

RETIREMENT SAVINGS ADEQUACY IN U.S. DEFINED CONTRIBUTION PLANS

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MOTIVATION & RESEARCH QUESTION

**We evaluate retirement savings adequacy in a large panel of
U.S. workers with a 401(k) account**

- Defined contribution (DC) schemes are gradually replacing traditional defined benefit pensions (DB) in several countries.
- Conflicting Findings in the Literature:
 - The Boston College National Retirement Risk Index: a large fraction of the U.S. population *is not saving enough* for retirement.
 - Most previous studies (Engen, Gale, and Uccello (2005), Scholz, Seshadri, and Khitatrakun (2006), and Hurd and Rohwedder (2012)) find that the vast majority of U.S. workers *is saving adequately* for retirement.

MAIN FINDINGS

- Based on their current account balances, income, saving and investment behavior, and reasonable parameters for risk aversion, discount factor and equity share, close to *three-quarters of the workers in our sample will be forced to decrease “retirement-adjusted” consumption to some extent.*
- The shortfall in savings is often significant: there is a *30% probability that the median worker will have to decrease their annual “adjusted” consumption by 10% once they retire.*
- The *dispersion* in preparedness is related to the generosity of employer contributions, account balances, but also worker saving behavior, which can potentially be changed going forward.
- The shortfall worsens if we introduce a *bequest motive*, decrease the fraction of *housing equity* available to finance retirement-age consumption, or consider *lower expected returns* going forward.
- The results also depend on the assumption about *risk aversion and discount rate distributions* and we provide sensitivity analysis and consistency checks on these results.

METHODOLOGY

We start from data on the actual savings and investment decisions of a panel 350,859 U.S. workers enrolled in 401(k) plans.

For each worker, we simulate 10,000 scenarios of the retirement, Social Security, and outside wealth they will have at age 65

- using as a *starting point* their account value, income, and other characteristics observed in the sample
- a *rich set of future* income shocks, probabilities of withdrawal due to hardship, job separation, and reaching age 59 ½, and investment returns.
- past *patterns* in the savings rates and investment allocations of that and other similar workers, instead of a structural life cycle model.
- we introduce realistic *institutional features* in our model, such as Social Security benefits formulas and federal and local tax brackets, and take Medicare and Medicaid into account.
- we estimate *age-65 DC wealth*, Social Security benefits, and financial and housing wealth outside the retirement accounts.

STEP 1 SIMULATIONS

We simulate:

- Total resources available at retirement: DC wealth, Social Security income, non-DC financial wealth, net housing equity.

using the following inputs

- Worker-specific contribution rates, asset allocations, employer contributions, fees, based on the specific worker and those similar to them.
- Income shocks estimated from the PSID
- Leakages probabilities and fraction of the account withdrawn: Job switch, unemployment spell, hardship, or reaching age 59 1/2.
- ...

OUR DATA

- Our *primary dataset* comes from Edelman Financial Engines and includes information on
 - age, current account balance, contribution rate, salary, portfolio allocation, tenure at the company, and zip code.
- We *combine* this with other information on company and pension plan characteristics from Compustat, CRSP, Capital IQ
- We restrict the *sample* to workers aged between 20 and 65 who are enrolled in defined contribution pension plans at a company that does not offer DB plans, have valid tenure information and at least 1 year of tenure at the firm and work full time.
- This leaves us with **350,859 workers**.

Between 1983 and 2016 the proportion of workers with only a DC account went from 12% to 73%, the proportion of workers with only a DB account went from 62% to 17%, the proportion who have both went from 26% to 10%.

RETIREMENT ADEQUACY MEASURES

Distribution of Consumption Replacement Ratios (CRRRs):

$$\text{CRRR} = \frac{\text{Consumption}_{\text{Retirement}}}{\varphi \text{Consumption}_{\text{WorkingLife}}}$$

This measure can be further adjusted to account for risk aversion and ppl's dislike of uncertainty (CEQR)

φ is a post-retirement expenditure adjustment factor, set equal to 80%

We found two areas of particular concern:

- 1) 75% of American workers are not saving enough to maintain their standard of living in retirement
- 2) there is a 30% probability that the median person will have to decrease their consumption by 10% once they retire—arguably leading to a significantly lower quality of life.

ADDITIONAL CONSIDERATIONS

The *shortfall* we estimate is even larger once we take into account that

- Some workers might want to leave a *bequest*
- Some may be constrained in using *housing equity* to finance retirement
- *Average returns* might turn out *lower* than expected

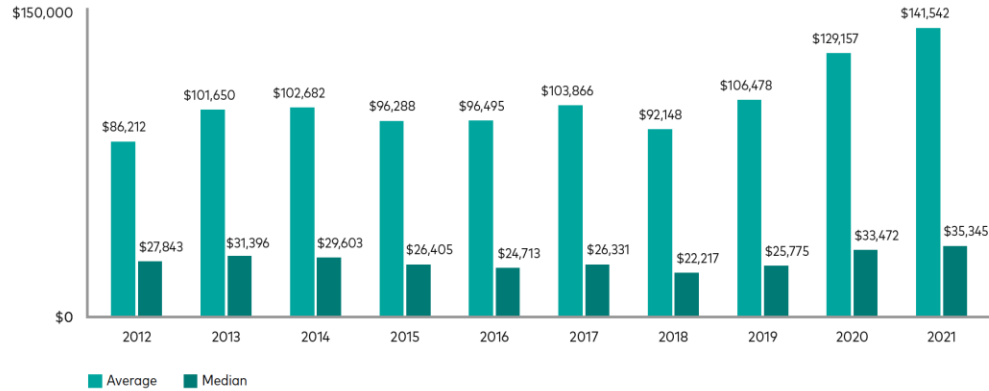
Finally, the uncertainty about the future level of wealth and the likelihood and size of the shortfall will be felt more intensely by *more risk averse* individuals, who as a result will want to accumulate higher levels of wealth

DEMOGRAPHICS, PLAN, AND FIRM FEATURES

- After controlling for account balance, salary, tenure at the firm, and the percent invested in equity,
 - One percentage point increase in worker *contribution rate* increases retirement wealth at age 65 by \$30,580
 - Higher *equity allocation* increases it on average by \$7,120 per 1 pctg point
 - All else equal, workers employed at *companies* with more generous employer matching contributions, companies that are older, are private, invest more, and have higher net income, tend to have more wealth by the time they reach retirement.
- Higher *balances* and higher *employer contributions* are associated with higher wealth at age 65.
- *Financial literacy and education* are associated with higher balances and age-65 wealth.
- *Younger workers* are more likely to have CRRRs close to or greater than 1, while *workers in their 40s and older* are more likely to experience significant shortfalls.

RECENT PATTERNS IN 401K BALANCES

Figure 52. Account balances
Vanguard defined contribution plans



Source: Vanguard 2022.

Consistently low financial literacy



U.S. adults have correctly answered only about **1/2 of the index questions** each year*

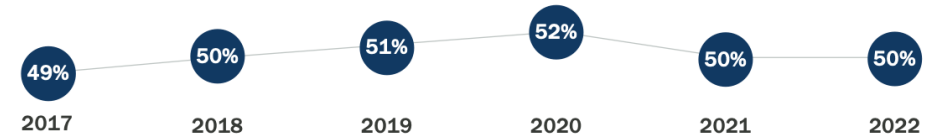
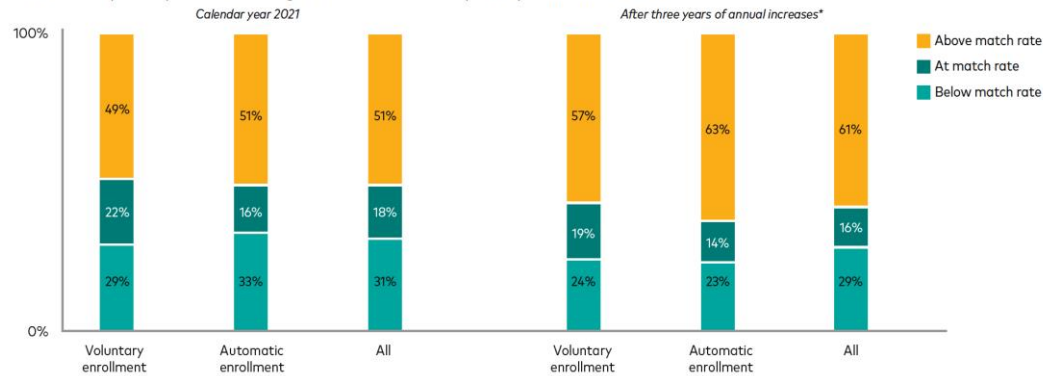


Figure 12. Maximizing the match
Fraction of participants deferring at, above, or below plan-specific match level



* For participants in plans with automatic enrollment designs, annual increases are assumed only for those plans where feature is offered and the participant has not opted out of the feature. For participants in voluntary enrollment designs, annual increases are assumed only for participants who have elected the option. The three-year projection assumes participants enrolled in annual increases do not opt out.

Source: Vanguard 2022.

POLICY DISCUSSION

- *Age-dependent minimum contribution rate*
- *limiting age 59 ½ withdrawals*
- *Automatic rollover at job switches (RESA)*
- *Portable, state-sponsored, retirement accounts*

CONCLUSIONS AND DISCUSSION

- We evaluate retirement savings adequacy in a large panel of U.S. workers with a 401(k) account., and find that 75% of them will have to cut their standard of living to some extent.
- This might be an understatement of the paucity of retirement savings:
 - Data from the Bureau of Labor Statistics indicate that only 68% of private sector workers have access to a retirement plan, and only 51% participate in them.
 - Conservative assumptions: a) our workers never end up in a firm with no plan; b) we have not included in our analysis risks such as potential reductions in Social Security benefits, or higher future medical costs.
- Research in progress: working longer, policy function shocks.



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