The Role of Defined Benefit and Defined Contribution Plans in the Distribution of Family Wealth

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Research Questions

How is family wealth in the form of employer-sponsored defined benefit (DB) and defined contribution (DC) plans distributed?

How did the distribution of retirement assets change between 1989 and 2019, and how did it change for families with various socioeconomic characteristics?

How did the phaseout of DB plans affect the concentration of family wealth?

How sensitive are the estimates of wealth concentration to different inputs into the imputation of DB wealth?

Defined Contribution and Defined Benefit Plans Between 1989 and 2019
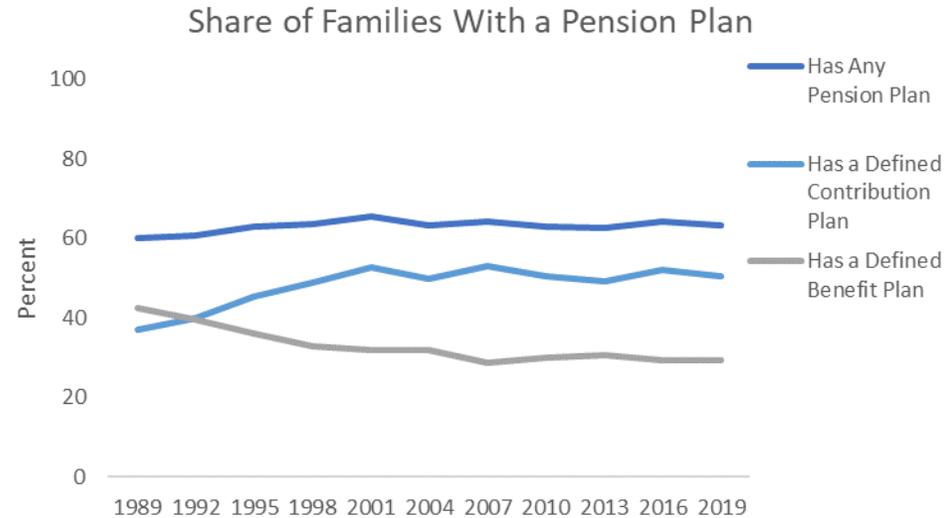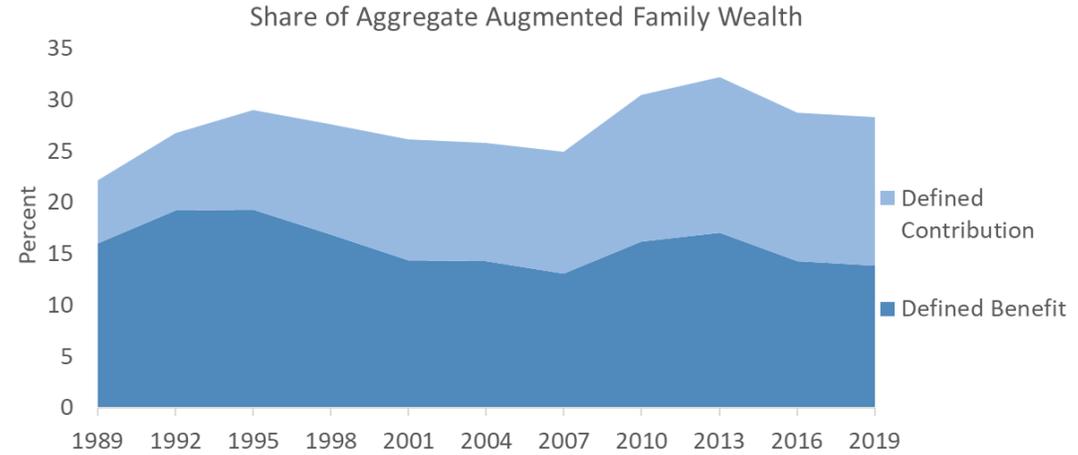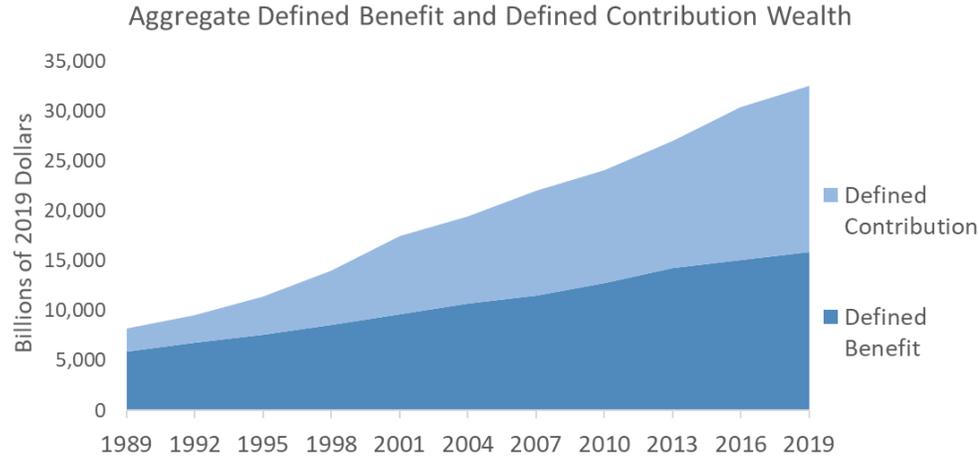
Data

Financial Accounts of the United States (FAUS)

- Provide aggregate assets and liabilities for sectors of the U.S. economy, including aggregate liabilities for defined benefit pensions in Table L.117

Survey of Consumer Finances

- Covers the period from 1989 to 2019
- Triennial, nationally representative, cross-sectional survey that oversamples the top of the wealth distribution
- Key variables related to DB imputation: current defined benefit income, defined benefit participation, expected payment, expected retirement age, respondent and spouse demographics, and earnings

Forbes 400

- Supplements the data from the Survey of Consumer Finances with the wealth of the 400 wealthiest people to more accurately capture aggregate wealth and wealth held at the very top of the distribution

Concepts

Retirement wealth = DB + DC

- Defined benefit assets (DB): assets from employer-sponsored retirement plans that guarantee a certain stream of income in retirement, usually on the basis of (1) a final salary or the highest salary over several years and (2) the number of years of service

- Defined contribution assets (DC): assets from employee-sponsored retirement plans associated with a tax-preferred savings account, such as a 401(k)

Net worth (of family wealth) = marketable assets – debt

- Marketable assets: assets that are easily tradable and have value after the death of the owner, such as home equity, other real estate (net of real estate loans), financial securities, bank deposits, DC pension accounts, and business equity

- Debt: nonmortgage debt, including credit card debt, auto loans, and student loans
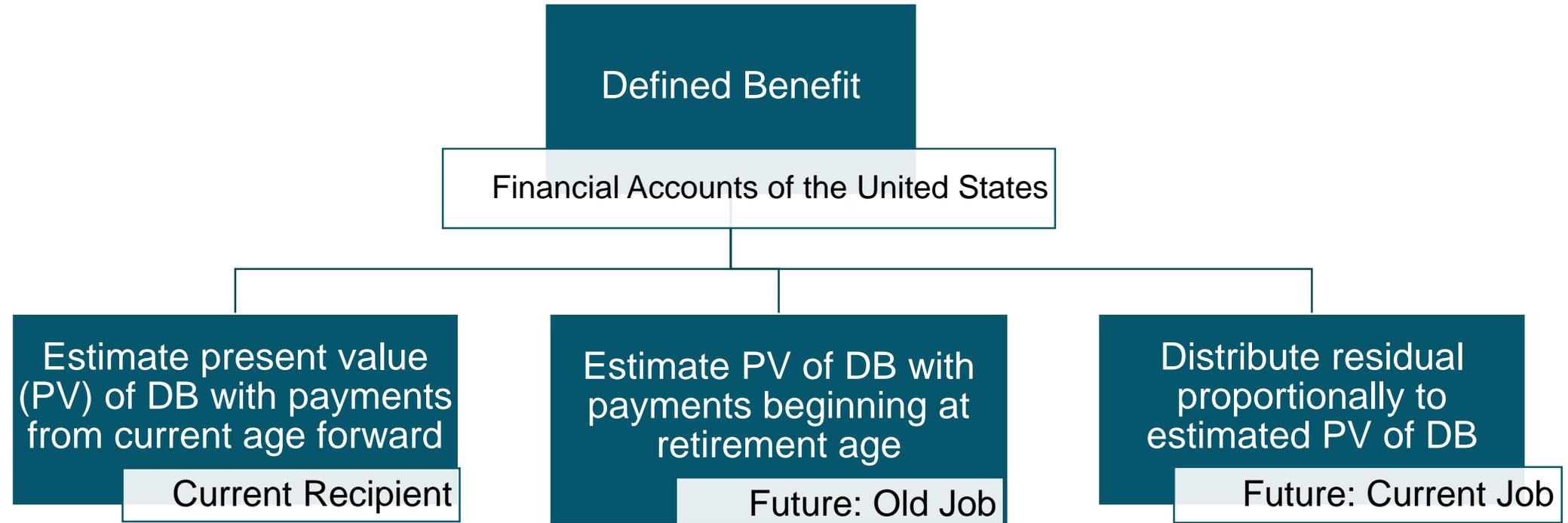
Concepts (Continued)

Nonretirement wealth = net worth – DC

Augmented family wealth: net worth + DB

The unit of analysis is the family.

Methodology: Imputing Defined Benefit Wealth

$$FAUS = DB_{curr} + DB_{fut\ old} + \Delta residual$$

The residual is distributed to current job holders with a DB plan.

Methodology: Imputing Defined Benefit Wealth (Continued)

PV of DB for current recipients

- Present value of lifetime DB stream from current age to 119
- Key inputs: pension income, mortality, discount rate

$$DB_i = \sum_{t=t_{age_i}}^{119} \left[amt_{it} \times \frac{1}{(1 + rate_t)^{t - t_{age\,i}}} \times surv_{it} \right]$$

PV of DB from an old job

- Present value of lifetime DB stream from the expected retirement age to 119

$$DB_i = \sum_{t=t_{ret_i}}^{119} \left[amt_{it} \times \frac{1}{(1 + rate_t)^{t - t_{age\,i}}} \times surv_{it} \right]$$

Methodology: Imputing Defined Benefit Wealth (Continued)

PV of DB from a current job

- Prorated ongoing treatment method: PV of expected DB wealth
  - Prorate PV of lifetime DB wealth on the basis of amount of time worked, expected retirement year, and expected DB income
  - Individual remains in current job until expected retirement and has an accurate expectation of DB income

$$DB_i = prorate_i \times \sum_{t=t_{ret_i}}^{119} \left[amt_{it} \times \frac{1}{(1 + rate_t)^{t - t_{age_i}}} \times surv_{it} \right]$$

- Formula method: estimate PV of DB on the basis of a formula
  - $\max yrs \times \max wage \times generosity\ factor$
  - Key drawback: little information on DB plans' parameters

Methodology: Imputing Defined Benefit Wealth (Continued)

Important methodological inputs in the imputation method

- Real and nominal interest rates: used historical rates and those forecast by CBO

- Differential mortality: adopted approach from a 2007 working paper that accommodates differential mortality by age, sex, birth cohort, marital status, income, education, and race[1]

The imputation method aggregates up to all pension liabilities in the Financial Accounts that include the unfunded portion.

- That method implies that the unfunded portion of DB liabilities is a liability of the firm and an asset of the household.

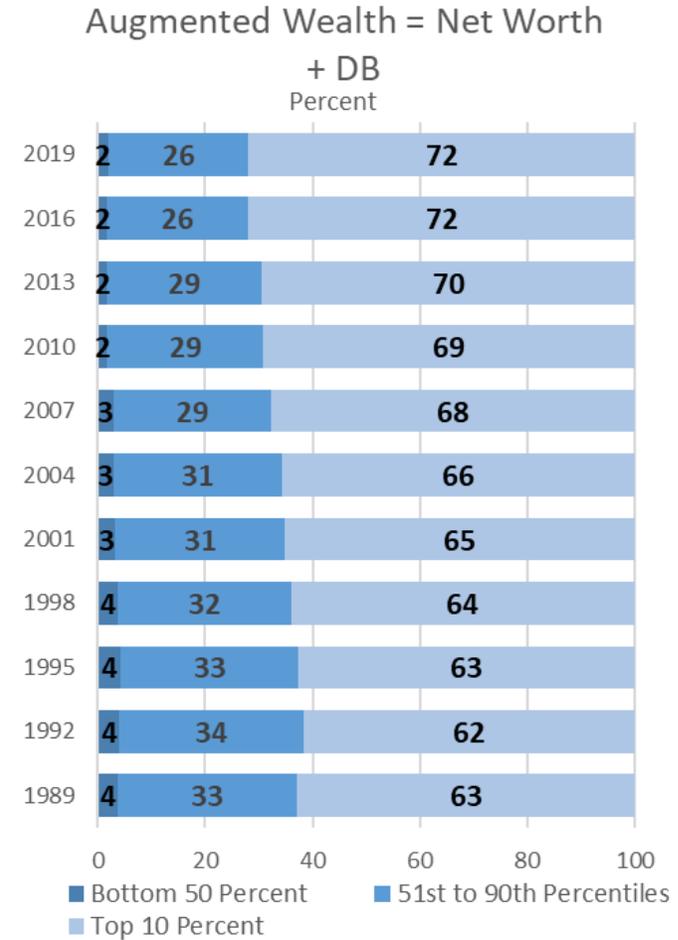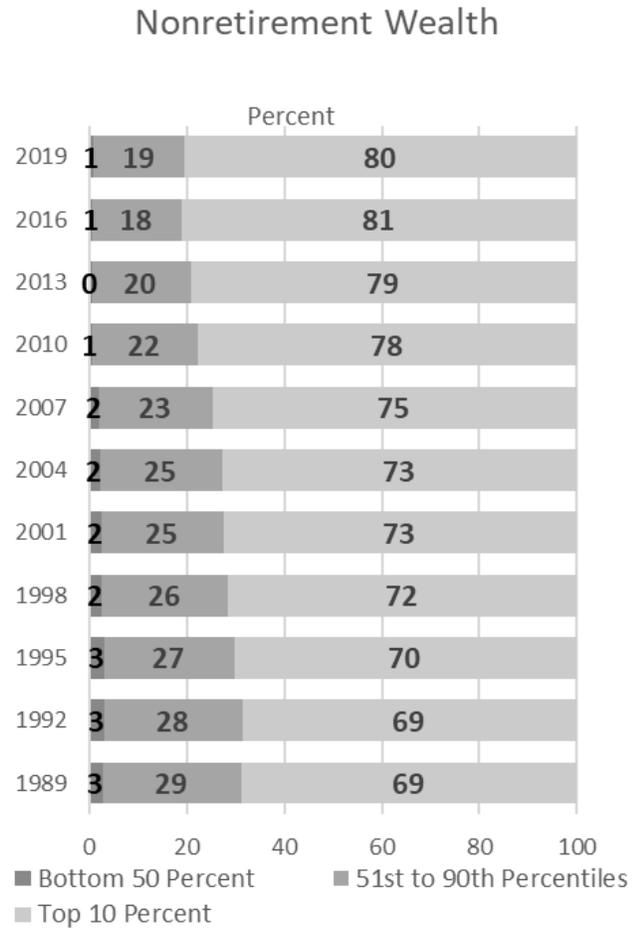Sensitivity analysis performed by varying the inputs one at a time

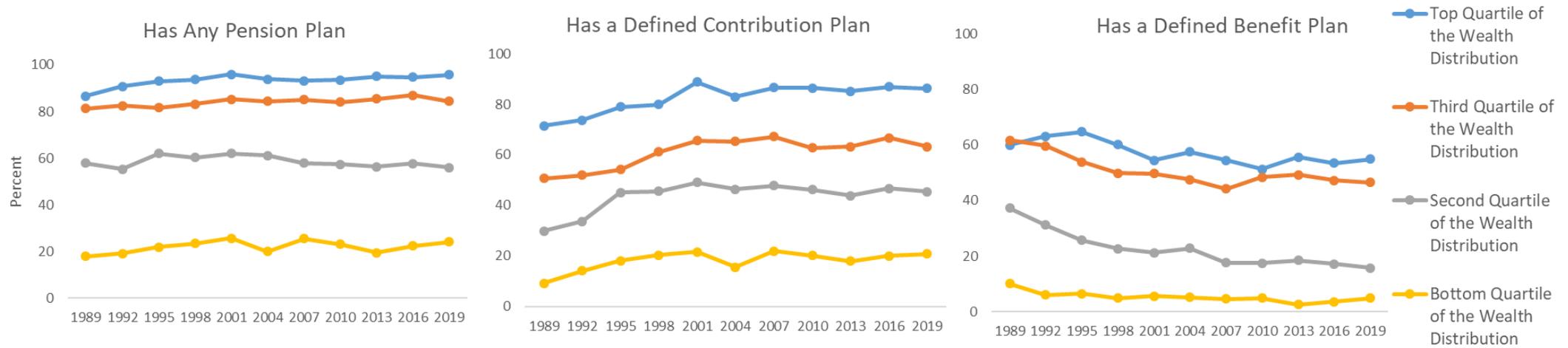# Family Wealth at Selected Percentiles of the Distribution
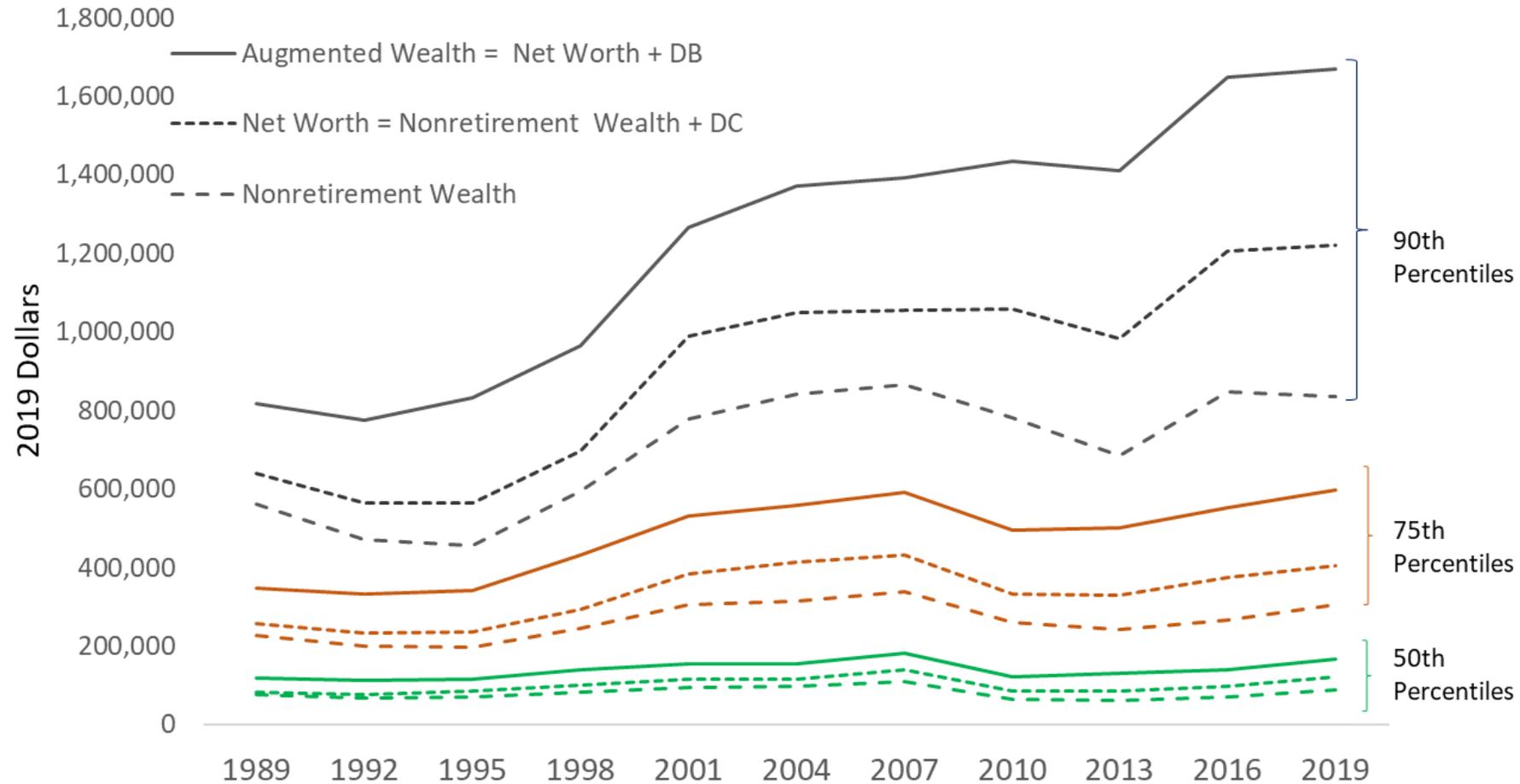
Family Wealth Concentration: Gini Coefficient
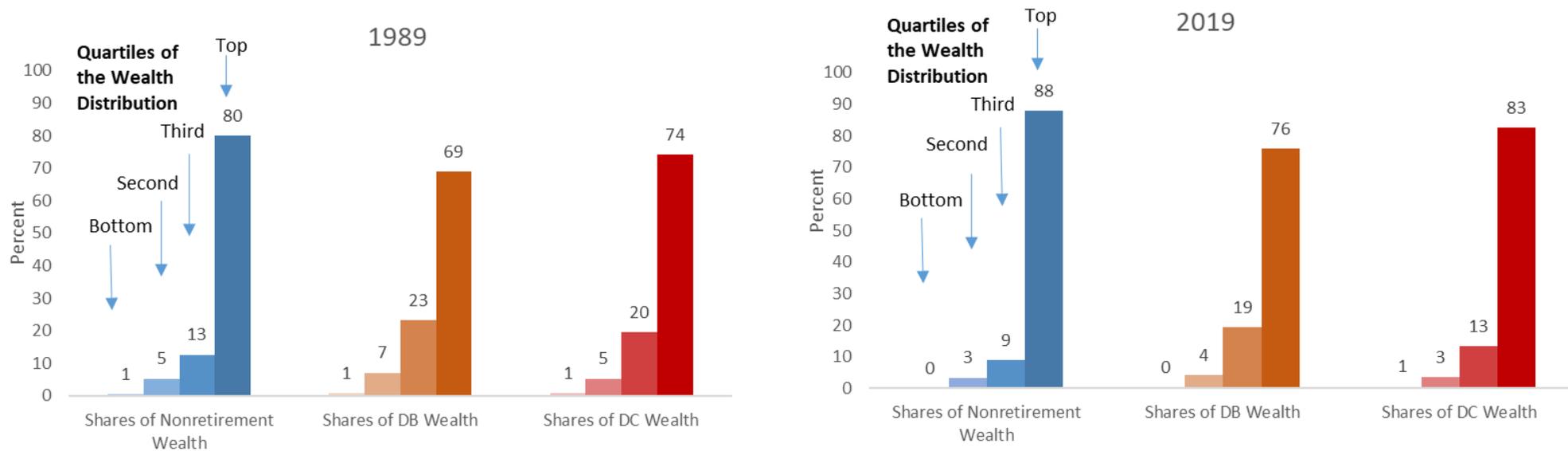
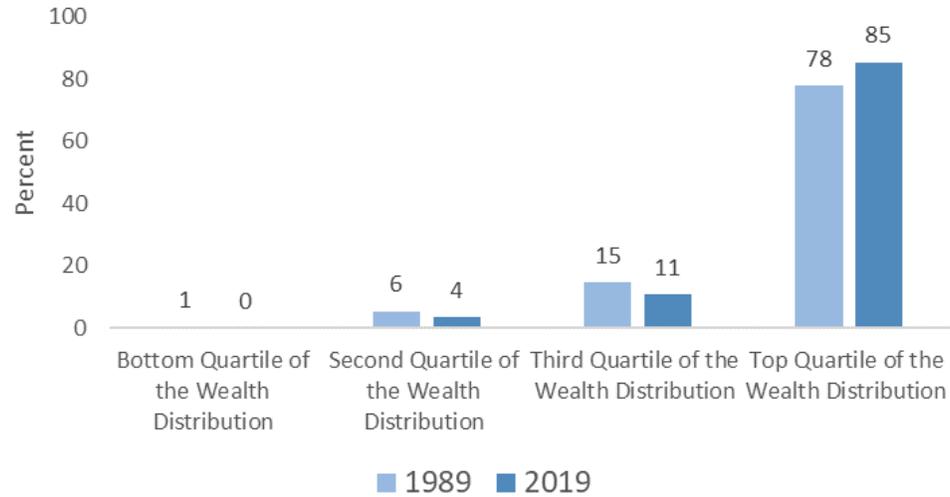# Family Wealth Concentration: Shares of Family Wealth

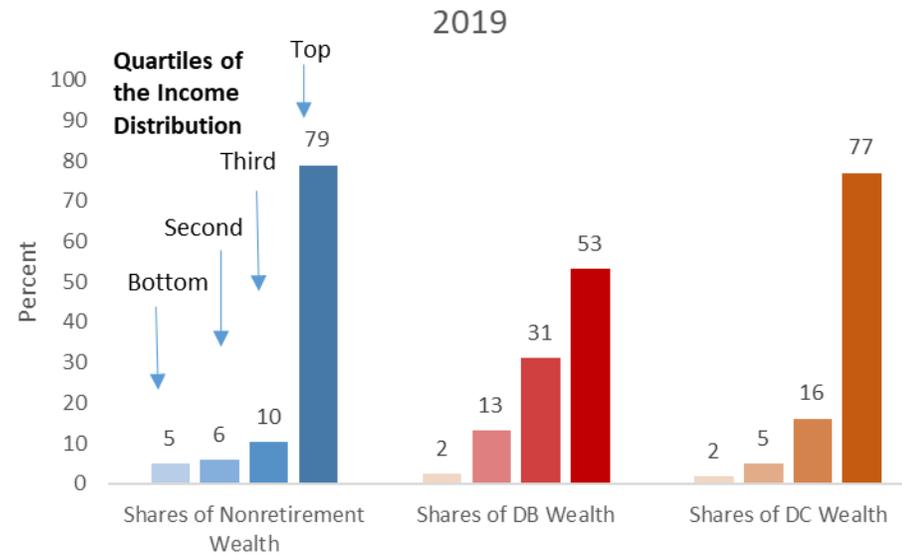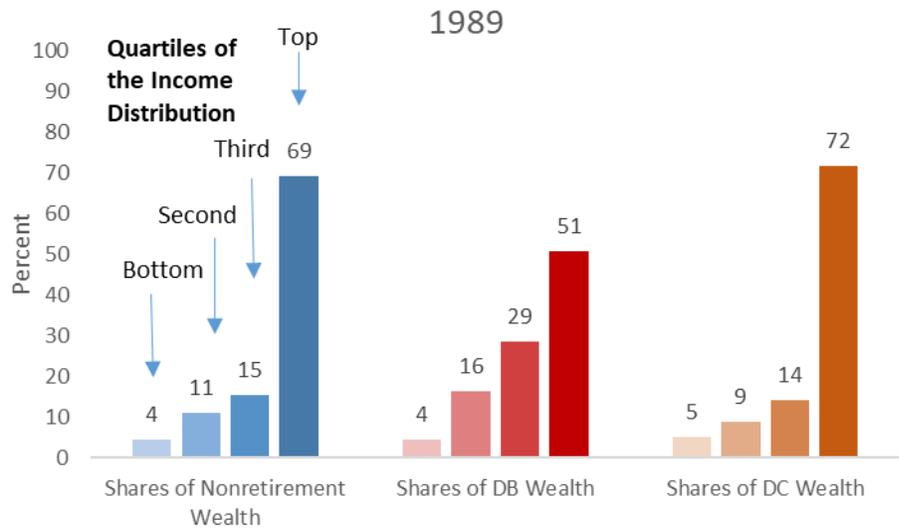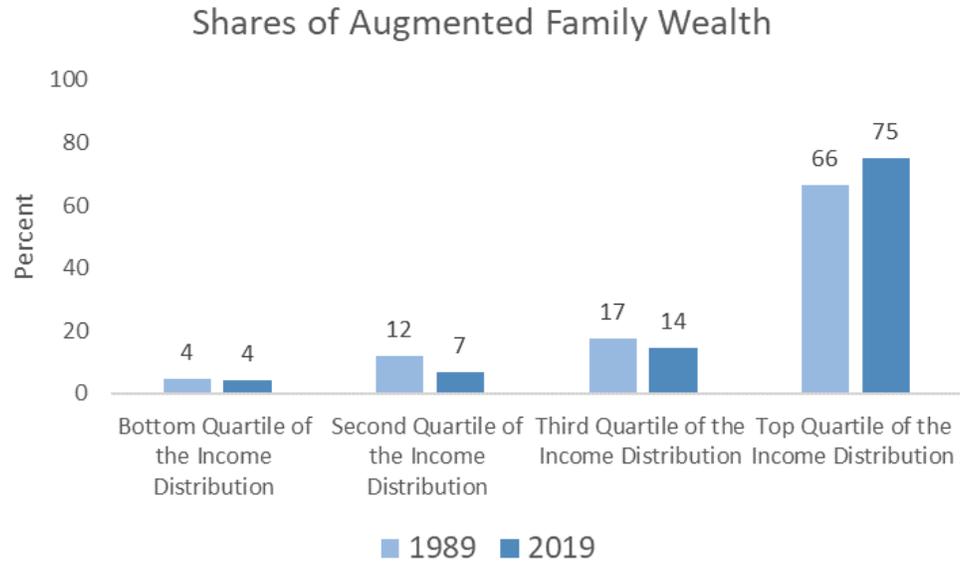# Incidence of DC and DB Wealth Among Wealth Groups

Distribution of Wealth by Family Wealth Quartile

Shares of Augmented Family Wealth

Distribution of Wealth by Family Income Quartile

Retirement Wealth Among Education and Income Groups

Between 1989 and 2019, retirement wealth became less equally distributed among families with different levels of education or income.

Still, in 2019 as in 1989, retirement wealth, particularly DB assets, remained more equally distributed than nonretirement wealth among those families.

In both 2019 and 1989, DB assets offset some of the inequality in net worth among families with different levels of education or income.

The shift in pension coverage from DB to DC plans might account for some of the increases in the Gini coefficient of augmented wealth and in the share of augmented wealth held by the families in the top 10 percent of the distribution.

Share of Wealth Held by Families in the Top 10 Percent of the Wealth Distribution

Legend:
- Nonretirement Wealth
- Net Worth = Nonretirement Wealth + DC
- Augmented Wealth (AW) Preferred Method
- AW (Alternative 1)
- AW (Alternative 2)
- AW (Alternative3)
- AW (Alternative 4)
- AW (Alternative 5)
- AW (Alternative 6)
- AW (Alternative 7)

Preferred Method = prorated method + FA aggregation + differential mortality (education, income, race) + Treasury 20-year rate

Alternative 1 = formula method + FA aggregation + differential mortality (education, income, race) + Treasury 20-year rate

Alternative 2 = prorated method + FA aggregation + differential mortality (education, income, race) + constant 3 percent real rate

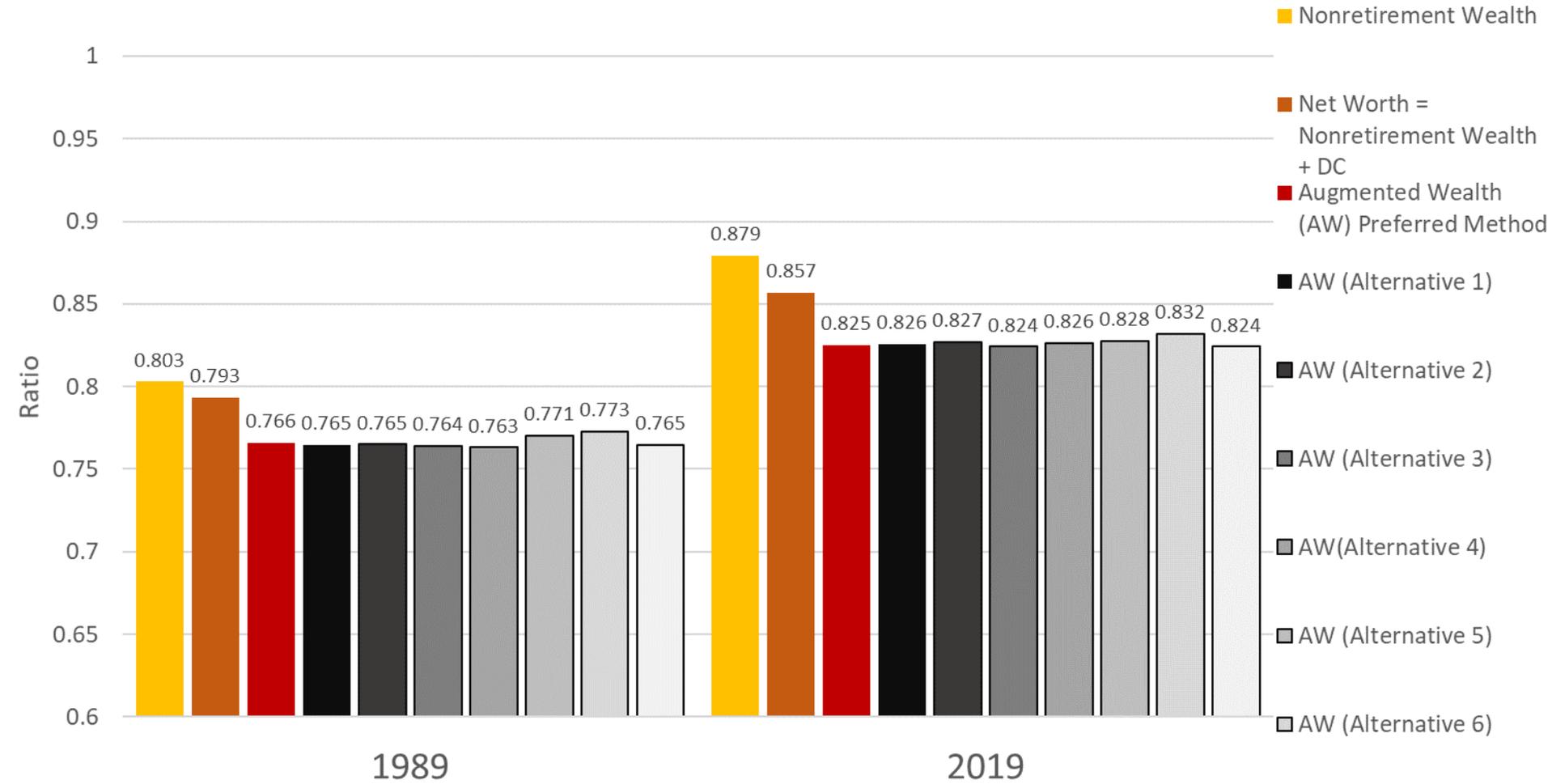Alternative 3 = prorated method + FA aggregation + uniform mortality + Treasury 20-year rate

Alternative 4 = prorated method + FA aggregation + uniform mortality + constant 3 percent real rate

Alternative 5 = prorated method + no FA aggregation + differential mortality (education, income, race) + Treasury 20-year rate

Alternative 6 = preferred method + only funded portion of DB

Alternative 7 = formula method + FA aggregation + differential mortality (education, race) + Treasury 20-year rate

Gini Coefficient: Augmented Wealth

Preferred Method = prorated method + FA aggregation + differential mortality (education, income, race) + Treasury 20-year rate

Alternative 1 = formula method + FA aggregation + differential mortality (education, income, race) + Treasury 20-year rate

Alternative 2 = prorated method + FA aggregation + differential mortality (education, income, race) + constant 3 percent real rate

Alternative 3 = prorated method + FA aggregation + uniform mortality + Treasury 20-year rate

Alternative 4 = prorated method + FA aggregation + uniform mortality + constant 3 percent real rate

Alternative 5 = prorated method + no FA aggregation + differential mortality (education, income, race) + Treasury 20-year rate

Alternative 6 = preferred method + only funded portion of DB

Alternative 7 = formula method + FA aggregation + differential mortality (education, race) + Treasury 20-year rate

Conclusions

Retirement wealth in the form of DB and DC assets is more evenly distributed than other wealth.

DB assets are more evenly distributed than DC assets.

Between 1989 and 2019, retirement wealth has become more concentrated, but it remains less concentrated than nonretirement wealth.

The wealth gap by education and by income has increased over time; the wealth gap remains smaller in DB wealth than in DC or nonretirement wealth.

The phaseout of DB plans probably contributed to the increased concentration of augmented family wealth.

Methodological inputs, such as differential mortality, discount rate, and the allocation of the unfunded portion of DB liabilities, have a relatively small effect on wealth concentration measured as the Gini coefficient or as the share of wealth held at the top 10 percent of the distribution.