicitly explore retirement income adequacy in a population that is approaching, but not yet at, the age of retirement. Also, the estimation of future work histories is less dependent on assumptions, as respondents who are 40-59 have already spent significant time in the workforce, reducing the assumptions necessary to most accurately predict future labor force participation.

top 5% share of wealth or 90/50 ratios; DB decreases the top 5% share, but, in more recent years, actually increases the 90/50 ratio. The top 5 percent share of combined wealth rises 9 percentage points less than non-retirement wealth over the 1989 to 2016 period.

The modern study of wealth inequality depends crucially on data sources that successfully include the assets and debts of affluent households. The unique design of the Survey of Consumer Finances (SCF), which includes a large over-sample of households with high predicted net worth, is motivated by the fact that business and financial wealth in particular are highly concentrated at the top of the distribution. Much of the research exploring wealth inequality in the US uses the SCF, and suggests rising concentration at the top of the distribution (Bricker et al., 2016, Keister and Moller, 2000, Wolff, 1995, Kennickell, 2006). The top one percent share of wealth reported in the SCF rose from 30 percent in 1989 to 38 percent by 2016 (Bricker et al., 2017a).

Research using wealth data not based on special efforts to sample high-wealth households, the Panel Study of Income Dynamics (PSID), for example, reports substantially lower levels of wealth concentration (Fisher et al., 2016, Pfeffer et al., 2016). Because—by all accounts—a high share of wealth is concentrated at the top, surveys not aimed specifically at studying this are likely to be imprecise in measuring wealth inequality. The top 5 percent wealth share for 1989, for example, was 47 percent in the PSID, but 57 percent in the SCF (Wolff, 2006).

A different approach to estimating wealth concentration is to use data estimated from the incomes of affluent households as in Saez and Zucman (2016). This approach uses a capitalization model predicting wealth based on flows of capital income reported on federal income tax forms and rates of return estimated from the Financial Accounts and other macro-data sources, and report similar increases in top wealth shares as what is found in the SCF (Bricker et al., 2016).

Another element required for meaningful estimates of wealth concentration concerns the adequacy of the wealth concept. This is an area, however, where the existing literature continues to fall short. Despite the fact that financing retirement is the dominant reason for saving, nearly all research on wealth concentration relies on data which exclude the assets that are linked to the most important income streams for retirees, namely Social Security and Defined Benefit (DB) pensions. As documented in Poterba et al. (2011) and others, these additional forms of wealth are important resources to retirees—but they also impact decisions leading up to retirement. Social Security may crowd out private savings or is the primary savings mechanism for many lower income households. Defined benefit pensions also substitute for other private retirement savings. Both Social Security and DB pensions disproportionately benefit households below the top portion of the wealth distribution, and estimates of wealth concentration that do not include their value are limited at best and potentially misleading, especially in the context of economic policy discussions.

Studies that incorporate Social Security and DB pension benefits in household wealth, chiefly the Health and Retirement Survey (HRS), do so only for the older, primarily retired, population and do not successfully sample wealthy households, and are thus of limited use for measuring wealth concentration across the population. Some recent efforts, however, have been made to bring DB pension assets into the wealth concept for the purposes of studying wealth concentration. Saez and Zucman (2016) and Smith et al. (2020) allocate the assets of DB pension plans from macro data sources across households in the tax data. Other researchers have started with the SCF microdata, and augmented it by allocating DB plan assets across households based on their plan participation responses in the survey (Devlin-Foltz et al., 2016). Inclusion of improved measures of DB pension wealth results in somewhat lower measures of wealth concentration in the SCF (Sabelhaus and Volz, 2019). In recent work, Sabelhaus and Volz (2020) have also estimated SSW for all SCF respondents. Their estimation approach for SSW and their overall wealth concept are slightly different than ours here, but they reach similar conclusions about the levels and trends of overall wealth inequality.

In this paper, we build on the previous work by Devlin-Foltz et al. (2016) and Sabelhaus and Volz (2019) by further expanding the wealth concept in the Survey of Consumer Finances to include not only defined benefit estimates but also the asset value of Social Security. Social Security benefits alone represent the single-largest source of retirement income for more than 60% of retired households (Social Security Administration, 2016). For large numbers of households it is — or will be — the sole source of income in retirement.

Specifically, the paper creates an expanded definition of household wealth [“combined wealth”] that adds DB pension and Social Security wealth to the asset and debt information already collected in the SCF for households whose head is between 40 and 59 years old. We then project the baseline SCF net worth components forward, following income-wealth specific growth patterns observed in the survey, creating a wealth measure with timing in line with the estimation of expected Social Security wealth at the early eligibility age of 62. We also project forward our DB estimates to reflect expected accumulation of benefits on one’s current job. Incorporating the asset-value of expected retirement benefits, particularly Social Security, has a dramatic equalizing effect on the distribution of wealth. For example, among households with heads ages 40-49, the top five-percent share of wealth excluding retirement plans (DB and DC) and Social Security is 53 percent. Once these assets are included, the top five-percent wealth share falls to 38 percent. Examining trends over time in the distribution of wealth in our “combined wealth” measure, we find that there is also a slight moderation in the trend toward greater inequality once we incorporate all forms of retirement wealth. Wealth is continuing to become more concentrated over time, but at a somewhat slower rate than what is suggested in SCF net worth.

In the next section we describe the primary data we use in this analysis—the SCF—

and detail the methods and additional data sources we use in estimating household level earnings histories used to calculate expected Social Security benefits and aging-forward the private wealth measures to the point of retirement. Finally, we present our findings for the distribution of our combined wealth measure and trends in the concentration of wealth across time.

2. DATA AND METHODS

To improve the measurement of wealth concentration, we use the SCF to develop an expanded measure of wealth that incorporates both estimates of DB wealth as well as the asset-value of Social Security among the 40-59 year old population. We directly incorporate the work of Sabelhaus and Volz (2019) who impute the value of DB wealth to current workers in the SCF using labor market and pension plan characteristics in the survey along with high quality external data on DB plan assets. In this section, we discuss the Survey of Consumer Finances and the methods we use in (1) estimating earnings histories of survey respondents, (2) calculating future Social Security benefits, and (3) aging-forward SCF net worth, as well as DB pensions to the point of retirement.

This current research also represents an improvement on work by others using the SCF to develop broader wealth measures to assess retirement adequacy (Munnell et al., 2006, 2014) or the distribution of wealth (Wolff, 2007, 2014). These studies rely solely on self-reported information on pensions in the SCF to estimate DB wealth for future retirees, which results in levels of predicted pension wealth inconsistent with economy wide pension assets.² Following Sabelhaus and Volz (2019), we instead combine aggregate data on plan assets with the SCF survey data to estimate DB wealth of current workers. (See Section 2.2, below, and Jacobs et al. (2020) for additional details.) In calculating Social Security wealth of current workers, Wolff estimates in-sample human capital equations to predict future covered earnings, and the National Retirement Risk Index (Munnell et al., 2006) statistically matches SCF workers with standardized earnings trajectory based on linked HRS-Social Security earnings records. The static age-earnings profiles embodied in Wolff’s approach do not capture how earnings evolve over time for workers, an element we incorporate into our analysis using cohort earnings trajectories (See Section 2.3, below, for details on the approach used here).

²Wolff (various) combines self-reported future pension coverage with an estimate of future earnings. The National Retirement Risk Index (NRRI) studies also make assumptions about declining generosity across cohorts and about future coverage for younger cohorts without a DB pension.

2.1. SCF DATA

The primary data source we use is the ten waves of the Federal Reserve Board’s triennial Survey of Consumer Finances (SCF) conducted between 1989 and 2016. Several features of the SCF make it appropriate for exploring the distribution of wealth. The survey collects detailed information about households’ financial assets and liabilities, and has employed a consistent design and sample frame since 1989. As a survey of household finances and wealth, the SCF includes some assets that are broadly shared across the population (e.g., bank savings accounts) as well some that are held more narrowly and that are concentrated in the tails of the distribution (e.g., direct ownership of bonds).

The primary purpose of the SCF is to collect information about household balance sheets. Assets measured in the SCF include the value of all financial and nonfinancial assets, including residential and non-residential real estate and privately-held businesses, reported by the respondent at the time of the interview.³ Questions on household debt reflects all types of debt, including credit cards, mortgage debt, student loans, business debts, and other miscellaneous forms of debt.⁴

2.2. DEFINED BENEFIT PENSION AND SOCIAL SECURITY WEALTH

Although the SCF includes very carefully crafted and detailed questions about DB pension plans, two measures missing from the SCF are the exact current asset values of future DB pension payments and Social Security benefits. Respondents enrolled in DB pension plans are asked questions about expected future benefits. Many workers, particularly those further from retirement age, know less about their plans or future benefits, and the information collected from these questions is not necessarily a good reflection of what they will actually receive (Starr-McCluer and Sunden, 1999).

Instead of relying fully on the expected future benefit responses provided by DB plan participants, we rely on the estimated DB pension wealth for SCF households developed by Devlin-Foltz et al. (2016) and Sabelhaus and Volz (2019). Their approach distributes aggregate household sector DB assets from the Financial Accounts of the United States (FA) to both current and future beneficiaries using survey information on benefits currently received for those receiving payments, reported future payments for those with coverage from a past job, wages and years in the plan for those not-yet-receiving benefits. They

³Assets do not include—and the SCF does not collect information on—the value of defined benefit pensions or the implied annuity value behind future or current Social Security benefits of respondents.

⁴The unit of analysis in the SCF is the “primary economic unit” (PEU) which refers to a financially-dependent related (by blood, marriage, or unmarried partners) group living together. This concept is distinct from either the household or family units employed by the Census Bureau, but is conceptually closer to the latter, and throughout this paper PEUs are referred to as “families.” Single individuals living alone are included and simply considered a family of one. More details about the survey sample design are in Appendix A.1.

combine the survey information with real discount rates that fluctuate over time, cohort life tables and differential mortality, and the assumption that current beneficiaries have first claim to DB plan assets.⁵ Devlin-Foltz et al. (2016) find that inclusion of the implied assets from future pension benefits modestly reduces inequality in the distribution of wealth, but they do not include implied wealth from future Social Security benefits in their discussion of wealth distribution. To develop estimates of future Social Security benefits, and their implied asset value, we first must estimate earnings histories of and projections for respondents and their spouses for the SCF.

2.3. ESTIMATING EARNINGS PROFILES IN THE SCF USING CPS COHORTS

In order to estimate future Social Security Old-Age benefits, we need to know a person’s full earnings history up to the time of retirement. Here we estimate this history and also project earnings up to the time of claiming Social Security. To construct a full earnings history and projections going forward for SCF respondents, we apply the growth in earnings over one’s working life implied by the shape of CPS earnings estimates for individuals most similar to the SCF respondent based on birth year, occupation, education level, and sex. While the SCF is not a panel, retrospective questions allow construction of a broad work and earnings history.⁶

From the 1989-2016 SCF data, we take respondents ages 40 to 59 at the time of the interview (and including spouses ages 30 to 65 years old) and use the information reported in the SCF on (1) current occupation, earnings, and tenure, (2) retrospective occupation, earnings, tenure information, and (3) future work expectations. For each respondent and spouse, we estimate a full history of past and future earnings using regression estimates described below, relying on CPS data from 1964 to 2016. Individuals are categorized into earnings-trajectory types by 21 possible birth-year cohorts (three-year cohorts beginning in 1924-26 and ending 1984-86), 3 education levels (less than high school, high school or equivalent, some college/degree), and 5 broad occupation categories ((1) management, professional, and related, (2) service, (3) sales and office, (4) construction, maintenance, production, transportation, and (5) the self-employed from all occupations).⁷ When an individual’s birth year cohort is not observed in the CPS at a given age, we broaden the categories, defining by education-occupation types instead (for men and women each), when an individual’s birth year cohort is not observed in the CPS at those ages. For instance,

⁵See Jacobs et al. (2020) for more details on DB wealth estimation.

⁶For a more detailed discussion of the technical elements of development of the earnings profiles, calculation of Social Security benefits, or the “aging-forward” of the elements of market wealth, see Jacobs et al. (2020).

⁷There are 786 possible types: 630 of the more specific cohort-occupation-education-sex combinations, 126 cohort-education-sex combinations (applied when occupation is unclear), and 30 occupation-education-sex combinations (applied when estimating earnings when outside the ages the birth year cohort is observed in the CPS or some information is missing).

the youngest person whose earnings profile we want to estimate is born in 1986 and 30 years old at the time of the 2016 SCF interview. The estimates are based on earnings for those born in 1984-6 who are up to age 32 in the 2016 CPS. To forecast earnings growth after age 32, we use coefficient estimates from the education-occupation model. Similarly, for the oldest birth year in the earliest (1989) SCF, 1924, we use the education-occupation model coefficients to fill in earnings at ages that are prior to 1964. Those born between 1942 and 1951 are fully covered by the CPS.

For each of type g , we estimate the following regression on log income in the CPS

$$\ln y^g = \beta_0^g + \beta_{\text{age}}^g \mathbf{age} + \beta_{PT}^g PT \quad (1)$$

where $\beta_{\text{age}}^g \mathbf{age} = \sum_{j=1}^4 \beta_j^g \text{age}^j$ and PT is an indicator for part-time work. We then back out an individual's individual effect, β_{0i} , at the time of the SCF survey, so that

$$\beta_{0i}^g = \ln y_i - (\beta_{\text{age}}^g \mathbf{age}_i + \beta_{PT}^g PT_i) . \quad (2)$$

The individual effect in any year is a weighted average of the individual and group constants, and , respectively, where we place more weight on the group average constant as we estimate periods further out from the reported income in the SCF. Specifically, the constant at time t is $\beta_i^{W,t} = \rho^t \beta_{0i} + (1 - \rho^t) \beta_0^g$, where we set $\rho = .85$ to capture persistence in earnings. To predict income, we then apply $\beta_i^{W,t}$, β_{age}^g , and β_{PT}^g for all ages for each individual. Anyone who reports a longest prior occupation type that is different from his current occupation will have different coefficients applied to the relevant years.⁸

We assume when estimating an individual's future income that he or she will work until their expected retirement age, reported in the SCF, which will, of course, not be the case for everyone. The CPS income estimated for a person's type will account for relatively short periods of unemployment, as it includes total income for those who were not employed for the entire year prior. However, with these measures, we will not be able to capture losses in income due to long term unemployment, unanticipated early or partial retirement, or permanent labor force exit through disability. Nonetheless, our estimated earnings profiles of these SCF respondents match CPS profiles quite well.

⁸As an example, suppose we have a 2013 SCF respondent who is 50 years old at the time of the survey, reports current full-time earnings of \$55,000 in his current job of 8 years. The longest prior job he reports, which lasted 12 years, was in a different occupation and ended 14 years ago with his earning \$35,000. He reports having worked full-time every year since age 20 and expects to end work at age 65. The earnings history and projection for this individual would look something like what is shown in Figure A.1 of Appendix A.2.

2.4. SOCIAL SECURITY BENEFITS CALCULATIONS

Armed with an earnings profile for each individual from ages 20 through 61, one can apply Social Security benefit calculations for each household. First, nominal earnings are indexed to age 60, the highest 35 of which are used to calculate each individual’s averaged indexed monthly earnings (AIME). The AIME is transformed to a monthly payment using the primary insurance amount (PIA) formula and the cohort-specific actuarial adjustment. We assume all individuals begin benefits at age 62, which provides a lower bound for total household Social Security wealth (SSW). Future benefits are discounted to survey year using a 3% real discount factor and survival rates which vary by cohort, marital status, race and education (relying on cohort life tables from the Social Security Administration and differential mortality estimates from the Congressional Budget Office).

Secondary earners, typically wives, are entitled to their own benefits calculated off of past earnings, but also spouse and survivor benefits. We assign spouse benefits to the household if expected spouse benefits are larger than the wife’s worker benefits at age 62. If current marriages are less than 10 years at age 62, the wife does not receive spousal or survivor benefits.⁹

The measure of SSW used is net of expected future employee contributions. Thus, for every year following the survey, we calculate expected tax payments of 6.2% and subtract the present value of all future contributions from the gross SSW measure calculated, as detailed above.

2.5. CREATING THE COMBINED WEALTH MEASURE

The combined wealth measure that we analyze below is created by bringing together (1) the implied wealth of Social Security benefits, net of contributions and including future projected work up until the time of retirement, (2) wealth from DB pensions projected to expected job end date and (3) projected future wealth from all assets and debt measured directly in the survey.

To be consistent with the estimates of future Social Security wealth (which reflect expected benefits at age 62, not only those accrued at interview date), we project the anticipated value of SCF sample net worth, not including DB wealth, to age 62 (part (3) above). These projections are based on in-sample estimates of the growth paths of wealth from age 40 to 62 using all 10 SCF cross-sections (1989-2016). We categorize each household into one of nine groups based on its location in the distribution of “usual” income—an income concept included in the SCF that smooths away transitory fluctuations¹⁰—and

⁹The SCF does not collect information about length of previous marriages, thus, some individuals with more than one marriage will not be accurately assigned dependent benefits from a former spouse.

¹⁰See Ackerman and Sabelhaus (2012) for further discussion.

current wealth among households in each survey.¹¹ We then estimate age-wealth profiles separately for each of the nine groups, pooling all surveys, and apply the growth rates from these profiles to project households’ survey wealth forward to age 62. Separate profiles are estimated for housing wealth, defined contribution pension wealth, and all other forms of wealth measured in the SCF.¹²

We also project forward DB wealth to an individual’s expected job ending date, or age 59, whichever comes first. This also brings DB wealth conceptually in line with both Social Security wealth and projected DC wealth to acknowledge that households may have many more years of accumulating benefits, and allows us to better compare age groups over time better. To do so, we estimate from the Sabelhaus and Volz (2019) accrued DB wealth the “generosity factor” implied by the allocation. The generosity factor reflects a percentage of final wages given as a DB benefit for each year of service one accumulates. For example, in a plan with a 1% generosity factor, an individual with 30 years of service would receive 30% of their final wages as a DB benefit. For a given generosity factor, one can project a final DB payment for each individual, given their projected wages. Expected DB payments then are transformed into present discounted value as of survey date. The “combined wealth” measure we analyze below combines the net present value of projected SCF net worth with projected DB wealth and expected future Social Security wealth.

3. RESULTS

In this section, we describe the results for wealth concentration using our combined wealth measure. We show results for both the 40–49 and 50–59 year old age groups over time for each SCF cross-section from 1989 to 2016. We first show summary statistics on non-retirement wealth, the components of retirement wealth, and the combined wealth measure. Then we calculate wealth percentile ratios and concentration measures. We find that there is substantial variation in asset-type holding across the combined wealth distribution. Additionally, by incorporating defined benefit wealth and Social Security

¹¹The categories are all combinations of the bottom 40 percent, next 40 percent, and top 20 percent for both income and wealth. Households were divided into these categories to estimate the growth in wealth for households showing the most similar wealth-accumulating behavior within their income group. The categories were kept relatively broad, however, to capture the group in which a household would be likely to remain over the ages of 40 to 62. For the years 1995–2016, usual income is used to rank households. For the 1989 and 1992 surveys, which predate the usual income question, we use current income.

¹²This is a different approach from the one taken by Munnell et al. (2014) in measuring future wealth. As a part of constructing the NRRI, Munnell et al. (2006) measure, for distinct components of wealth, wealth-to-income ratios by age in the SCF. They calculate target age-specific savings rates—for 48 different household types based on income, composition, homeownership status, etc.—that would be required for the households to achieve a level of wealth where post-retirement consumption is equal to consumption just prior to retiring. Making projections for each component separately, as is done to construct the NRRI, will not necessarily be an improvement for the purposes of this paper. Projections based on a single model of total net worth produced similar growth paths to the current approach of separate projections for housing, retirement and remaining wealth. This results from households within given income-wealth category having relatively similar compositions of net worth components.

wealth, we find lower measures of wealth concentration and moderated, but still present, increases in wealth inequality over time.

3.1. COMPONENTS OF RETIREMENT WEALTH

We first describe the major components of retirement wealth: defined contribution, defined benefit, and Social Security wealth. Broadly, defined contribution and Social Security wealth have grown over time. Defined benefit wealth reached a peak in the 2000s but still remains to be a significant component of wealth.

The average wealth in defined contribution plans held by both age-groups has followed a well-documented path, rising substantially in the years before the financial crisis, experiencing a period of stagnation, and then reaching a new peak in the 2016 survey. Among ages 50–59, mean DC balances were \$53,000 in 1989, rose to \$164,000 in 2007, fell back to \$146,000 in 2013, and rose to a new high of \$177,000 by 2016 (Figure 1, right panel). Mean DC balances are considerably lower among the 40–49 age group, starting at \$35,000 in 1989 and reaching \$94,000 in 2016, after hitting a plateau of around \$80,000 between 2001 and 2013 (Figure 1, left panel). As DC accounts were only introduced in the late 1970s, it is not surprising that there were low average balances in 1989. The data indicate both substantial preparation prior to age 40, but a considerable amount of retirement wealth accumulation is also taking place as households move closer to retirement.

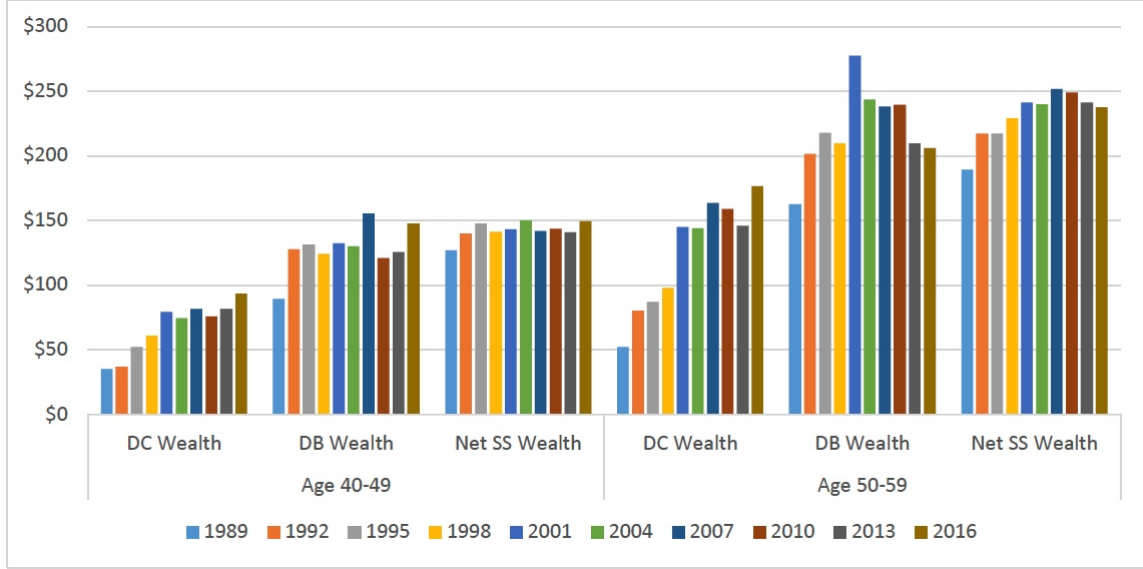
For the 40–49 age group, mean DB wealth started at \$90,000 in 1989, peaked in 2007 at \$156,000, and was \$148,000 in 2016 (Figure 2). Mean DB wealth for 50–59 year olds was \$278,000 in 2001 and fell across the remaining waves, reaching \$206,000 in 2016. Some of the difference in DB wealth we observe between the two age groups is mechanical, the same future benefit has to be discounted further back in time for younger ages. In addition, DB coverage is lower for younger workers, particularly in later years.

Predicted Social Security wealth (SSW) accounts for the largest portion of retirement wealth for both age groups in almost all years. Mean SSW rose from \$127,000 in 1989 to \$150,000 in 2016 among 40–49 year olds, and rose from \$189,000 to \$238,000 over the same period for 59–59 year olds. SSW rises along with earnings growth in the working population, and has fallen slightly for the older age group since the Great Recession. The broad growth in SSW, particularly in the 1990s, comes generally from two sources: higher real wages and increased labor force participation of women.

3.2. COMBINED WEALTH MEASURES

It is well-known that the 2007 financial crisis and housing market crash led to large losses of wealth throughout the economy. The bulk of these losses occurred in assets that are not specifically identified as forms of retirement saving (Bricker et al., 2019). “Non-

FIGURE 1: *Mean Retirement Wealth by Type, Age Group and Year (\$ Thousands)*



Note: DC and DB wealth are values as of the survey date. Net SS wealth is future stream of projected benefits at age 62, discounted back to age at survey.

retirement” wealth here includes housing and other forms of financial and non-financial wealth, and excludes DC and DB plan wealth and expected Social Security wealth.

Note that for all comparisons going forward, all wealth is projected forward, to age 62 for non-retirement wealth, DC wealth and housing wealth, and to the age a current worker with a DB plan expects to separate from her firm. This puts all wealth measures on equal footing, allowing for better comparisons across age groups and over time. Due to life-cycle patterns, those in their 40s are expected (and shown, in Figure 1) to have less wealth accumulated for retirement.

Looking at the first set of bars in the left and right panels in Figure 2, there are only very slight declines in non-retirement wealth over the full-period, save for the short-lived run-up in housing wealth leading up to the financial crisis, for the 40–49 age group. For those ages 50–59, non-retirement wealth increased substantially. The middle set of bars, which combines non-retirement wealth with private retirement wealth, indicate that when DC and DB pensions are included, average wealth has increased over time for both age groups, although the growth has been substantially greater for 50–59 year olds.

Incorporating projected net Social Security wealth shows a more consistent pattern of growth for 40–49 year olds over time; mean combined wealth, including non-retirement wealth, DC and DB pension wealth, and net Social Security wealth for the younger age-group rose from \$943,600 in 1989 to \$1.2 million in 2007, fell to \$962,000 by 2010, and then partially recovered to \$1 million by 2016 (Figure 2). Among 50–59 year olds, it rose from \$900,000 in 1989 to \$1.5 million in 2007, before falling to \$1.3 million 2010 and recovering

to almost \$1.5 million in 2016.

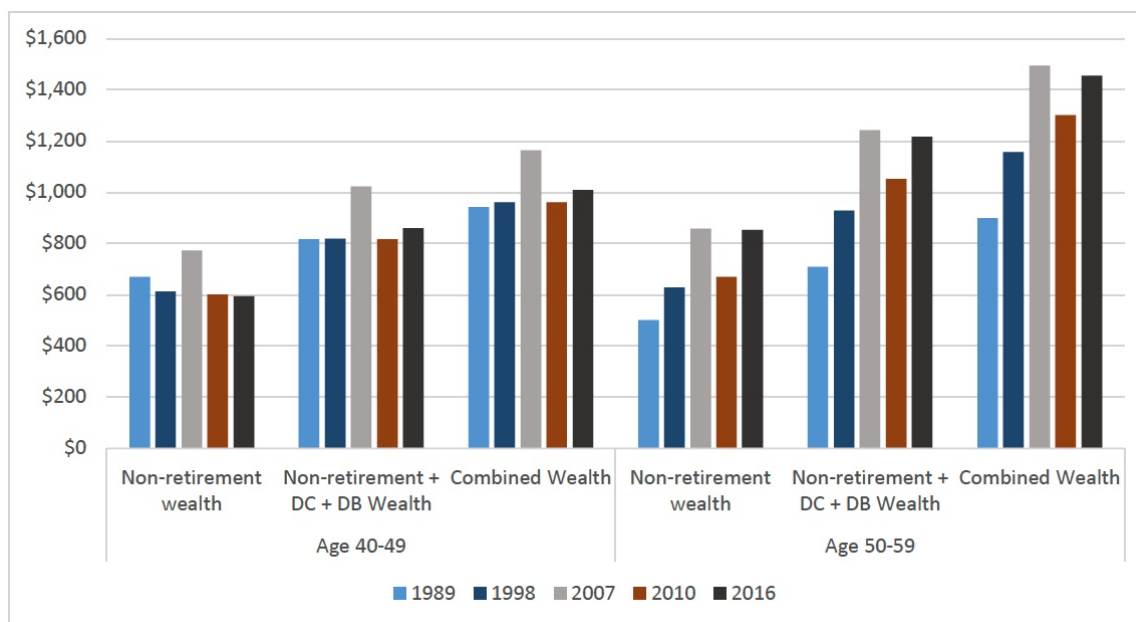
3.3. COMPONENTS OF COMBINED WEALTH ACROSS THE DISTRIBUTION

The individual components of the combined wealth measure have very different distributions. Some components are widely held across all or much of the distribution, while others are only held by households at the very top.

We illustrate the wide variation of asset composition across households, by showing the values of different wealth components at different points of the distribution of combined wealth in Table 1. These results make it very clear that households at the bottom of the combined wealth distribution rely heavily on Social Security, which accounts for almost all wealth at the 10th percentile of the wealth distribution for both age groups and for more than half of combined wealth of households at the 25th percentile among 50–59 year olds. The role of non-retirement wealth has fallen dramatically for households in the bottom quarter of the combined wealth distribution since 1989.

To be sure, Social Security continues to account for a considerable portion of combined wealth even for households higher up the wealth distribution. Among 50–59 year olds, SSW accounts for approximately one half of combined wealth at the median of the distribution and one quarter at the 75th percentile. At these points of the distribution, SSW remains

FIGURE 2: *Mean Retirement Wealth by Concept, Age Group and Year (\$ Thousands)*



Note: Non-retirement wealth, DC wealth, and DB wealth are projected values, as described in the text. Net SS wealth is future stream of projected benefits at age 62, also discounted back to age at survey.

dramatically larger than other forms of retirement wealth. It is only at the top of the distribution (the 90th percentile here) that SSW is surpassed by DB and DC wealth. For both age groups, Social Security only accounts for 15% of combined wealth for households at the 90th percentile of the distribution.

3.4. WEALTH INEQUALITY

Over the 1989 to 2016 period, we find that inequality rose and that the inclusion of Social Security and retirement plan wealth has an impact on both the level of inequality and its trend. In this section, we focus on ratios of the 90th and 50th percentiles of the wealth distribution (P90/P50), a measure of the skewness of the wealth distribution. Among the 40-49 age group, the P90/P50 of non-retirement wealth rose from 2.9 in 1989 to 5.4 in 2016; among 50-59 year olds, it climbed from 4.5 to 7.3, shown in Figure 3. The P90/P50 of combined wealth for the younger age group rose only from 2.4 in 1989 to 4.7 in 2016. For 50-59 year olds, the combined wealth P90/P50 rose from 3.2 in 1989 to 5.7 by 2016.

Including Social Security and retirement wealth results in significantly lower top shares and also shows less growth in top shares. For all households in our sample, we estimate that the top five percent of the distribution held 63 percent of non-retirement wealth, but only 51 percent of wealth including DB and DC pensions, and only 45 percent of combined wealth that also includes net Social Security wealth (Figure 4).¹³ Between 1989 and 2016, the top five percent share of non-retirement wealth rose 22 percentage points, while the share of combined wealth rose 13 points.

The role of the full range of retirement assets in blunting the measured rise in wealth concentration is even more important for the younger of the two age groups (Table 2). For the 40-49 age group, the top five percent share of non-retirement wealth rose 14 points between 1989 and 2016, while the top five percent share of combined wealth rose just 5 points.

4. CONCLUSION

In this paper, we create a new combined measure of wealth that adds DB pension wealth and Social Security wealth to the typical wealth measure. In terms of wealth concentration, the combined measure of wealth results in a lower level of wealth concentration than the typical measure of wealth in all years. Wealth concentration is also rising slower for the combined wealth measure, evidence of the importance of including DB and Social Security wealth in discussions of wealth inequality and economic well-being.

¹³Households are re-ranked in each iteration of expanding the wealth concept.

TABLE 1: *Wealth Levels at Points of the Combined Wealth Distribution, by Age group and Wealth Component, 1989, 1998, 2007, and 2016, real 2016\$ (thousands)*

Wealth Percentile	Ages 40–49					Ages 50–59				
	Non-ret.	DC	DB	Soc. Sec.	Comb.	Non-ret.	DC	DB	Soc. Sec.	Comb.
<i>p10</i>										
1989	10.3	-	-	50.1	78.6	19.0	-	-	65.9	105.5
1998	17.2	-	-	65.4	96.4	15.7	-	-	95.6	140.9
2007	3.0	-	-	50.5	61.6	15.1	-	-	104.3	147.1
2016	1.5	-	-	58.0	69.4	4.0	-	-	86.6	99.0
<i>p25</i>										
1989	183.2	-	-	77.6	315.4	139.9	-	-	120.8	276.7
1998	183.2	0.5	-	81.7	292.5	108.3	-	-	140.7	303.6
2007	118.7	-	-	78.0	233.8	110.9	5.2	-	162.2	315.8
2016	52.7	-	-	94.3	174.3	47.5	-	-	141.3	228.2
<i>p50</i>										
1989	419.3	1.3	21.6	140.7	639.4	233.7	1.4	44.3	215.7	571.3
1998	357.6	3.0	-	167.3	595.0	243.8	8.1	-	264.7	629.5
2007	377.8	23.0	-	165.6	623.8	293.7	38.4	-	301.7	747.6
2016	241.9	7.1	-	173.2	463.5	151.9	15.5	-	271.7	492.6
<i>p75</i>										
1989	668.8	14.0	102.2	181.4	1,045.2	442.5	23.3	299.8	270.3	1,039.9
1998	611.0	39.1	50.5	183.2	1,084.4	447.5	31.9	301.2	328.0	1,237.1
2007	826.2	60.6	-	201.8	1,237.7	637.2	97.9	63.6	344.9	1,488.5
2016	480.7	46.3	-	206.5	1,030.8	380.6	106.8	45.6	306.7	1,235.9
<i>p90</i>										
1989	1,134.7	12.5	133.0	196.6	1,564.7	694.9	68.2	616.8	303.4	1,812.4
1998	822.6	113.9	474.8	219.1	1,736.6	637.7	80.3	898.6	371.1	2,121.6
2007	1,121.6	95.7	548.3	212.4	2,404.6	903.8	194.5	804.4	416.6	3,000.7
2016	979.1	354.3	-	232.3	2,191.3	785.7	301.5	400.6	427.0	2,796.8

Note: Each statistic is actually calculated as the median of the wealth concept for households (by age group and year) within +/- five percentage points of the cut point of the combined wealth distribution. So, for example, the values for P10 of the combined wealth distribution is the median of the wealth concept for households between the 5th and 15th percentiles of the combined wealth distribution

FIGURE 3: *Distribution of Wealth by Concept, Year, and Age Group: Ratio of 90th percentile to Median*

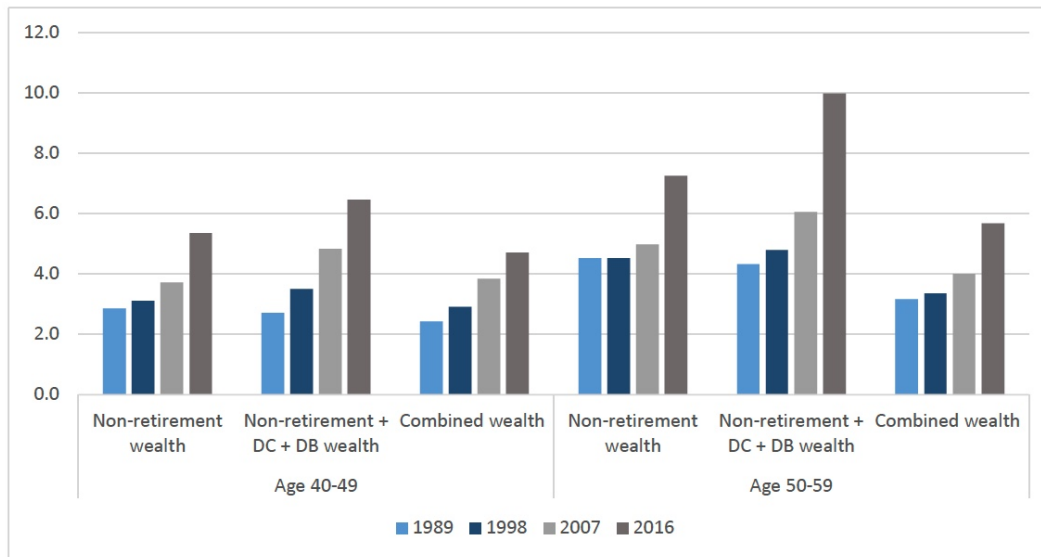


FIGURE 4: *Top 5 Percent Wealth Share by Wealth Concept, Ranked Separately By Wealth Concept for Ages 40 to 59*

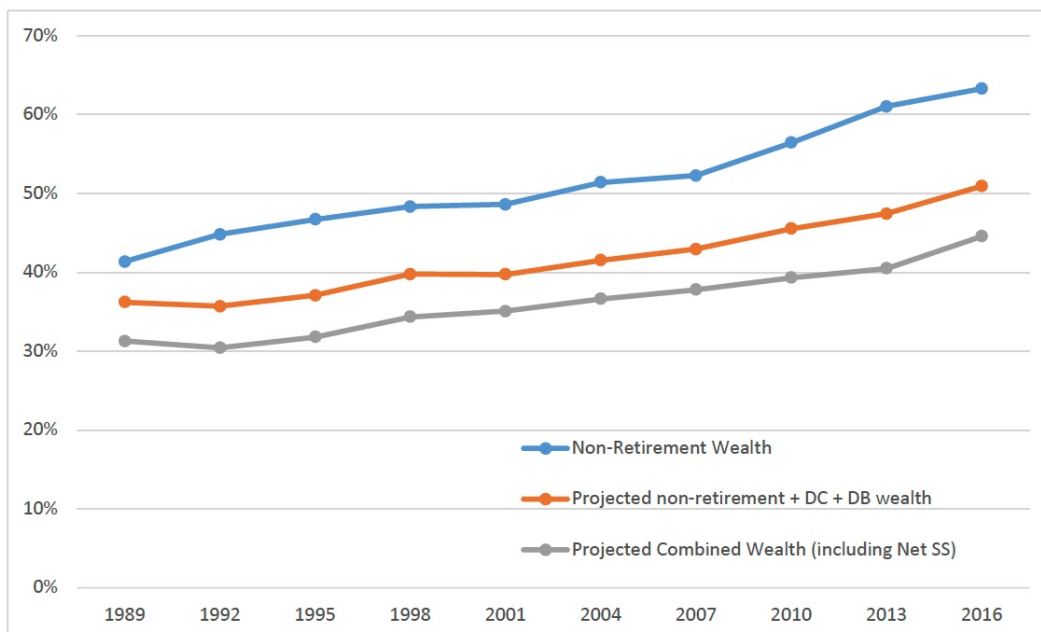


TABLE 2: *Top Wealth Percent Shares*

	Ages 40–49			Ages 50–59			Ages 40–59		
	Non-Ret. Wealth	Non-Ret. + DB + DC	Comb. Wealth (Incl. SS)	Non-Ret. Wealth	Non-Ret. + DB + DC	Comb. Wealth (Incl. SS)	Non-Ret. Wealth	Non-Ret. + DB + DC	Comb. Wealth (Incl. SS)
<i>Top 10%</i>									
1989	48.0	45.9	42.0	57.4	48.5	41.1	52.0	47.2	41.9
1992	53.2	46.6	41.4	59.2	48.4	41.2	55.6	47.7	41.6
1995	52.2	46.2	40.9	63.7	51.5	44.2	56.7	48.6	42.6
1998	52.5	47.9	43.0	65.3	55.1	47.3	58.1	51.3	45.2
2001	52.4	47.3	43.0	67.5	55.8	49.2	59.1	51.6	46.3
2004	57.3	52.0	47.1	65.3	54.8	48.4	61.1	53.9	48.1
2007	58.0	52.6	48.1	68.0	58.2	50.6	62.9	55.7	49.9
2010	66.7	59.9	53.3	68.6	58.2	50.3	67.8	59.3	52.2
2013	69.3	61.0	54.6	73.3	59.5	50.8	71.4	60.5	52.7
2016	64.5	57.2	51.2	79.5	67.8	59.5	73.8	63.8	56.6
<i>Top 5%</i>									
1989	39.1	36.3	32.3	45.2	35.7	29.7	41.4	36.2	31.3
1992	42.9	35.2	30.6	47.6	36.4	29.9	44.8	35.7	30.4
1995	41.8	34.6	30.1	54.3	40.4	33.7	46.7	37.1	31.8
1998	42.8	36.6	32.4	55.5	43.2	36.2	48.3	39.8	34.4
2001	41.9	35.6	31.9	56.5	42.8	36.4	48.6	39.7	35.1
2004	47.2	40.6	36.2	55.6	42.6	36.8	51.4	41.5	36.6
2007	47.1	39.5	35.9	57.3	45.3	39.1	52.3	42.9	37.8
2010	56.5	47.2	41.5	55.5	42.7	36.5	56.4	45.5	39.3
2013	59.3	48.4	42.5	62.5	46.3	38.5	61.0	47.4	40.5
2016	53.0	43.3	37.6	69.3	54.4	47.3	63.3	50.9	44.6

A. APPENDIX

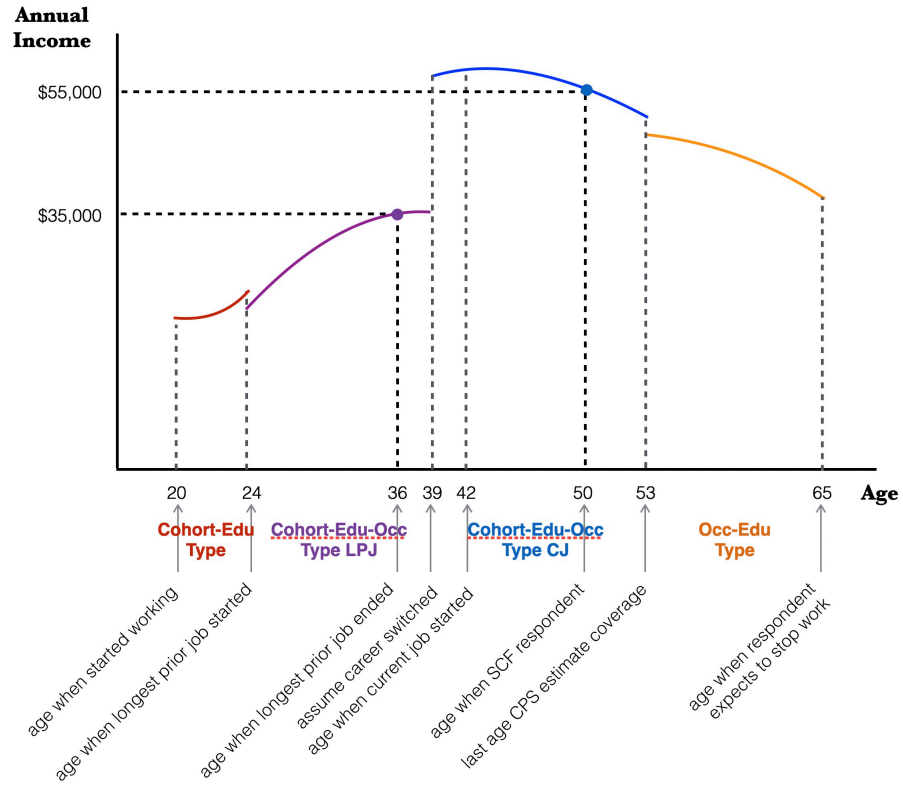
A.1. THE SCF SAMPLE

To support estimates of a variety of financial characteristics as well as the overall distribution of wealth, the survey employs a “dual-frame” sample design. A national area-probability (AP) sample provides good coverage of widely held assets and debts. The AP sample selects household units with equal probability from primary sampling units that are selected through a multistage selection procedure, which includes stratification by a variety of characteristics, and selection proportional to their population. Because of the concentration of assets and non-random survey response rates by wealth, the SCF also employs a list sample which is developed from statistical records derived from tax returns under an agreement with IRS’s Statistics of Income (SOI). See Bricker and Engelhardt (2014) and

Bricker et al. (2017b) for recent discussions of the sampling strategy, the list sample, and the weights used in the SCF. See Wilson et al. (1983) and Internal Revenue Service (1992) for a description of the SOI file. The file used for each survey largely contains data from tax returns filed for the tax year two years before the year the survey takes place. This list sample primarily consists of households with a high probability of having high net worth. For reasons related to cost control on the survey, the geographic distribution of the list sample is constrained to that of the area-probability sample. The SCF combines the observations from the AP and list sample through weighting, and the weighting design adjusts each sample separately using the information available for each sample. The final weights are adjusted so that the combined sample is nationally representative of the population and assets. The SCF weights were revised in 1998 to incorporate home ownership rates by race (Kennickell, 1999). Weights for earlier years were updated to reflect the revised methodology. These weights are used in all calculations.

A.2. EARNINGS ESTIMATE EXAMPLE

FIGURE A.1: *Estimating Earnings Profile Example*



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