Social Security and Trends in Inequality

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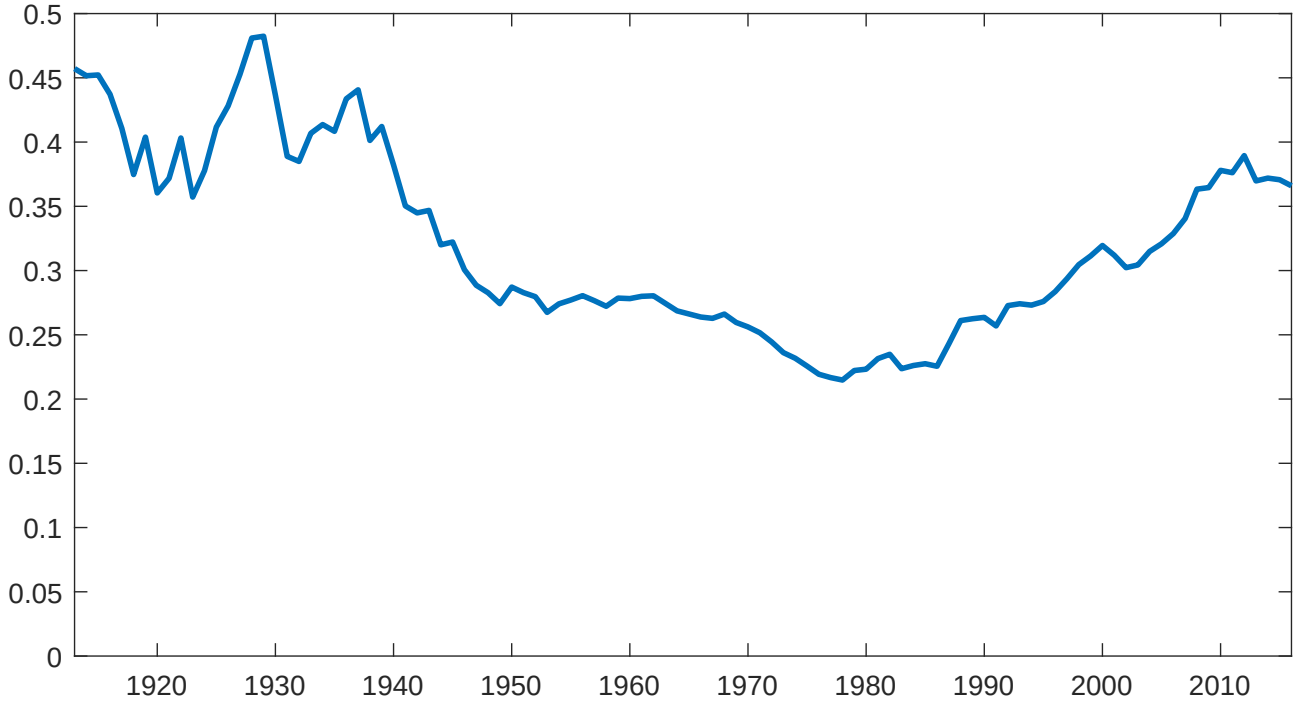
Motivation – Top 1% wealth share



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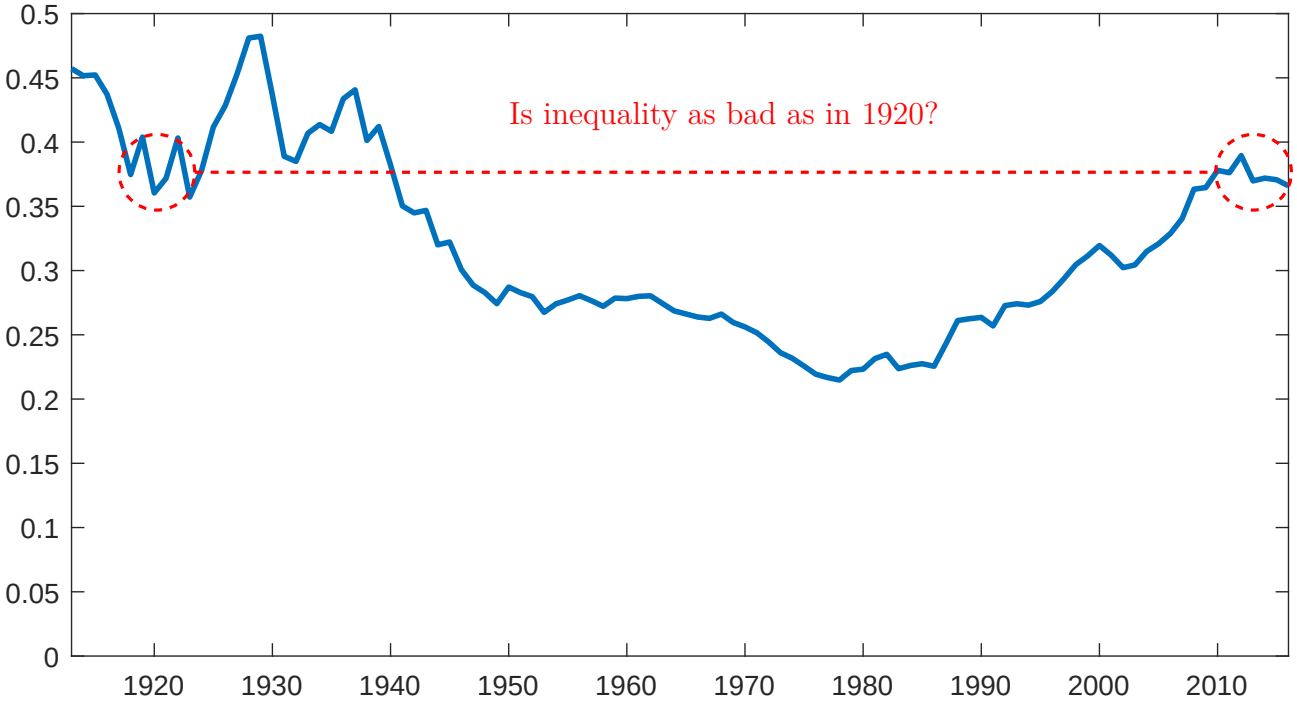

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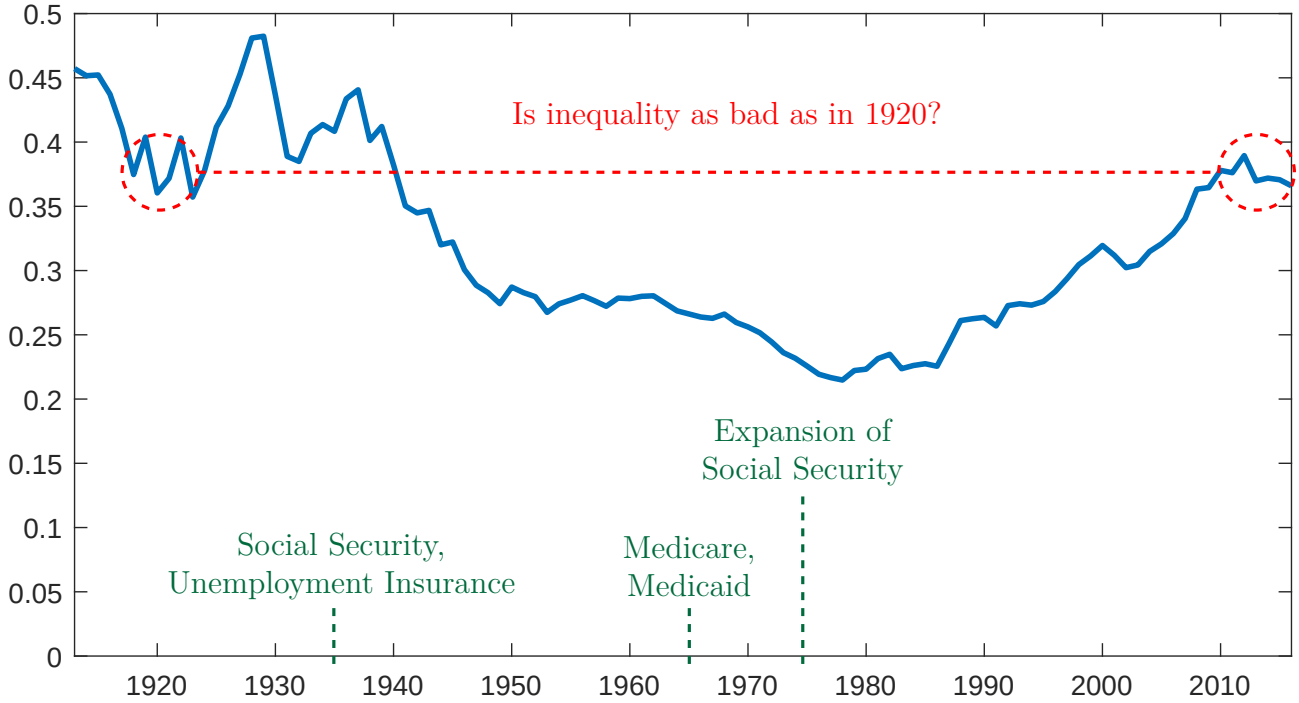

This Paper

- **Compute aggregate Social Security wealth**
  - Present value of future benefits, net of future taxes
  - Based on Survey of Consumer Finances (SCF) for retirees
  - Using Monte Carlo simulations for working households

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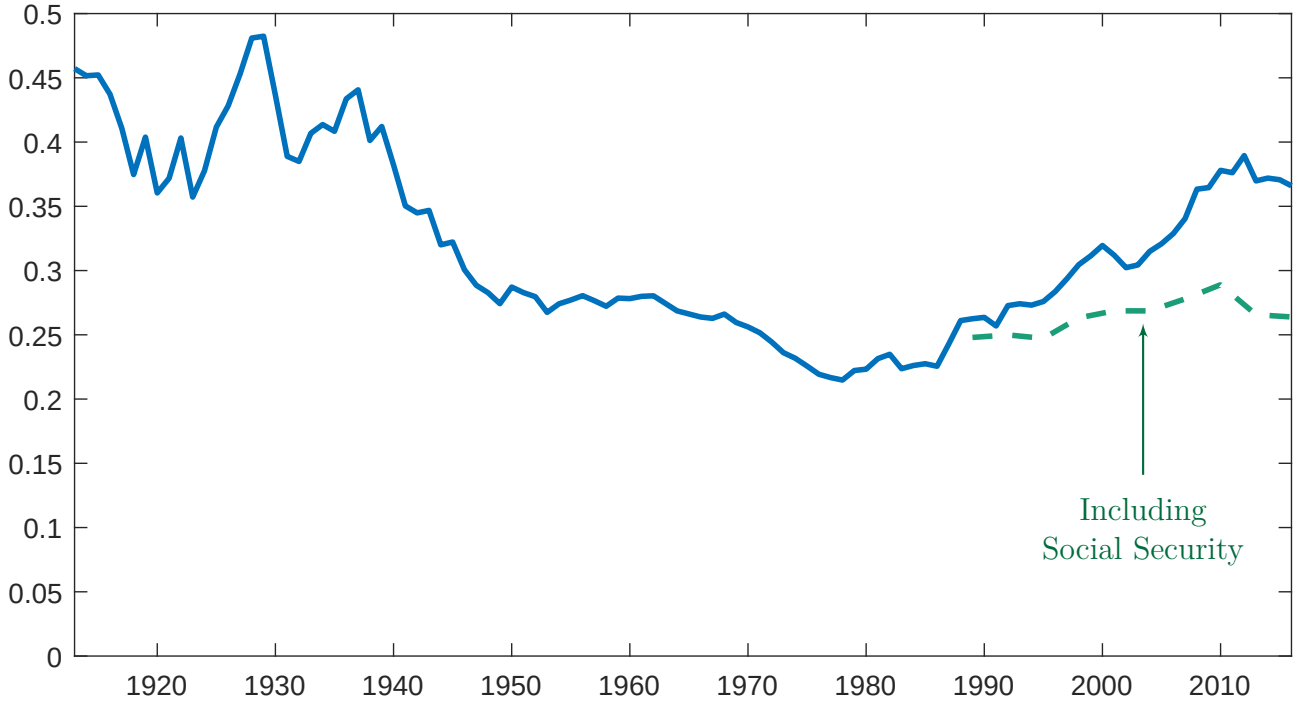
  - Present value of future benefits, net of future taxes
  - Based on Survey of Consumer Finances (SCF) for retirees
  - Using Monte Carlo simulations for working households
- **Distribute aggregate Social Security wealth between bottom 90% and top 10%**
- **Recompute the evolution of top wealth shares between 1989-2016**

Key finding – Top 1% wealth share



How Does Social Security Work?

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- **Taxes**
  - 12.4% payoll tax: 10.6% to old-age program
    (1.8% to disability insurance)
  - Up to cap (2019 $132,900)

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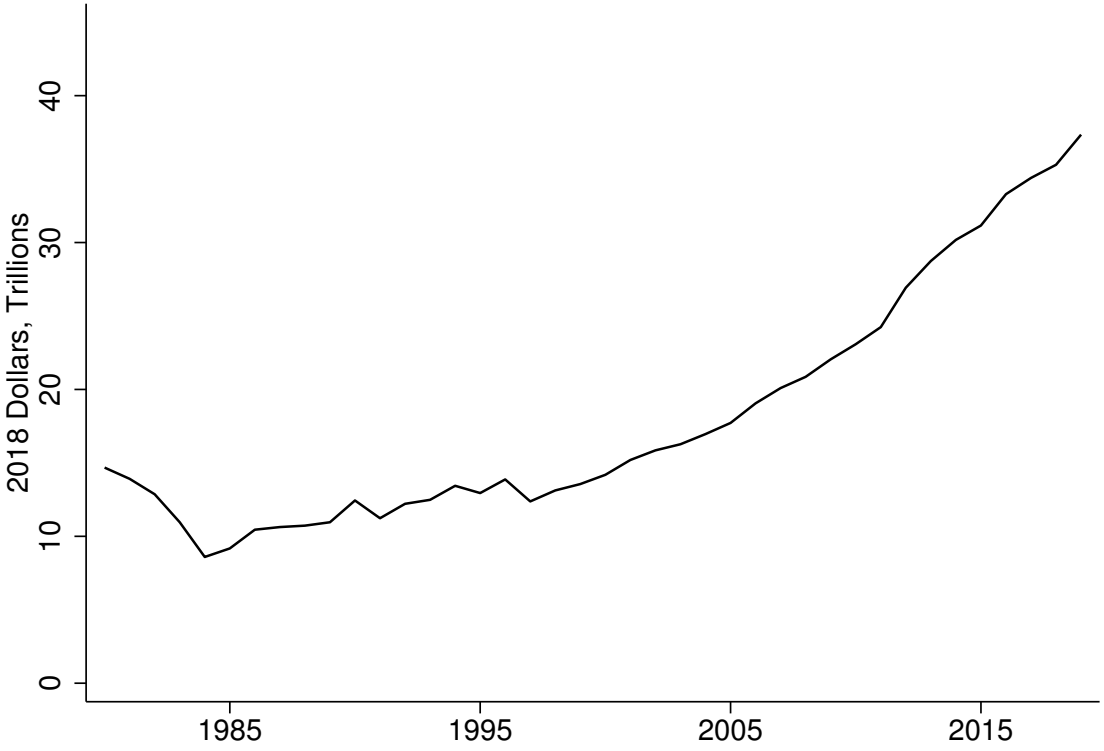
- **Benefits**
  1. Adjust past taxable earnings for inflation and real wage growth
  2. Take average of the best 35 years (AIYE)
  3. Apply benefit formula:
     - 90% of AIYE below first bend point (2019: $11,112)
     - 32% between first and second (2019: $66,996)
     - 15% above the second

Higher replacement rate for low earners

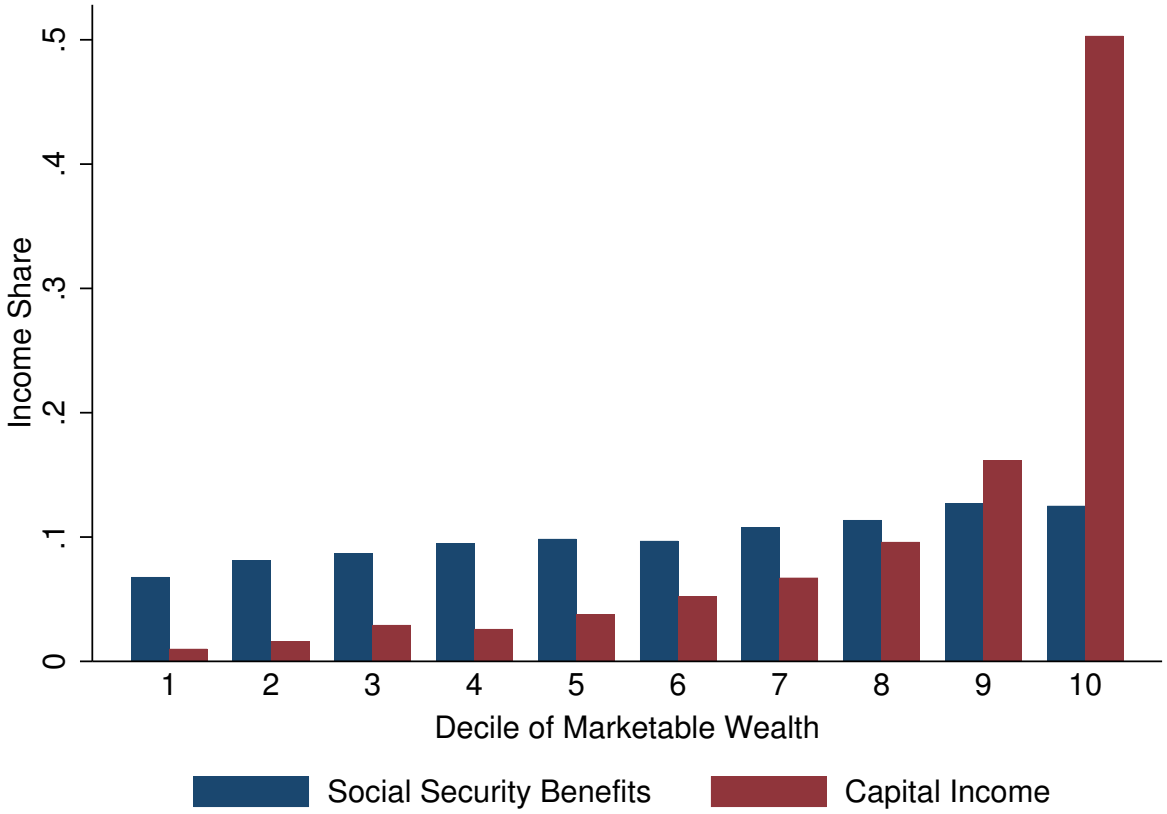
Stylized Facts:
Why does Social Security matter?

Social Security promises are worth more than $30tr



Source: Office of the Chief Actuary

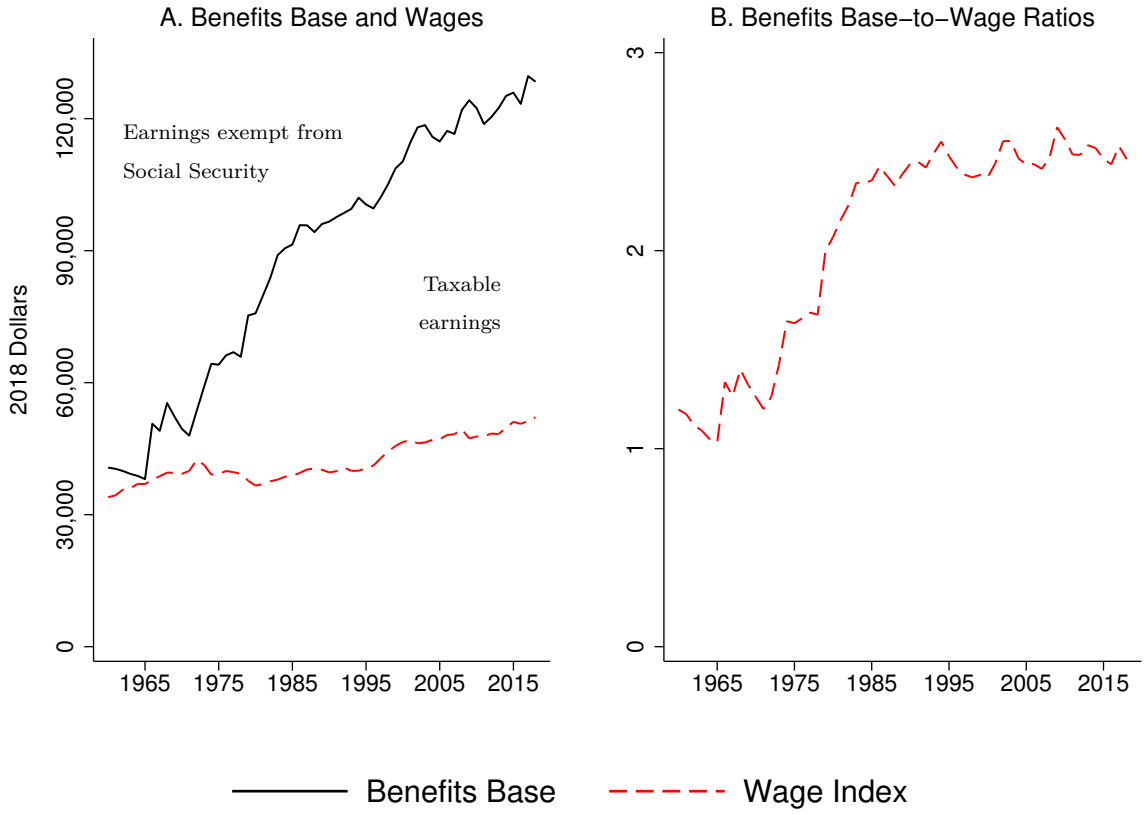
Social Security benefits are fairly evenly distributed



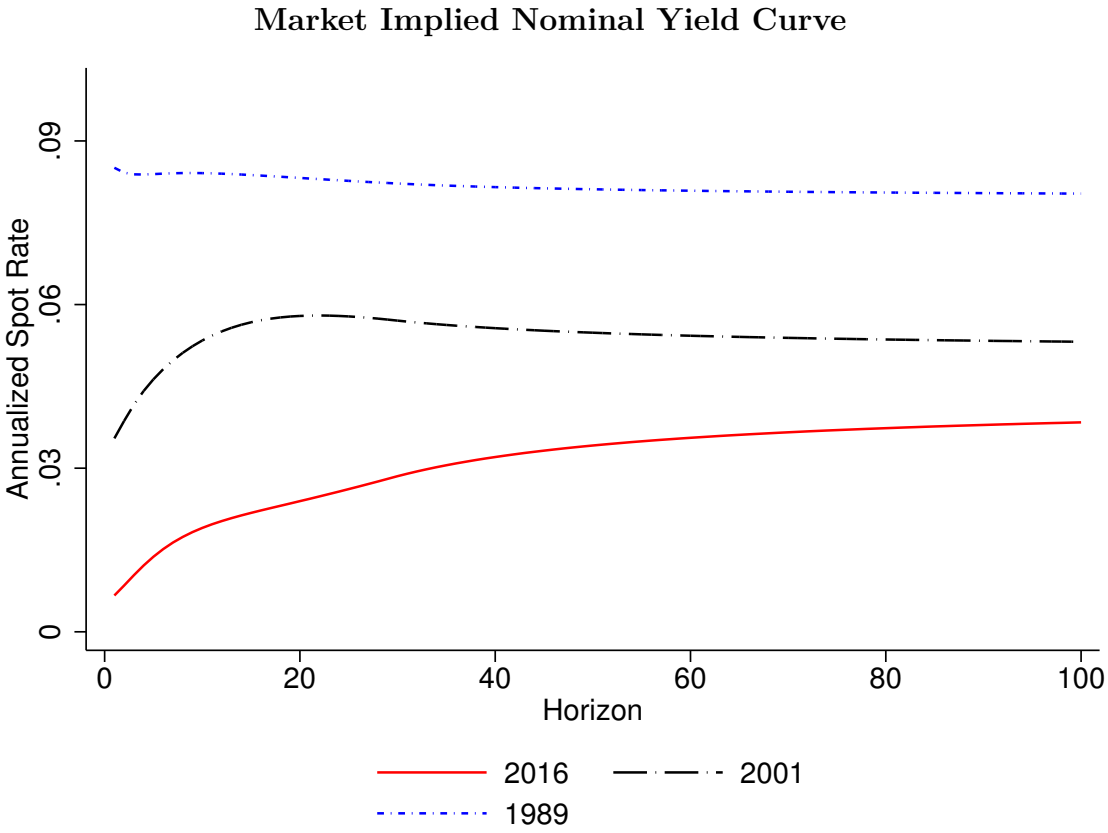
Stylized Facts:

Why did aggregate Social Security wealth increase?

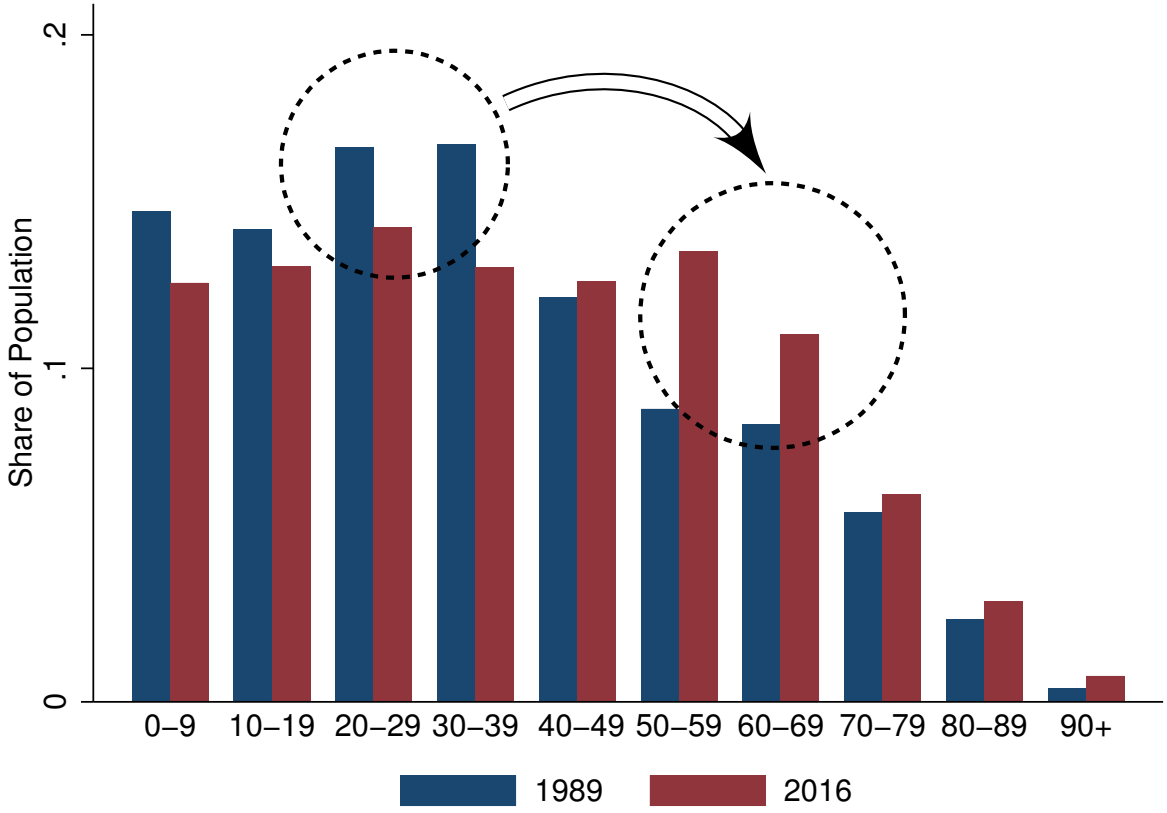
Social Security wage base increased



Discount rates declined



Boomers are reaching retirement age



Methodology

Methodology – Overview

- **Net present value of Social Security**

$$\begin{aligned}\text{Social Security Wealth}_{it} = &\sum_{s=c+66}^{T}\left(\prod_{k=t}^{s-1}(1-m_{itk})\right)\frac{\mathbb{E}\left[\text{Benefits}_{it}\right]}{(1+r_{ts})^{s-t}} \\ &-\sum_{s=t+1}^{c+65}\left(\prod_{k=t}^{s-1}(1-m_{itk})\right)\frac{\mathbb{E}\left[\text{Taxes}_{it}\right]}{(1+r_{ts})^{s-t}}\end{aligned}$$

  - r_{ts}: market yield curve in year t
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- **For retirees**

$$\text{Social Security Wealth}_{it} = \sum_{s=t}^{T}\left(\prod_{k=t}^{s-1}(1-m_{itk})\right)\frac{\text{Benefits}_{it}}{(1+r_{t,s})^{s-t}}\frac{\mathbb{E}[\text{CPI}_s]}{\text{CPI}_t}$$

  - Benefits are observed in the data

Social Security wealth of workers

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- **Simulating past and future earnings trajectories:**
  - Stochastic component: rich process estimated in Guvenen et al. (2019a), which matches moments from the cross-section and dynamics of earnings
  - Life-cycle component: matches earnings per cohort×gender×year reported in Guvenen et al. (2019b)
  - Goal: emulating Social Security administrative panel data

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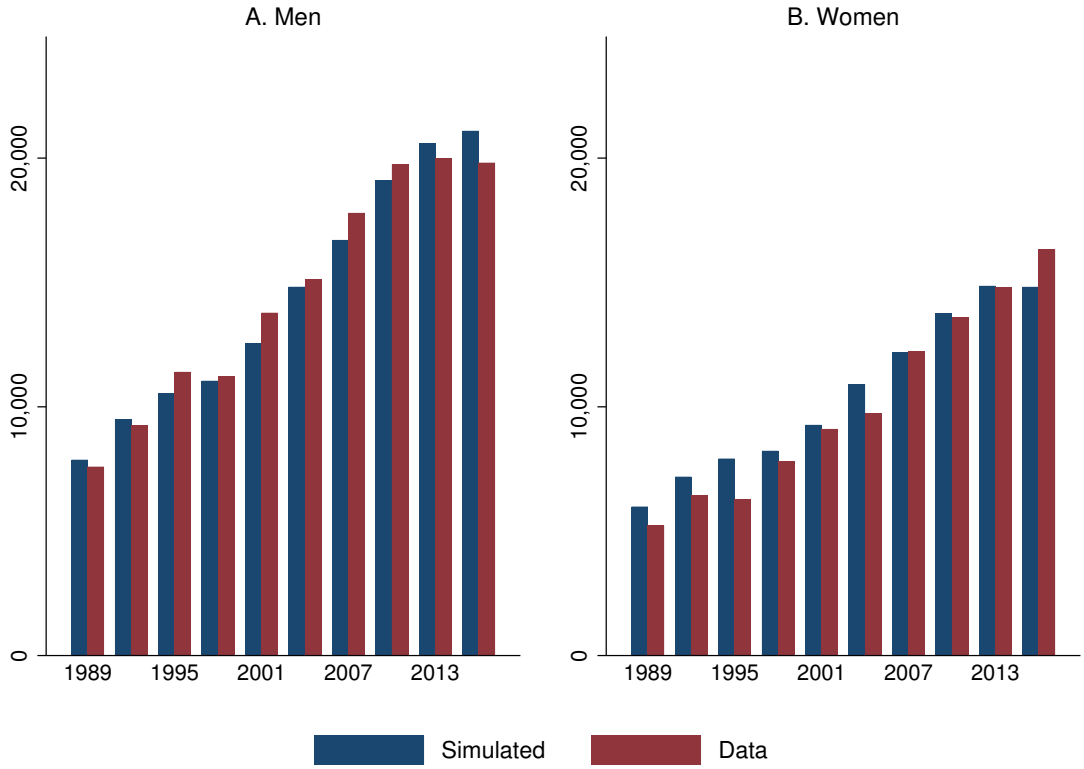
  - Goal: emulating Social Security administrative panel data
- **For each simulated path, we discount future benefits net of future taxes**

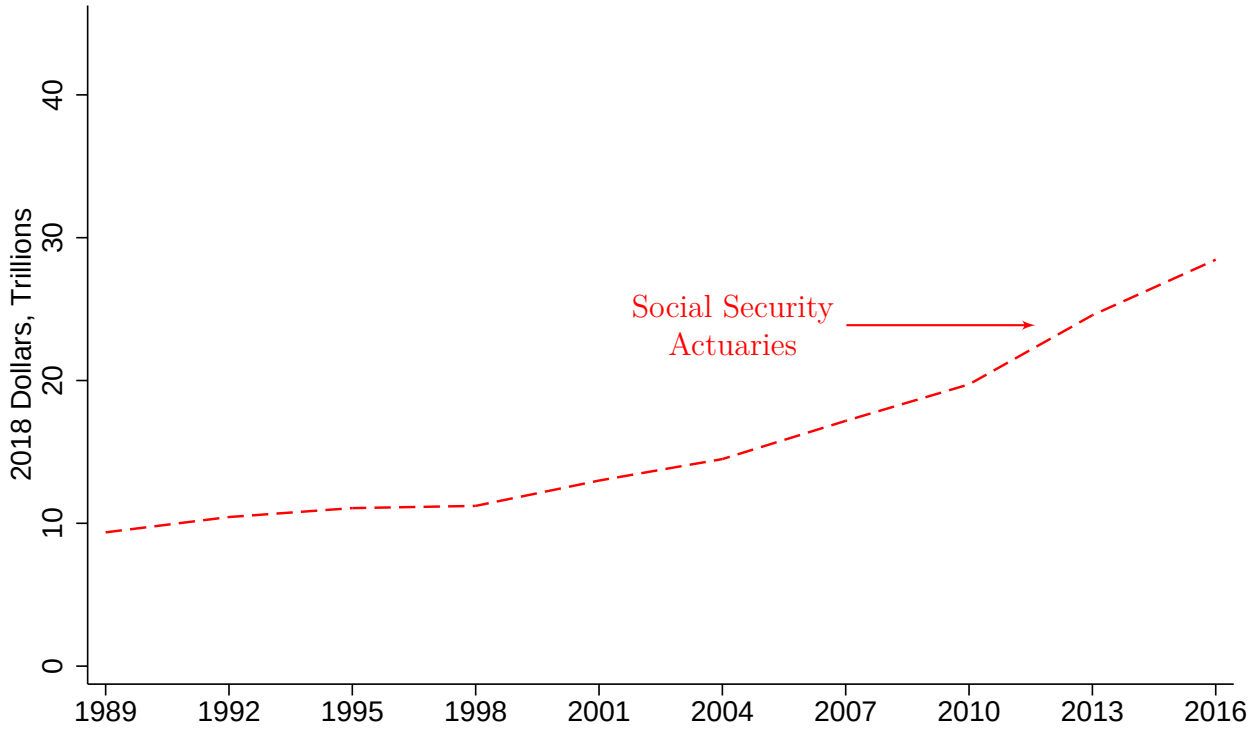
Calibration & Aggregation

- **Social Security parameters**
  - We assume that parameters of Social Security formula scale up with the wage index
    - e.g. Earnings cap, bend points
  - Consistent with the last 40 years
- **Macroeconomic assumptions**
  - **Discount rates**: average nominal market yield curves (Fed Board)
  - **Inflation projections**: historical SSA Annual Report
  - **Real growth rate of wages**: historical SSA Annual Report
- **Aggregation**:
  - We merge with the SCF the mean Social Security wealth by age×year×gender group
  - We aggregate using SCF survey weight

Validation – Simulated vs actual full-retirement-age benefits



Validation – Aggregate Social Security wealth



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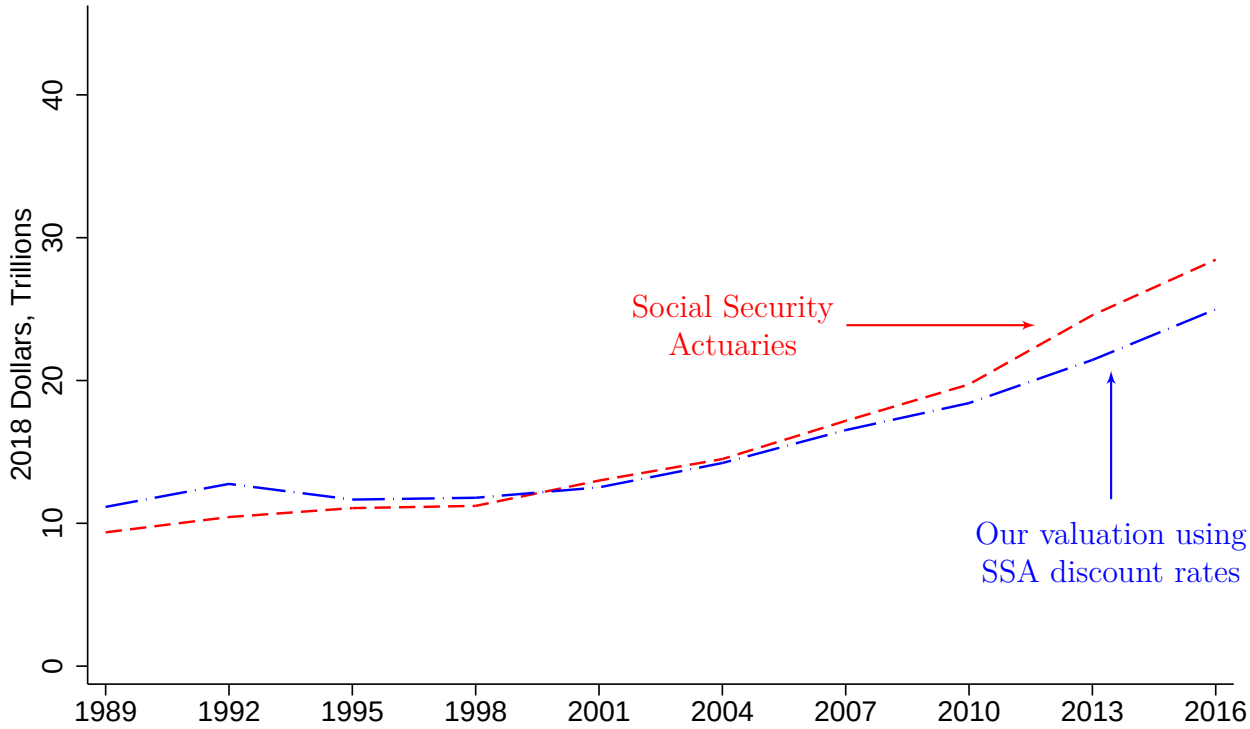

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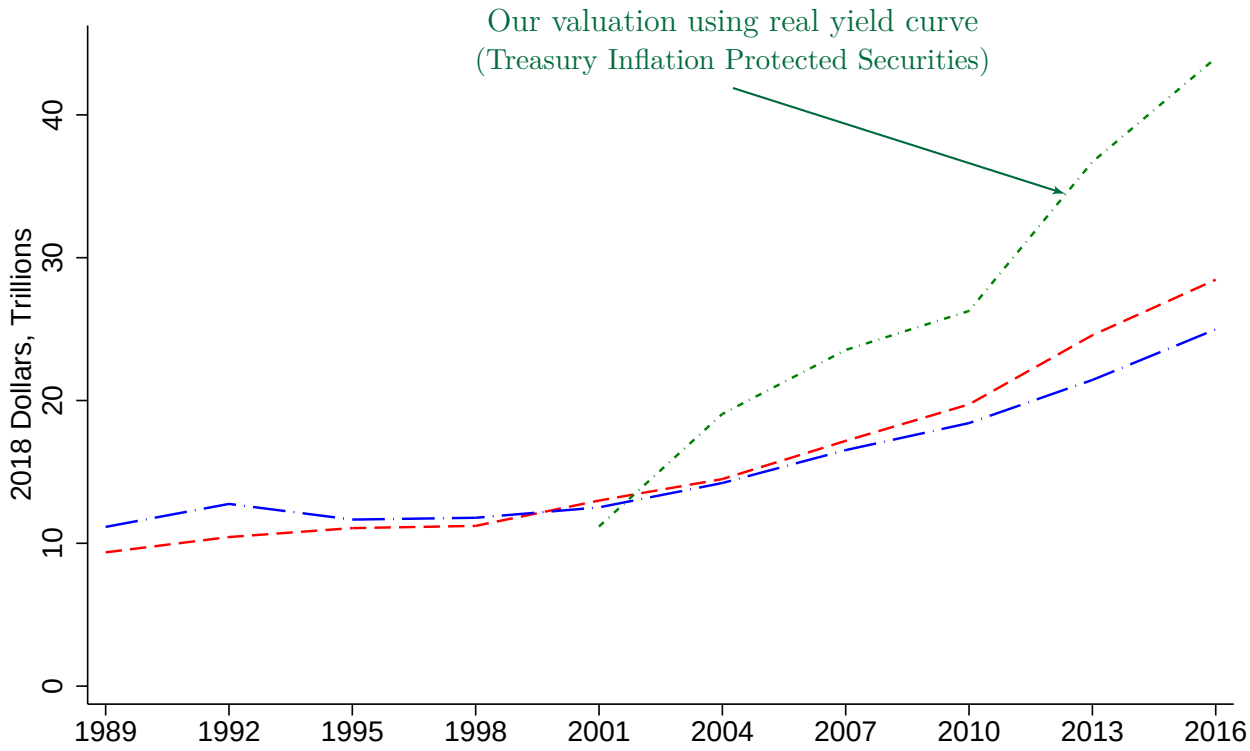

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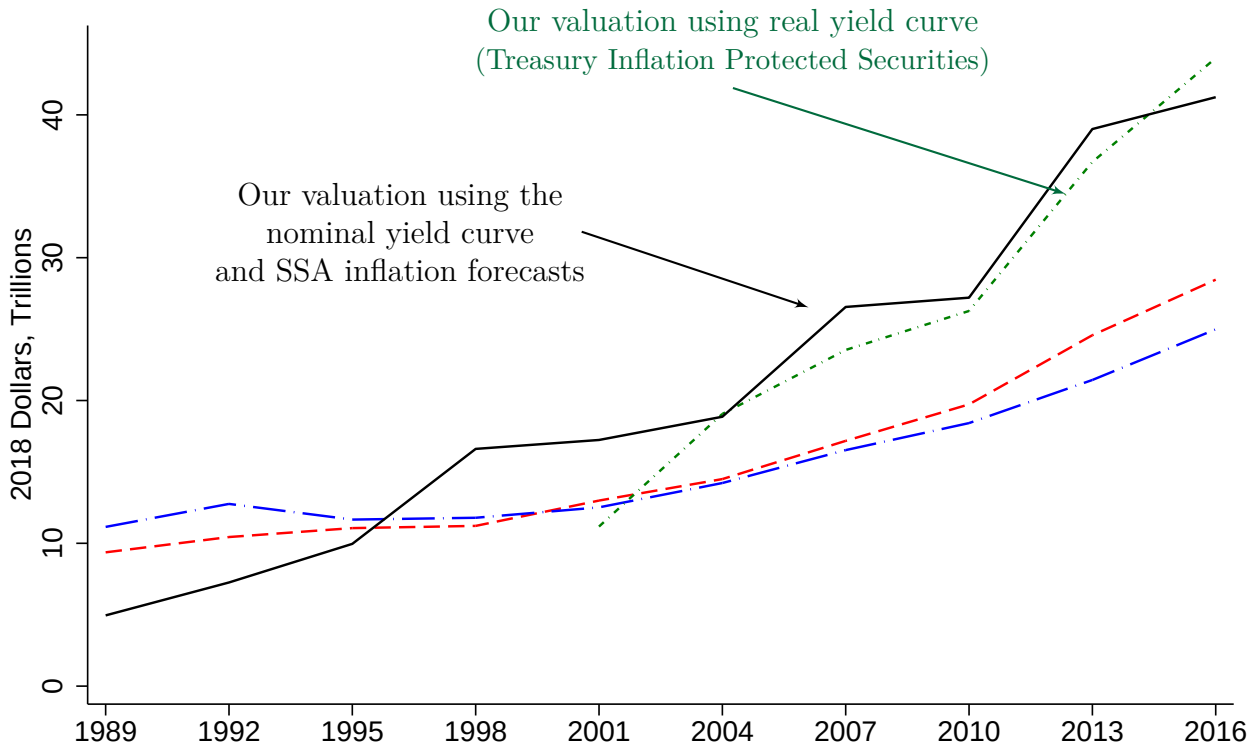
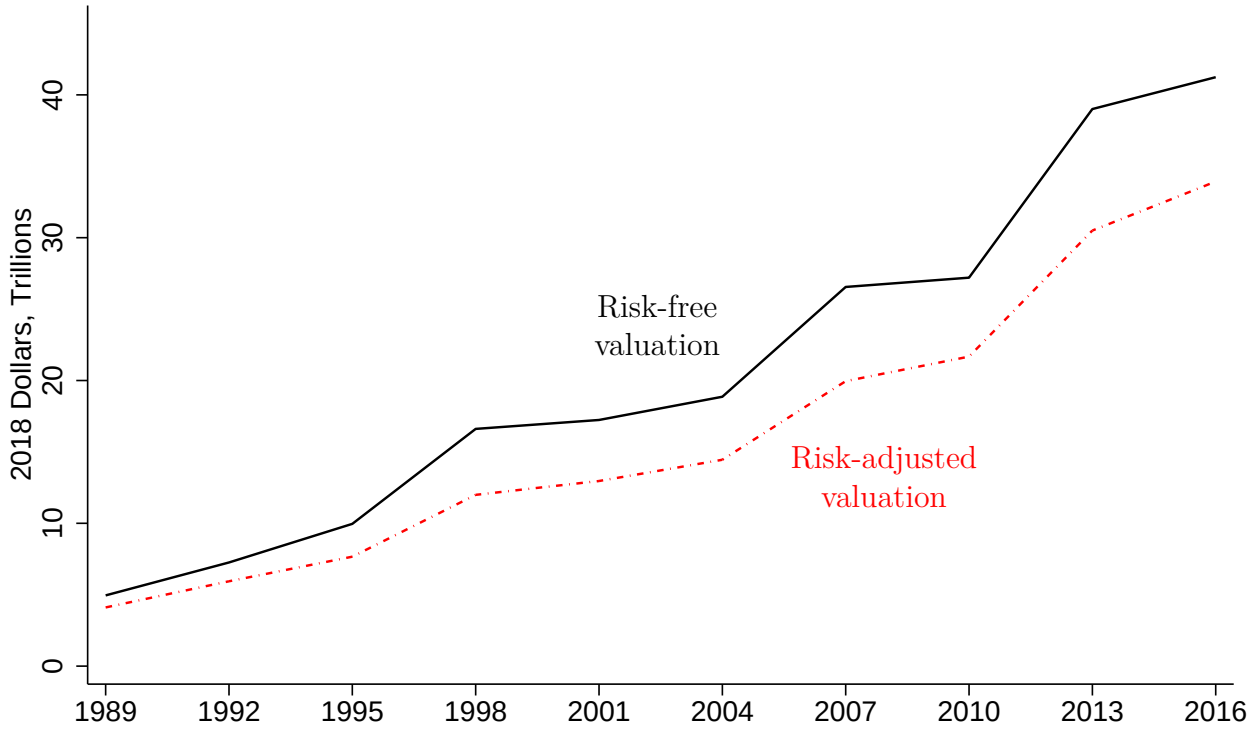


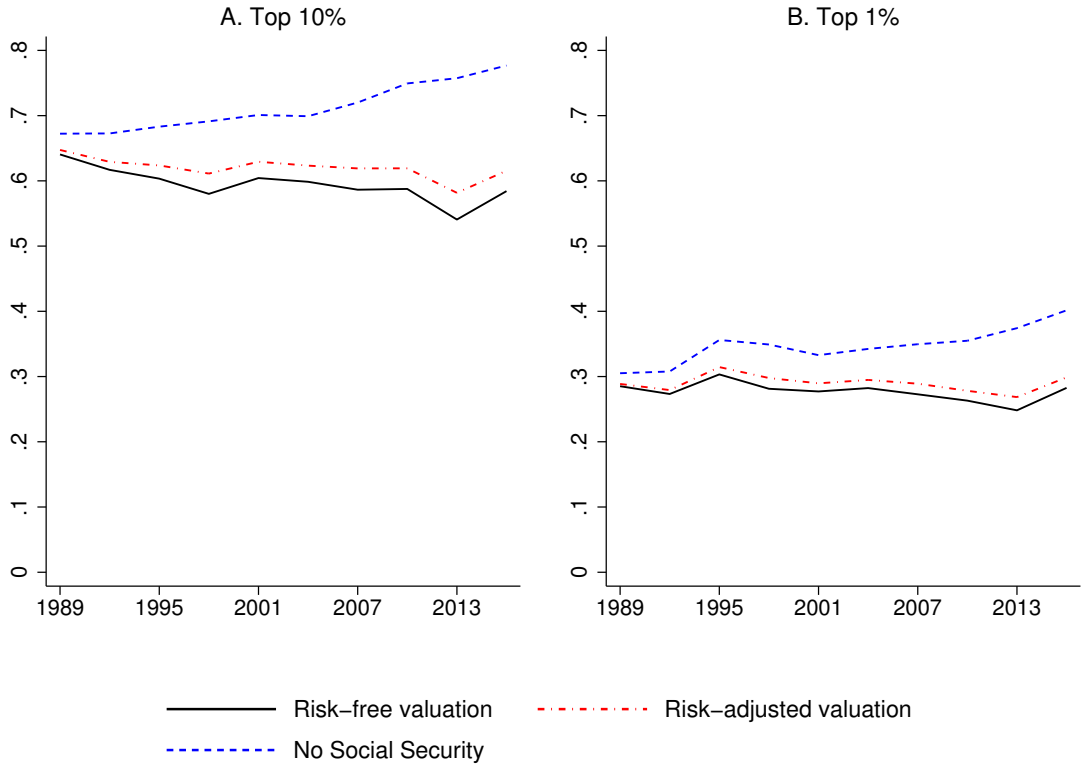
Adjusting for stock market beta



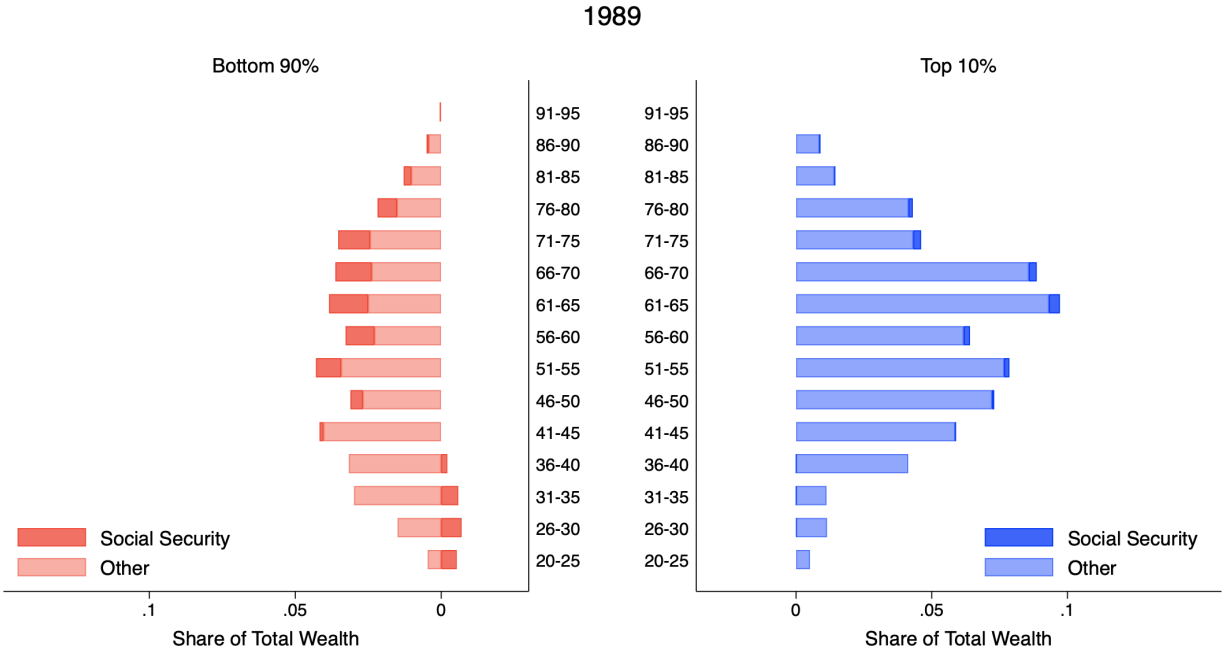
Assigning Social Security wealth

1. Simulation: aggregate, risk-adjusted Social Security wealth in 2016 for 45 year-olds
   - $555 billion
2. SCF: To be in Top 10% overall, a 45 year-old need to be in the
   - Top 5% of his cohort
3. SCF: for young retirees, share of Social Security wealth of top 5%
   - 6.5%
4. Split of Social Security wealth at age 45 in 2016
   - 6.5% x $555 billion = $36 billion for top 10%
   - 93.5% x $555 billion = $519 billion for bottom 90%

Risk-adjusted valuation: Top shares



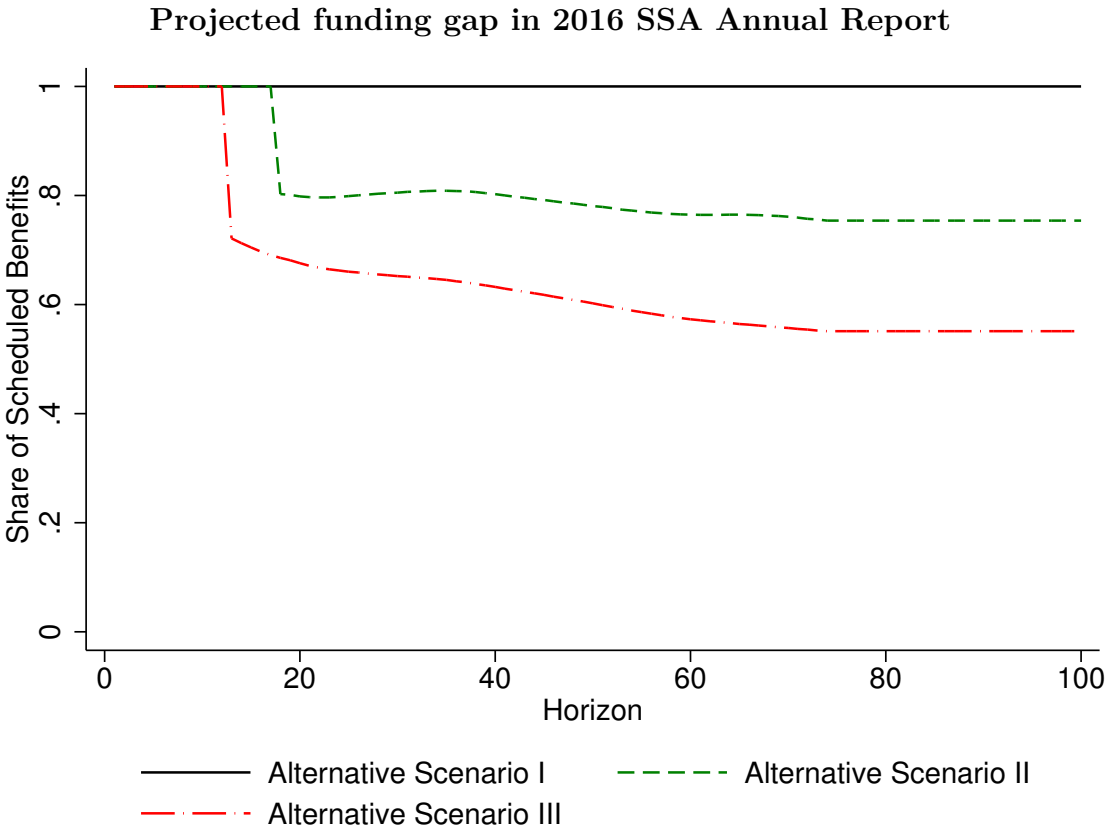
Risk-adjusted valuation: Wealth composition over time



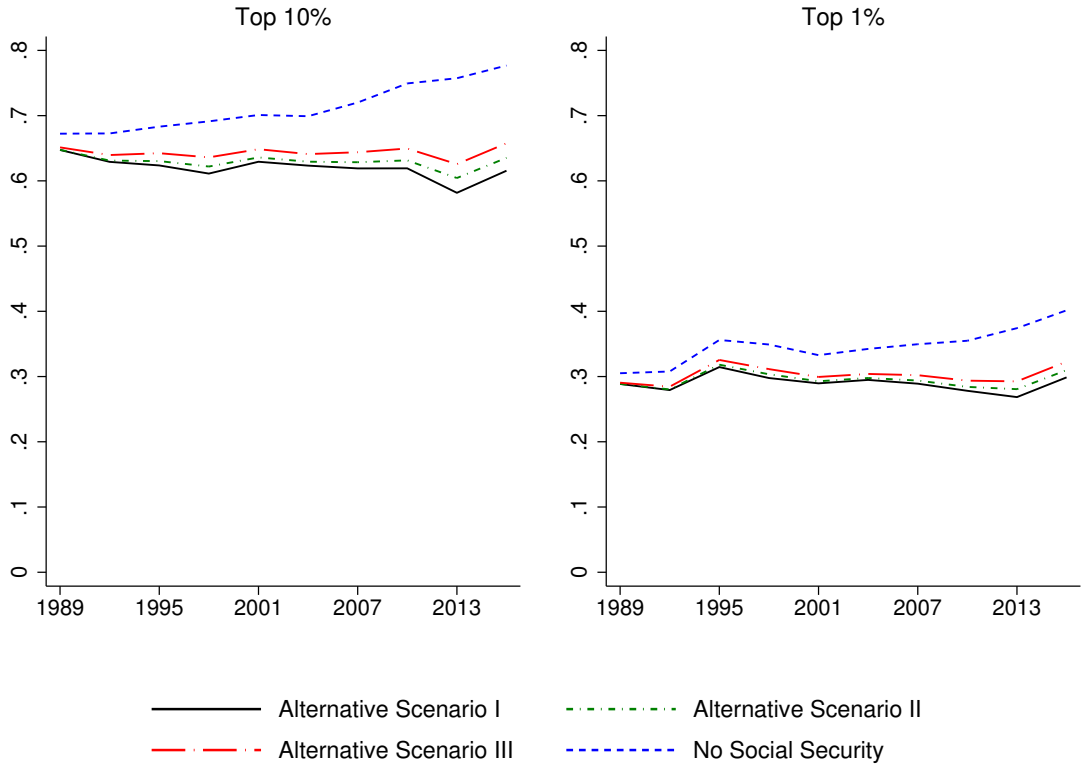
Discussion

- Funding gap
- Life expectancy inequality
- Decomposing growth in Social Security wealth
- Adjusting previous studies

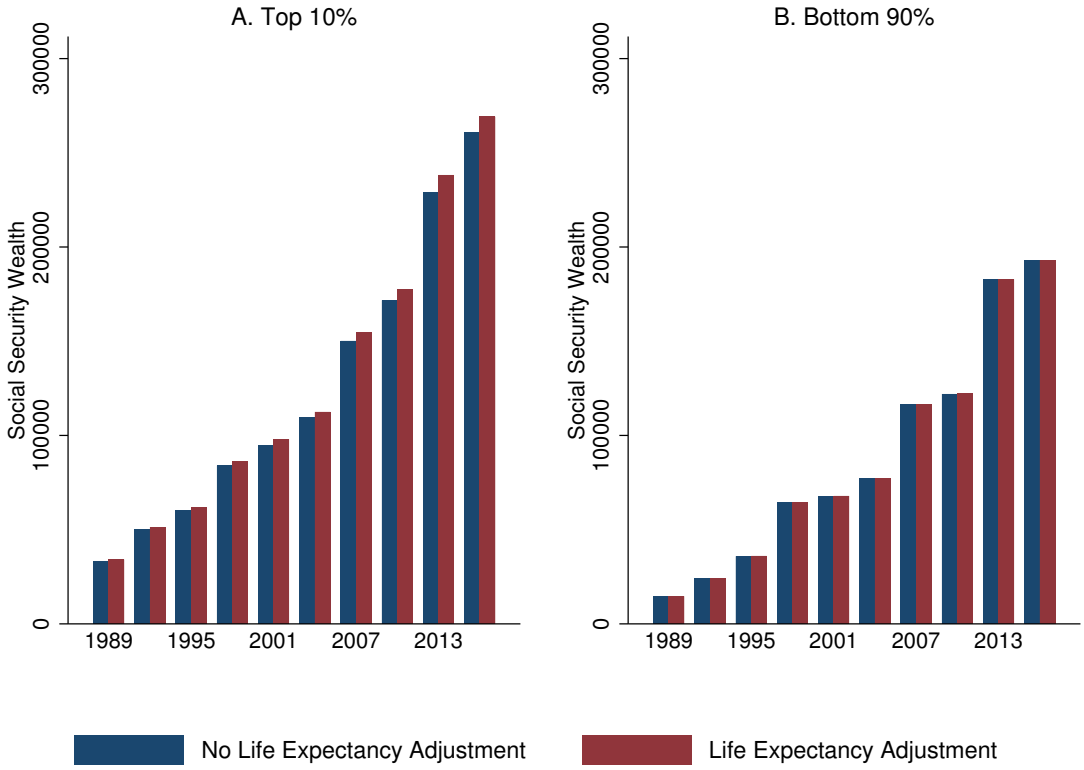
Funding gap


Projected funding gap in 2016 SSA Annual Report
Share of Scheduled Benefits
0
.2
.4
.6
.8
1
0
20
40
60
80
100
Horizon
Alternative Scenario I
Alternative Scenario II
Alternative Scenario III

Funding gap: Top shares (risk-adjusted)



Adjusting for differences in life expectancy



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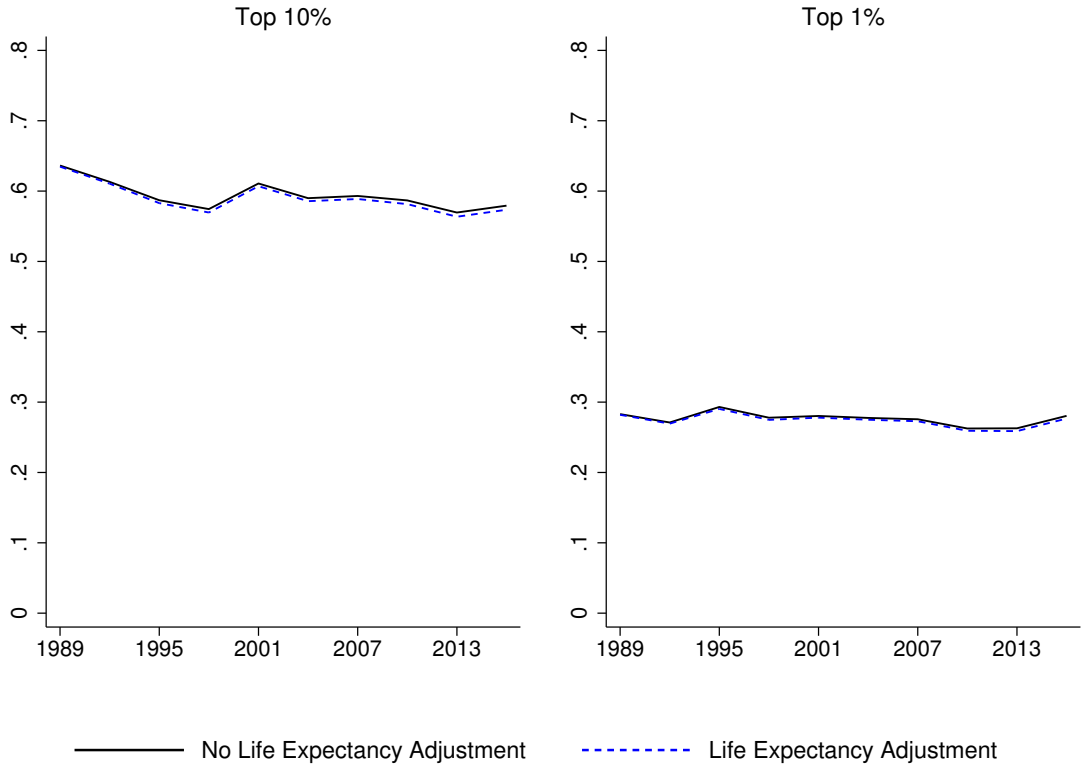
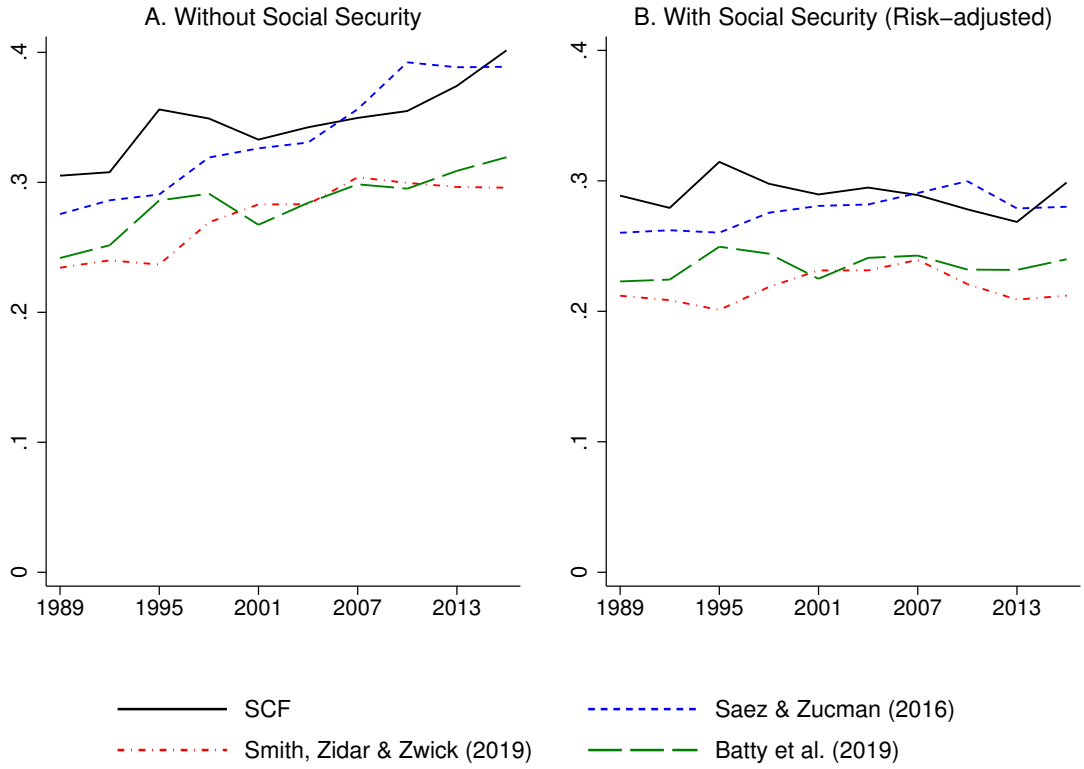


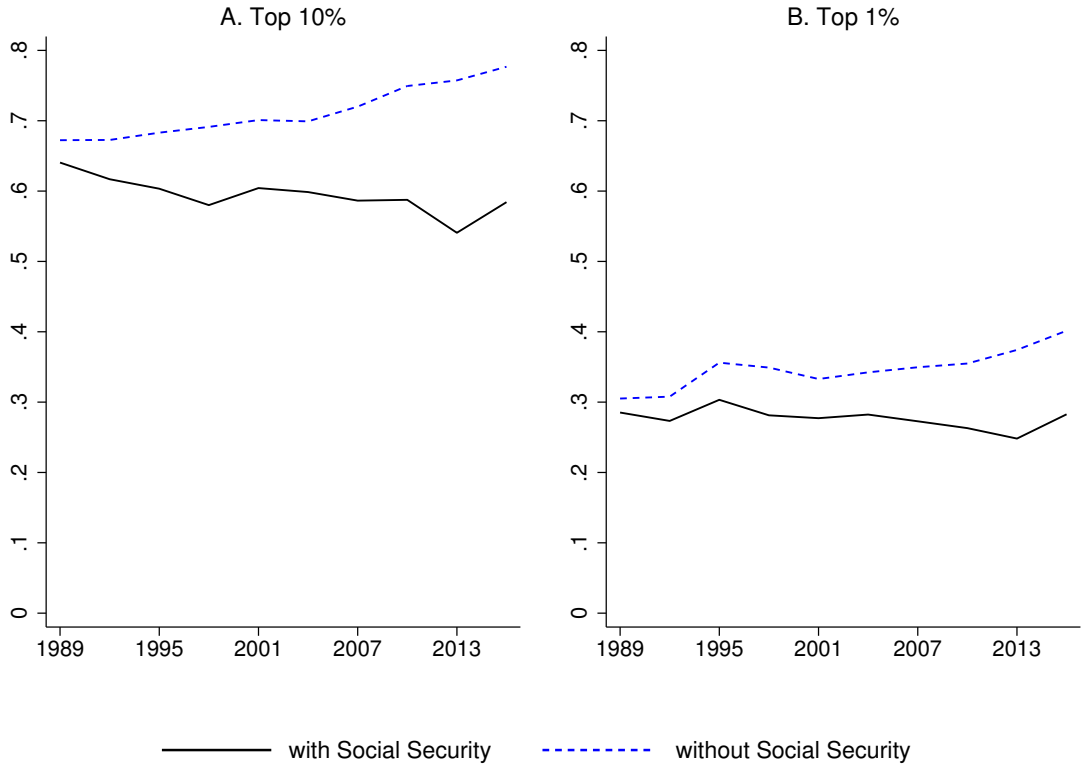
Adjusting other studies



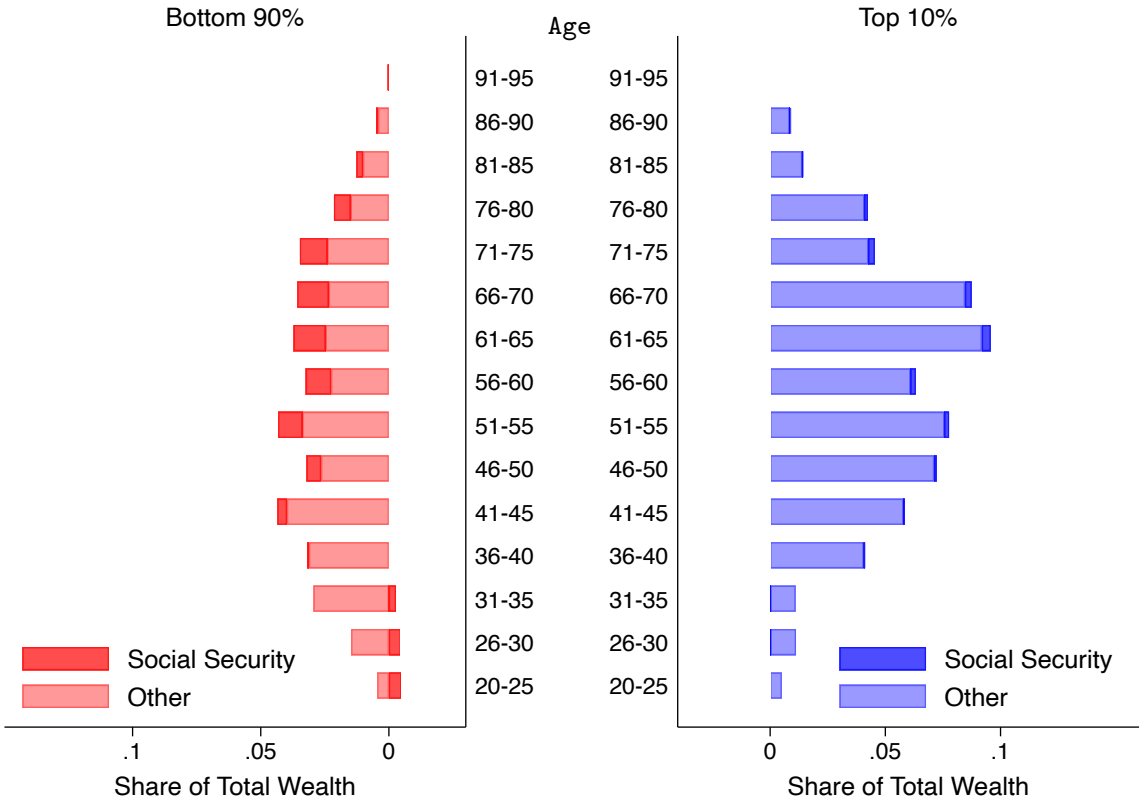
Conclusion

- Saez and Zucman (2016): Social Security should not be taken into account because it would call for the inclusion of other programs and would "not be clear where to stop"
- We argue that narrowly defined marketable wealth is not the right place to stop
  - Social Security is 57% of the wealth of the bottom 90%
  - Social programs can make marketable wealth inequality look worse
- Top wealth shares have not increased since 1989 when Social Security wealth in taken into account

Risk-free valuation: top shares



Risk-free valuation: Wealth composition over time



Risk-free valuation: Wealth composition in 2016