Retirement Wealth Inequality: Why Don’t Workers Claim Their Retirement Benefits?

Supervised by Cormac O’Dea, Lawrence D.W. Schmidt, and Taha Choukhmane

Agenda

- Motivation
- Prior findings
- My contribution
- Outlook

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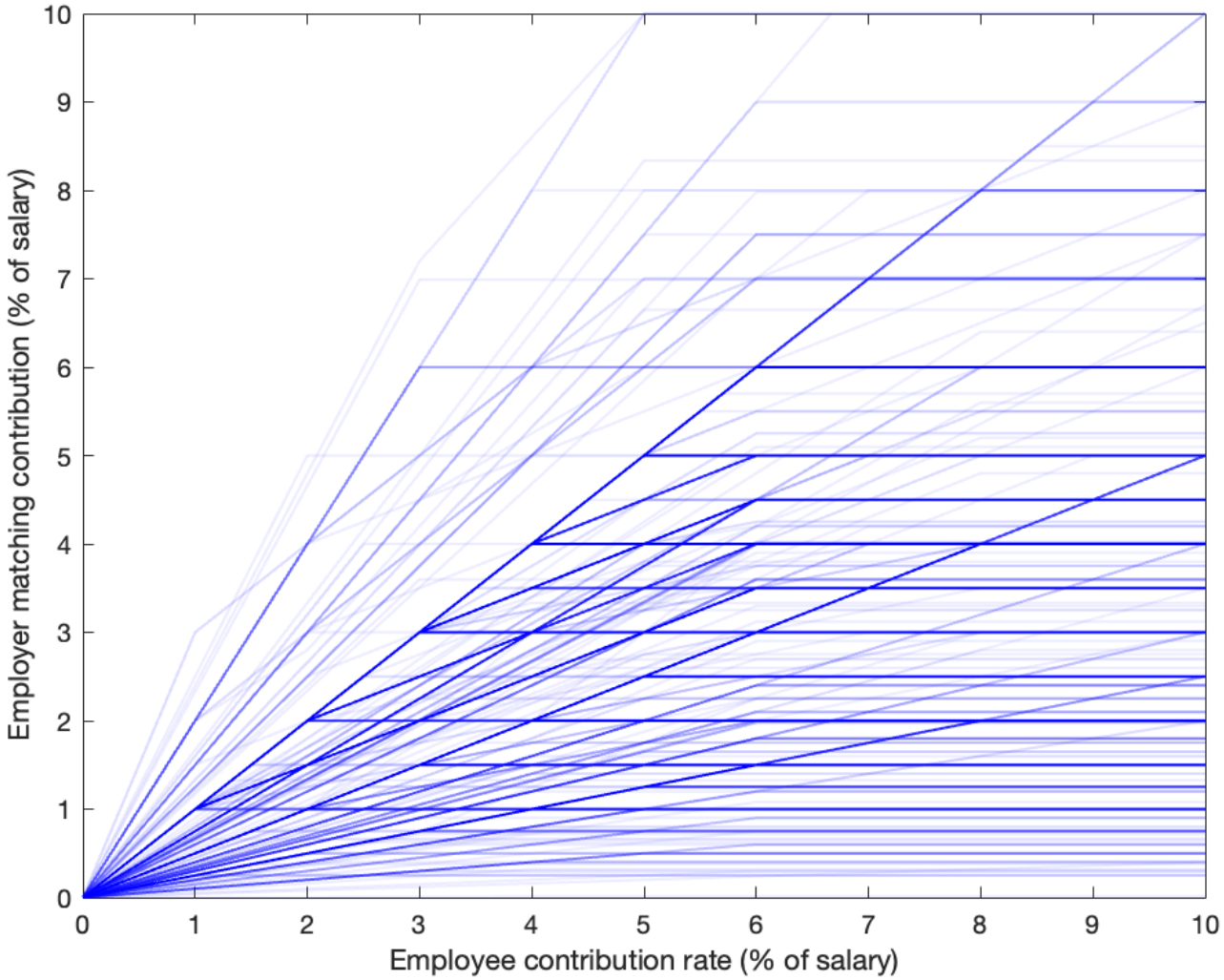
What are retirement saving incentives?

- Generally, 401(k) and 403(b) retirement plans.
  - “Defined contribution” programs.
  - Taxed favorably.
  - Saving in these accounts is often further subsidized by employers.

- Saving is subsidized by employer matching:
  - E.g., The employer matches participant contributions to the plan dollar-for-dollar up to 3% of compensation, then 50% of the next 2%.
    - If an employee saves 5% of their salary, the employer gives them an extra 4%.
      - Employee receives 104% of their salary!

All match schedules in 2015



More than 1.5% of US GDP is dedicated to Defined Contribution retirement saving programs annually.[1]

- Approximately 100 million Americans have access to such plans through their employers.

- More than 80% of employers offer matching contributions.[2]

- On average, employers match 50 cents per dollar contributed.
  - One of the *best* financial investment opportunities.
  - **Rewards those who can, and do, save more for retirement.**

1. Information from Choukhmane et al. (2023) unless otherwise marked.
2. Arnoud et al. (2021)

1.5% of US GDP is $381,600,000,000

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Defined Contribution plans primarily benefit the already advantaged.

- Workers who are
  1. White
  2. Possess a college degree
  3. Have richer parents or spouses
- Receive more benefits than their similar-income coworkers who are
  1. Black or Hispanic
  2. Are single parents
  3. Have lower-income relatives

- Matching contributions effectively offer a higher salary for the savers.
  - The consequent effects on wealth are large and are not directly addressed by other aspects of the retirement system.
- These results were found among individuals who have *similar incomes* but *differ along other demographic dimensions*.

Those who would benefit most from employer contributions tend to receive the least.

- Employer matching contributions to 401(k) plans were designed to incentivize saving.
  - But their effects on saving behavior appear small (based on employee responsiveness to match schedule changes).

- Efficiency-equity tradeoff: How can we redesign 401(k) plans so that they
  1. Cost employers the same amount
  2. Allocate funds more equitably (to those most in need)

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We need more data!

- There is a huge amount of unstructured data available on US firms.
  - We have more than a million retirement plan documents from US firms over many years (~70k firms over ~15 years).
- Hand-collecting firm retirement contribution information from all these documents would be prohibitively difficult.
  - But we have hand-encoded a subset.
- Lots of data + weakly structured data = machine learning

LLMs can analyze a retirement plan in seconds.

(...) L.L. Bean, Inc. 401(k) Retirement Savings/Deferred Profit Sharing Plan Notes to Financial Statements December 31, 2011 and 2010 5 Contributions Participants can contribute to their 401(k) Retirement Savings account between 1% and 50% of their compensation, as defined in the Plan. The Plan was amended during 2009 to allow for contributions of up to 50% of compensation, beginning January 1, 2010. Contributions are recorded in the period the Company makes payroll deductions from employees. The Company makes matching contributions at a rate of 100% of the participant's contribution up to 3% of the participant's compensation and 50% in excess of 3% of the participant's contribution up to 5% of compensation. Deferred profit-sharing contributions are determined annually by the Company's Board of Directors and may not be greater than the amount permitted as a current tax deduction under the applicable provisions of the Internal Revenue Code (the "Code"). There was no deferred profit-sharing contribution for the year ended December 31, 2011. Use of Estimates The preparation of the Plan's financial statements in conformity with accounting principles generally accepted in the United States of America (...)

LLM 1

The Company makes matching contributions at a rate of 100% of the participant's contribution up to 3% of the participant's compensation and 50% in excess of 3% of the participant's contribution up to 5% of compensation.

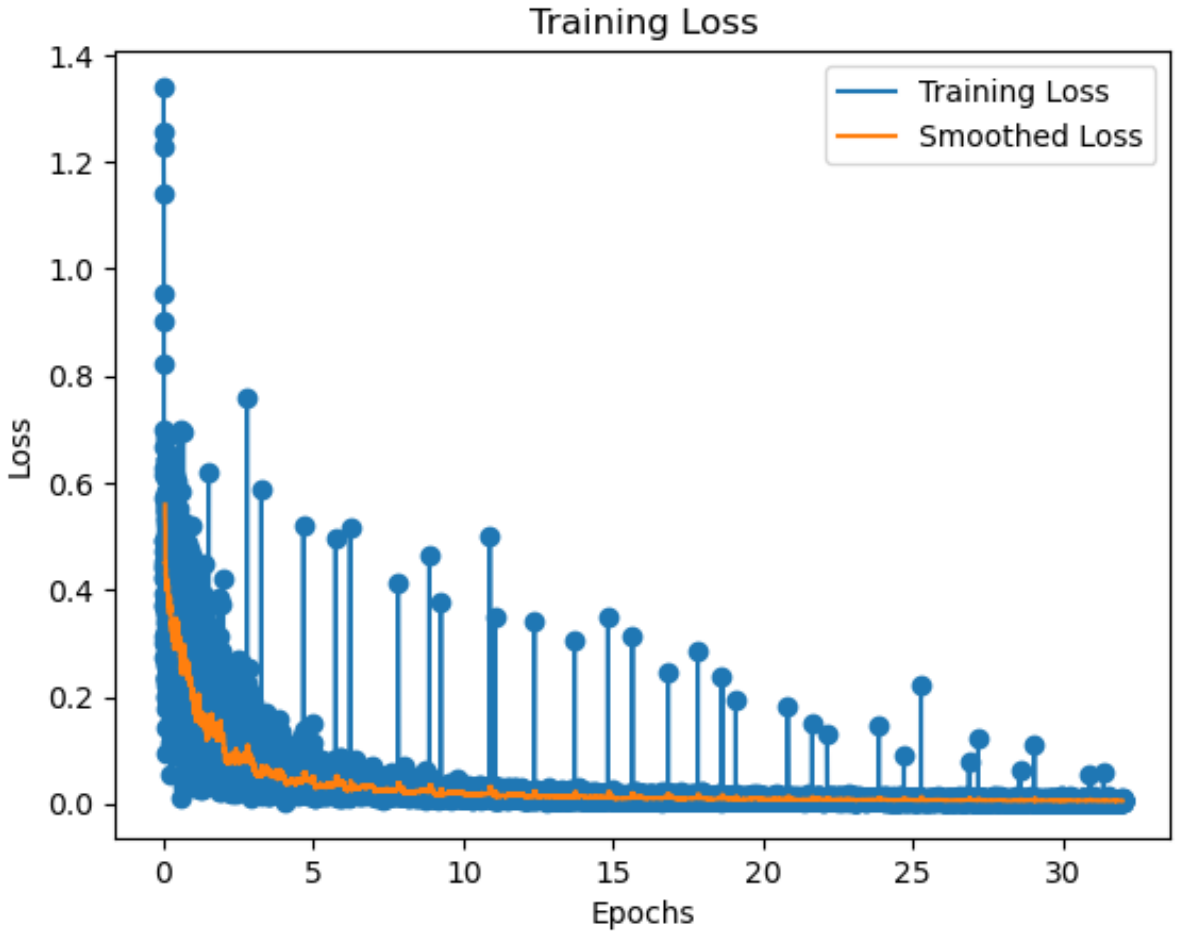
LLM 2

match_rate_1	cap_1	match_rate_2	cap_2	match_rate_3	cap_3
1	0.03	0.5	0.05	NA	NA

Yale pays for compute, so go open source.

- I have built an open source LLM training and inference pipeline on Yale's Grace high-performance computing cluster.
  - Open source = essentially free.
  - Commercial offerings = thousands of dollars per run.

- I have also led more data collection as the LLM's needs become clear.



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Our LLM-produced dataset will enable us to optimize retirement saving in the US.

- Current retirement saving infrastructure is sub-optimal (by equity standards).
- We will be able to run regressions, counterfactuals, etc. on retirement data that includes a sizable fraction of US firms.
- This will allow us to *concretely* determine what optimal retirement saving policies look like and push firms in that direction.
- 1.5% of GDP, when optimally allocated, can have a huge impact on the economy and on each individual retiree.

Works Cited

- Arnoud, A., T. Choukhmane, J. Colmenares, C. O'Dea, and A. Parvathaneni (2021). The evolution of U.S. firms' retirement plan offerings. evidence from a new panel data set. Technical report, NBER.
- Choukhmane, T., J. Colmenares, C. O'Dea, J. Rothbaum, and L. D.W. Schmidt (2023). Who Benefits from Retirement Saving Incentives in the U.S.? Evidence on Racial Gaps in Retirement Wealth Accumulation. Working paper, https://drive.google.com/file/d/1N8EMYkFat6j-fJfyHqq9wy5RrFj5NuoO/view