AI Financial Advice: Supply, Demand, and Life Cycle Implications

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July 23, 2026

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   Example: Gender gap in investment advice $\approx$ 2/3 demand, 1/3 supply

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2. Describing Prompts and Baseline LLM Financial Advice
3. Three Facts about LLM Financial Advice
4. Heterogeneity in LLM Financial Advice: Supply vs. Demand
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State Variables

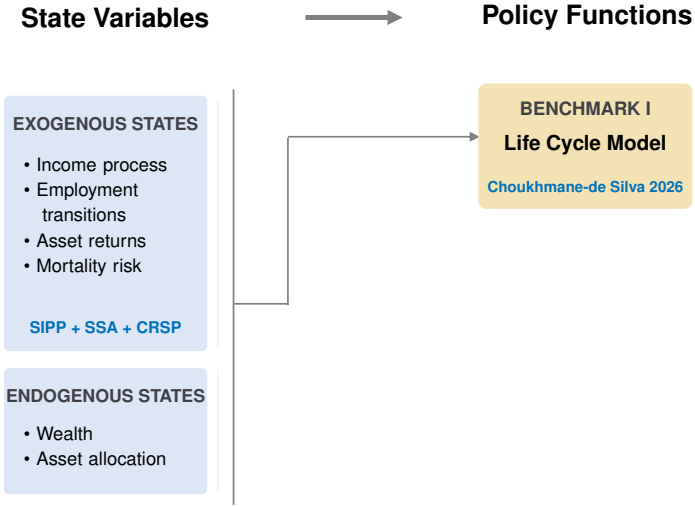
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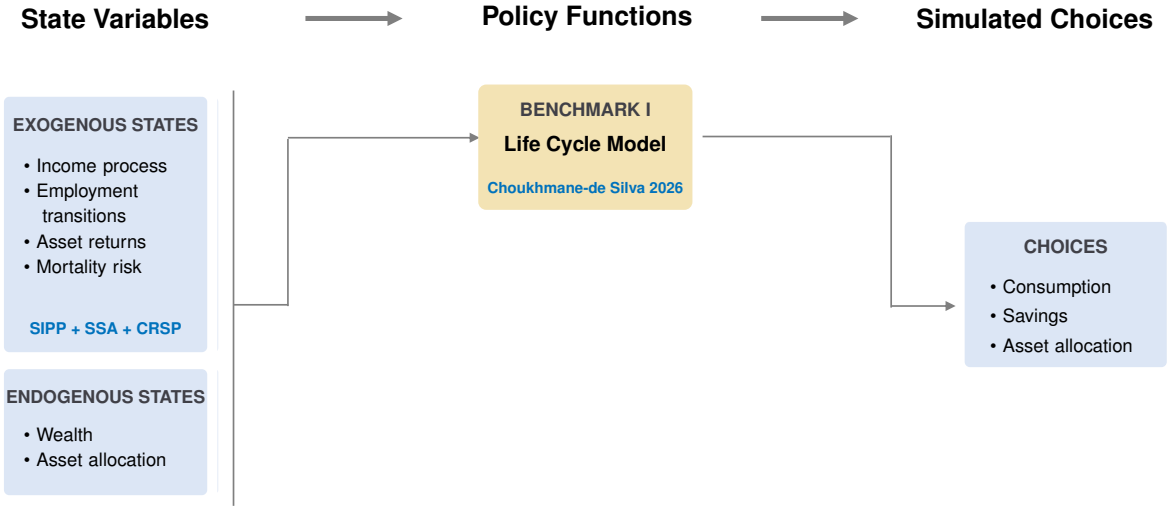
- Income process
- Employment transitions
- Asset returns
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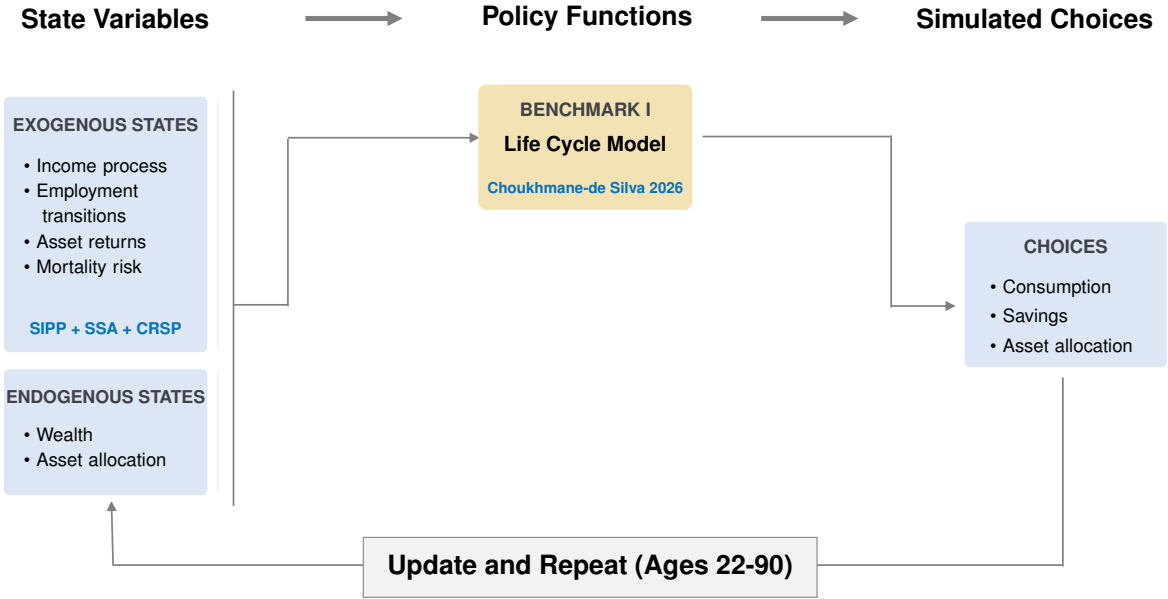
SIPP + SSA + CRSP

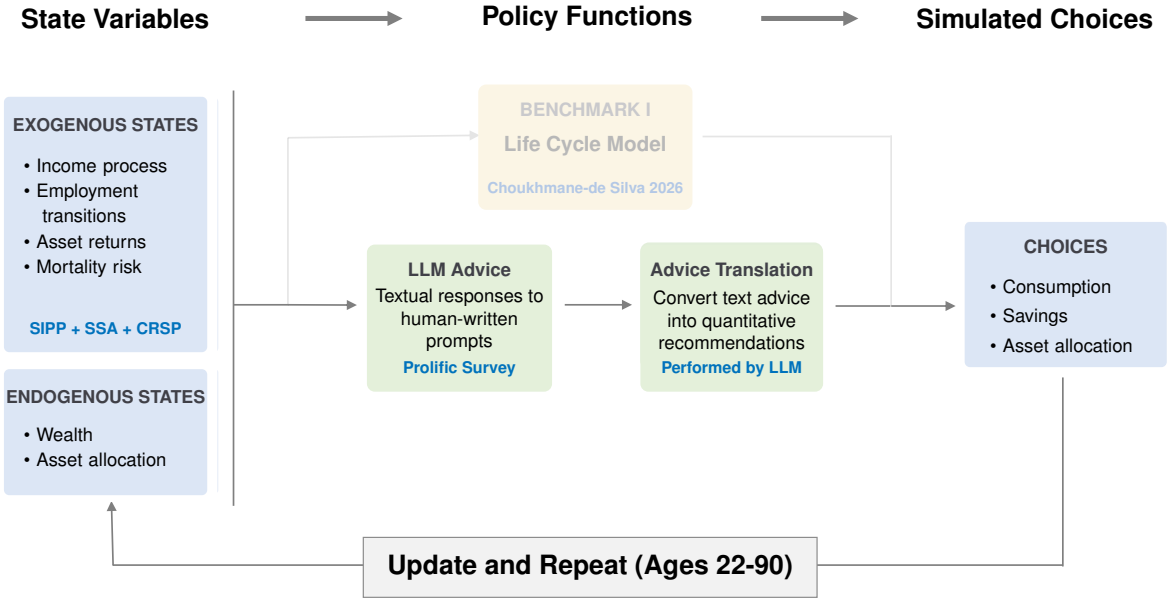
ENDOGENOUS STATES

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- Asset allocation


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Life Cycle Model
Choukhmane-de Silva 2026


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Simulated Individual

Age: 26
Employment status: Employed
Pre-tax income: $68,810
Asset allocation:
- Fixed income: $17,938
- Diversified stocks: $6,442
- Individual stocks: $0
- Alternative assets: $0

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Prolific Prompt (Random by Age-Employment-Income)

Part 1: Financial Situation
I make around 75000 a year before taxes and pay 1700 a month in rent. That is my primary income and I make some money completing paid research surveys. I have around 80000 saved. I am 25.

Part 2: Spending Advice
I am looking for ways to go out more and enjoy my life without sacrificing my savings. I have a good grip on money and actually struggle to justify spending.

Part 3: Investing Advice
How should I put away money now that interest rates are going down. Safe bets like my money market and CDs are no longer yield much money.

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Part 1: Financial Situation
I make around **{income}** a year before taxes and pay 1700 a month in rent. That is my primary income and I make some money completing paid research surveys. I have around **{wealth}** saved. I am **{age}**.

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Prolific Prompt (Random by Age-Employment-Income)

Part 1: Financial Situation
I make around **68810** a year before taxes and pay 1700 a month in rent. That is my primary income and I make some money completing paid research surveys. I have around **24380** saved. I am **26**.

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Prompt Sent to LLM (via API Call with Clear Context)

"I make around **68810** a year before taxes and pay 1700 a month in rent. That is my primary income and I make some money completing paid research surveys. I have around **24380** saved. I am **26**.

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LLM Response

Given your income/savings, you can safely "permission" yourself to spend more without derailing goals by separating **spending from saving**.

1) **Set a floor, then automate:** Keep an emergency fund of **3-6 months** of essential expenses in a **HYSA/money market** (don't chase yield; it's for safety). Automate investing each payday (e.g., **15-25% of gross**, adjust to comfort). What's left is guilt-free.

2) **Create a "fun" system:** Open a separate checking/savings called "FUN". Auto-transfer a fixed amount (start **$300-$600/month**). If it's there, you must use it or roll it to a bigger experience.

3) **Where to put money as rates fall:** For long-term (5+ years): **low-cost broad index funds/ETFs** (e.g., total US + total international) in 401(k)/Roth IRA first. For medium-term goals (1-5 years): HYSA + Treasuries/T-bill ladder (often tax-advantaged vs CDs), or a short-term bond fund if you can tolerate modest fluctuation.

4) **Psychology:** Treat spending from the FUN account as a goal, not a failure-your system already protected savings.

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LLM Advice (Translated with LLM)

Consumption: **$44,378**
Total savings: **$17,845**
Asset allocation:
- Fixed income: **+$5,400**
- Diversified stocks: **+$12,445**
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Labor Market Transitions

- Age and income specific job-to-job and unemployment transitions
- Persistent and transitory income shocks

Asset Returns

- Fixed income: constant risk-free rate
- Diversified stocks: CRSP Value-Weighted Index
- Individual stocks: CAPM + Bessembinder (2018)
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Labor Market Transitions

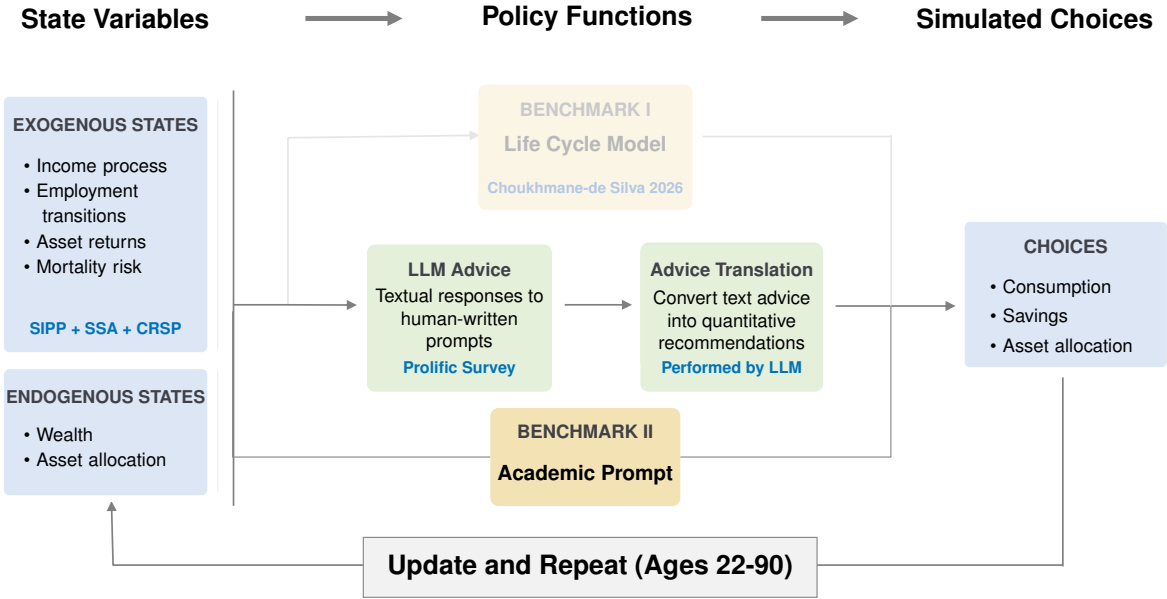
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Academic Prompt (Directly Outputs Numeric Choices)

You are a U.S. financial advisor acting in the best interest of your clients. You are academically trained in household finance, modern portfolio theory, and life cycle planning. **Your objective is to produce high-quality personalized financial advice tailored to my circumstances** under these baseline assumptions:

- Normal life expectancy, living expenditures, retirement age, employment risk, and income risk
- Current U.S. tax law and Social Security rules stay unchanged
- Risk-free savings earn 2% real return annually
- Real stock returns match the 60 year U.S. total stock market historical average
- I am single with no dependents and have no bequest motive. I do not care about wealth after death.

Given my ****age, employment status, annual post-tax salary, average annual post-tax income (since age 22), taxable account balances, and total net wealth****, give the best financial advice for allocating my resources across annual spending and the following four taxable accounts:

[. . .]

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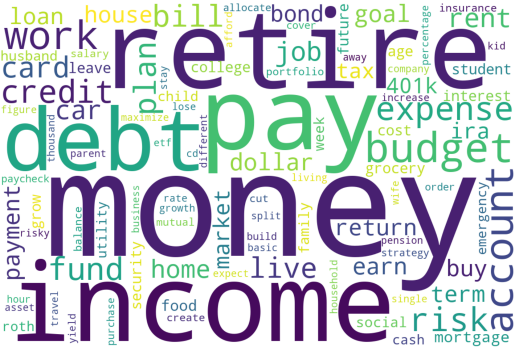
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- Collect demographics, financial literacy, risk/time preferences, saving motives
- Aim for authentic prompts: 952 pass quality check (AI detection + manual specificity)

  "Please write naturally, as you would if you were really asking advice for yourself.
  There are no right or wrong answers.
  Please do not consult outside sources or use AI tools to complete this task"

What Do **Individuals** Write About?

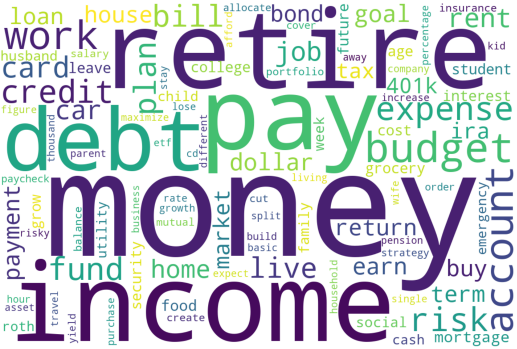
Individuals' Prompts



Word Size $\propto$ Pr(word)

What Do **LLMs** Respond?

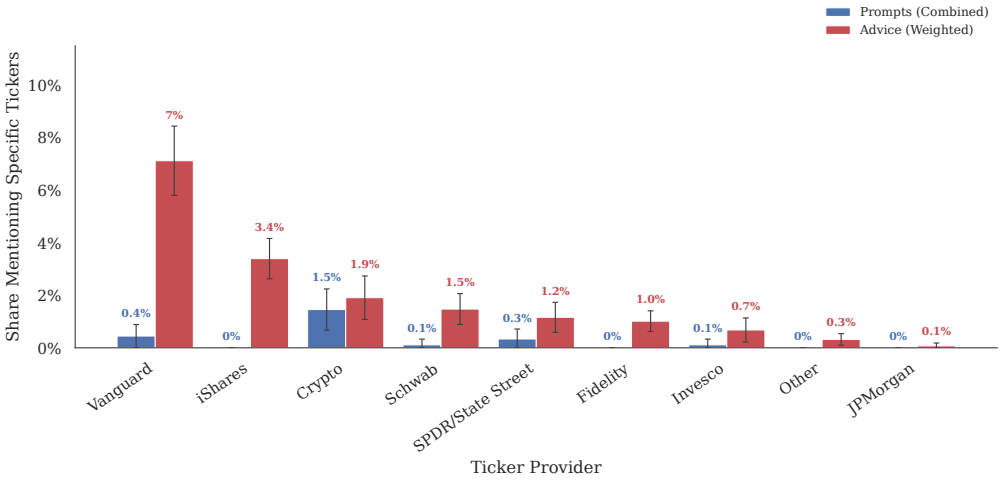
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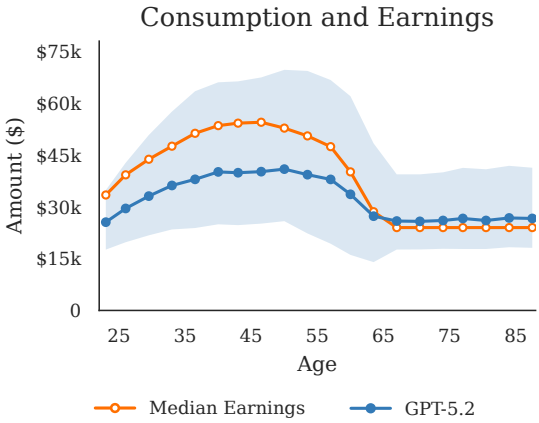
LLMs' Responses

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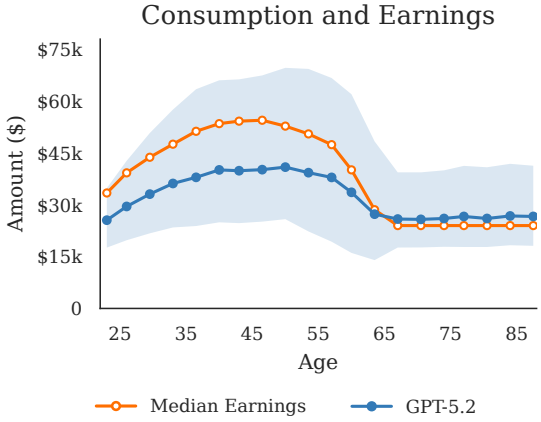
Which Investment **Products** Are Discussed?

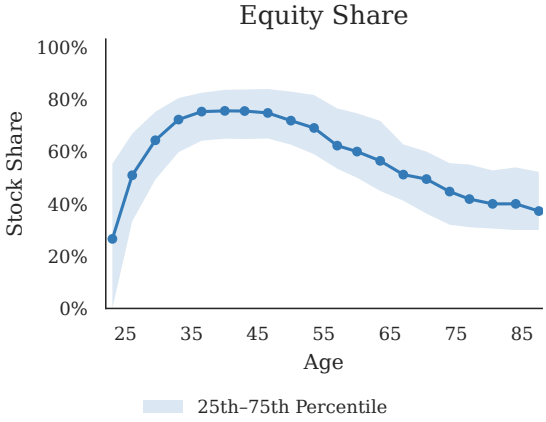


Quantitative Advice: Baseline Simulation

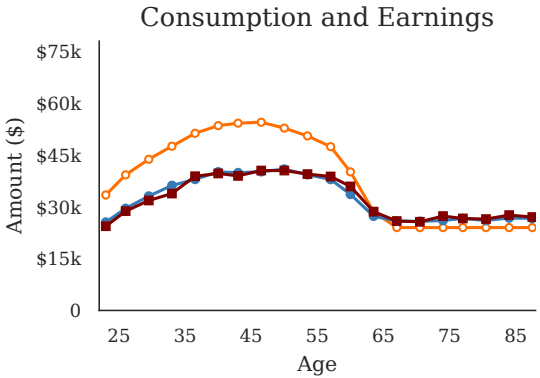


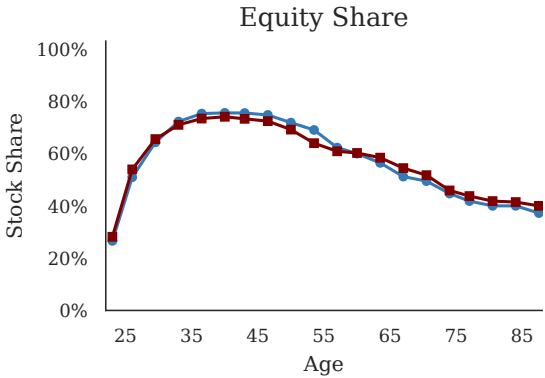
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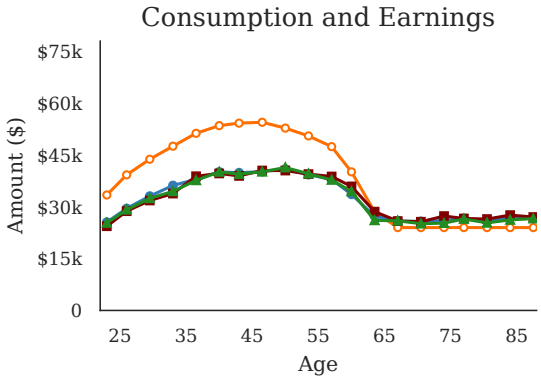
Quantitative Advice: Other Models

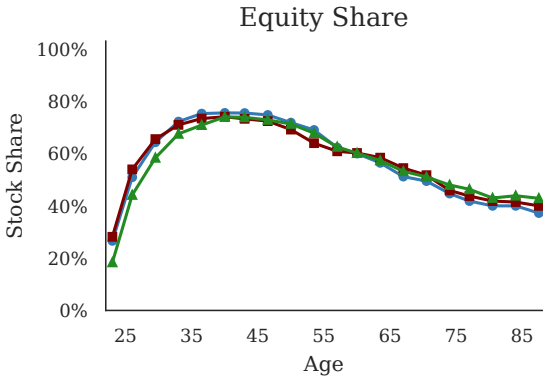




Median Earnings GPT-5.2 Gemini 3 Flash

Quantitative Advice: Other Models





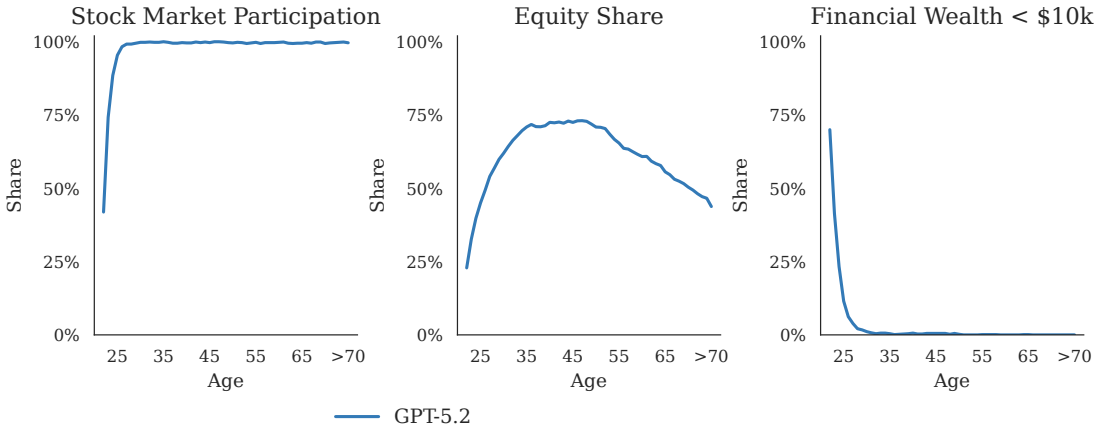


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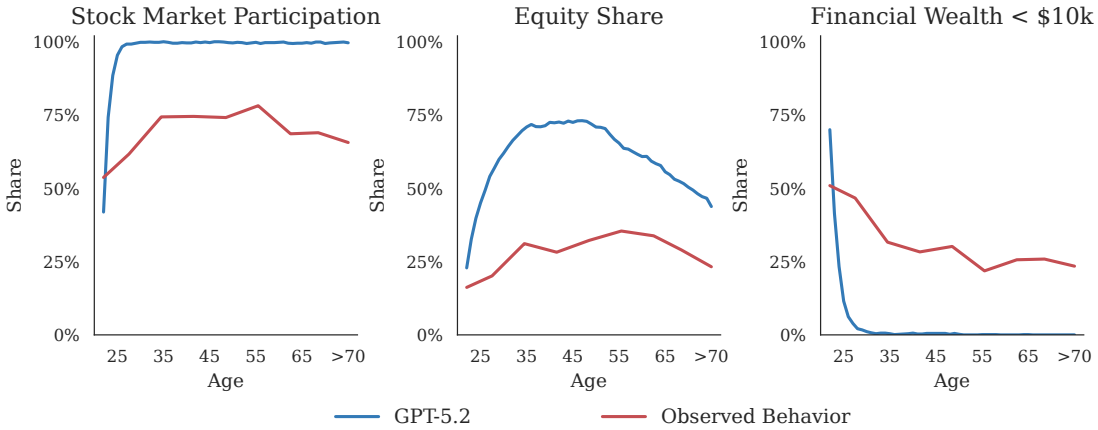
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Fact 1: **Advice moves most individuals towards life cycle theory**

Observed Behavior versus LLM Advice



Observed Behavior versus LLM Advice

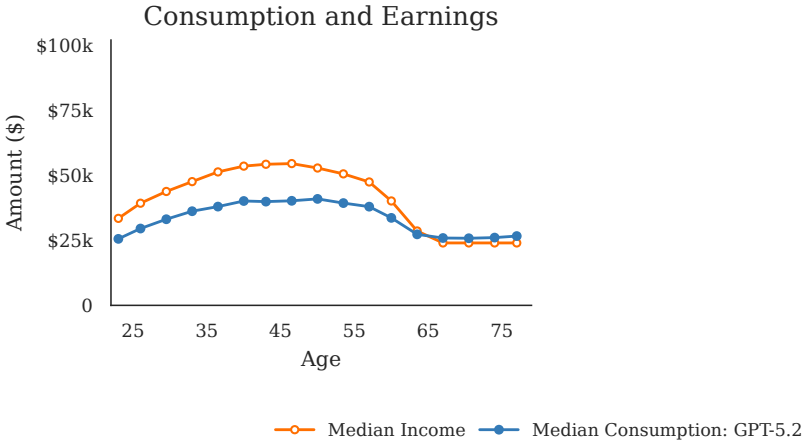


Higher stock market participation, age-declining equity shares after 45, and larger precautionary buffers

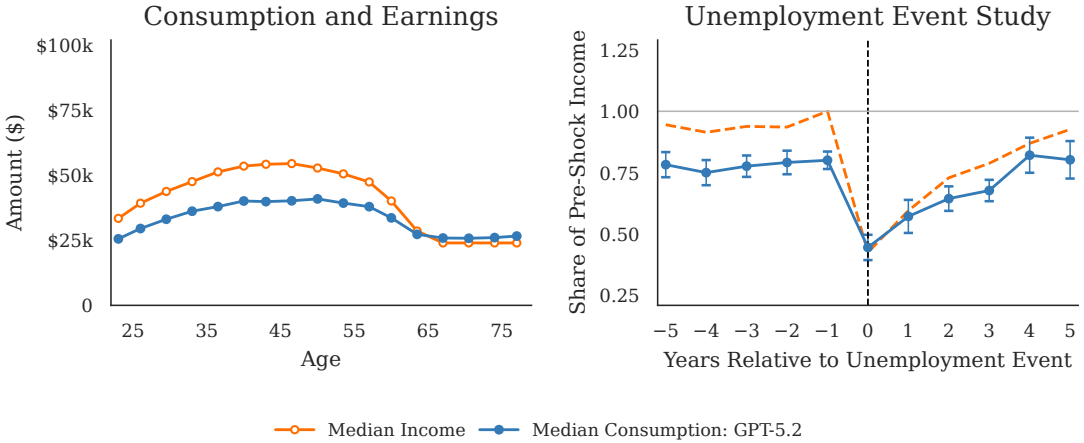
Fact 1: Advice moves most individuals towards life cycle theory

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LLM Advice Insufficiently Smooths Consumption

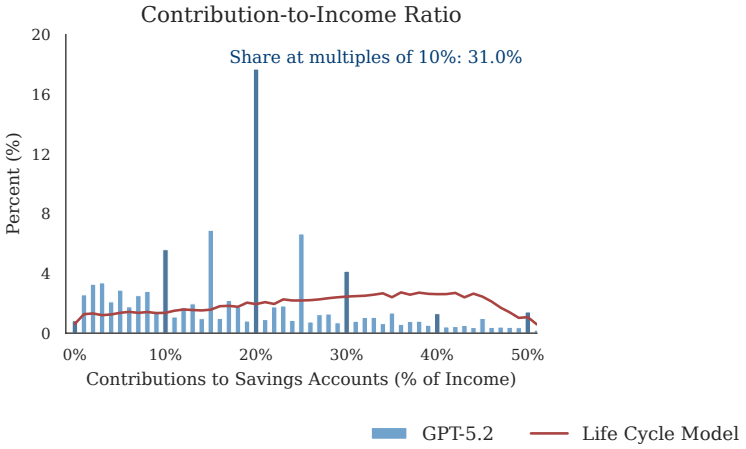


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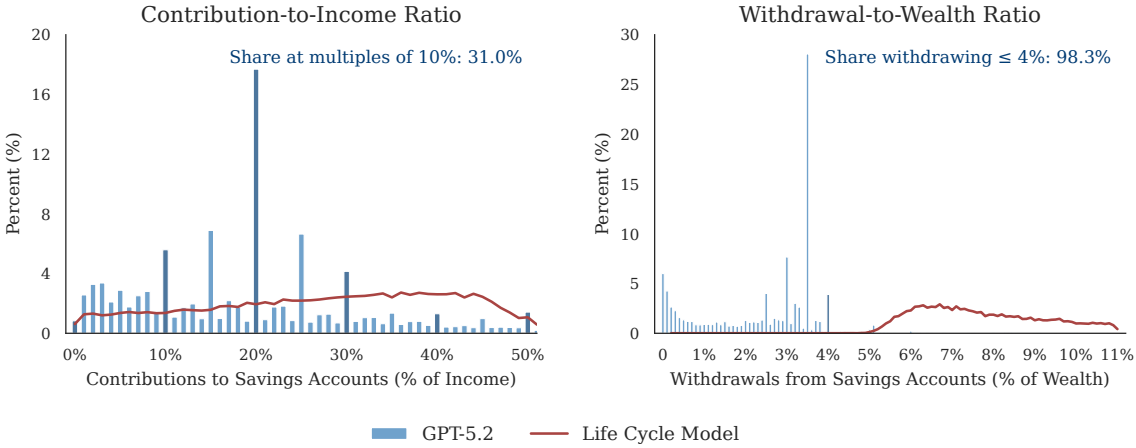
Consumption drops at unemployment despite large buffer stocks (Gruber 1997, Ganong-Noel 2019)

LLM Advice Relies on Heuristics



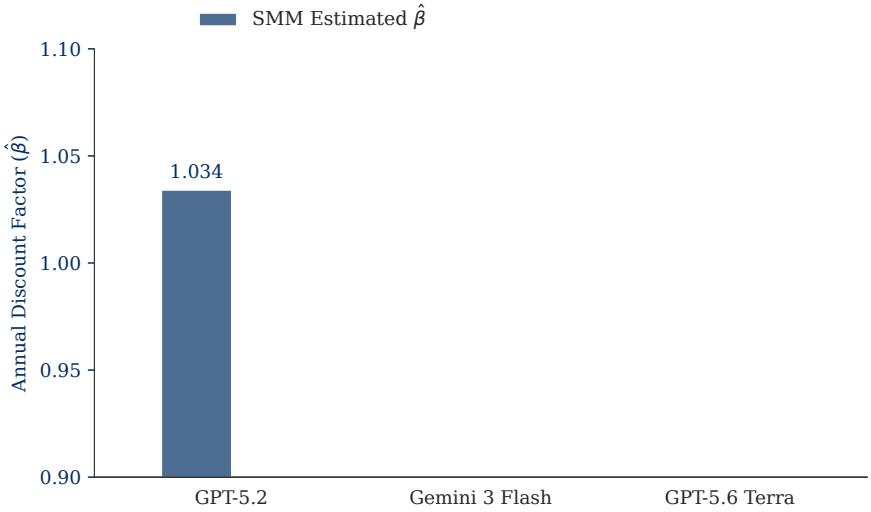
Savings rates bunch at round numbers...

LLM Advice Relies on Heuristics

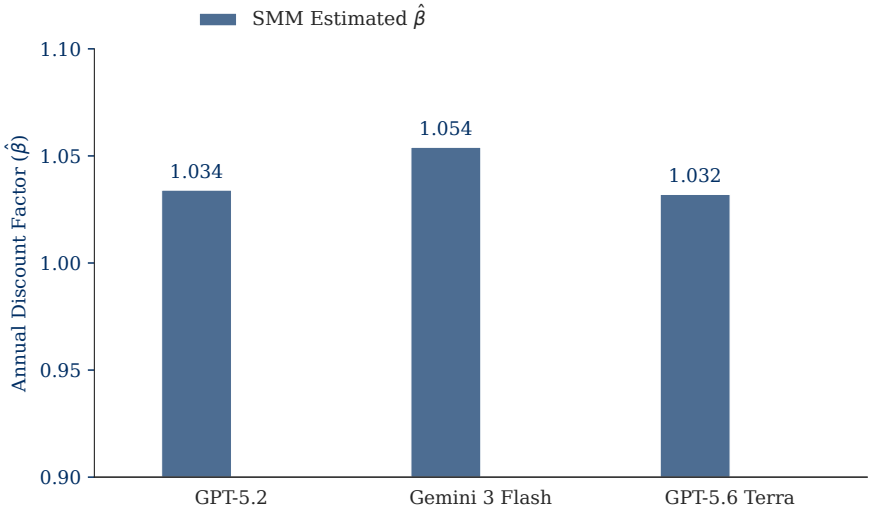


... and withdrawals respect the popular 4% withdrawal rule (Cooley et al. 1998)

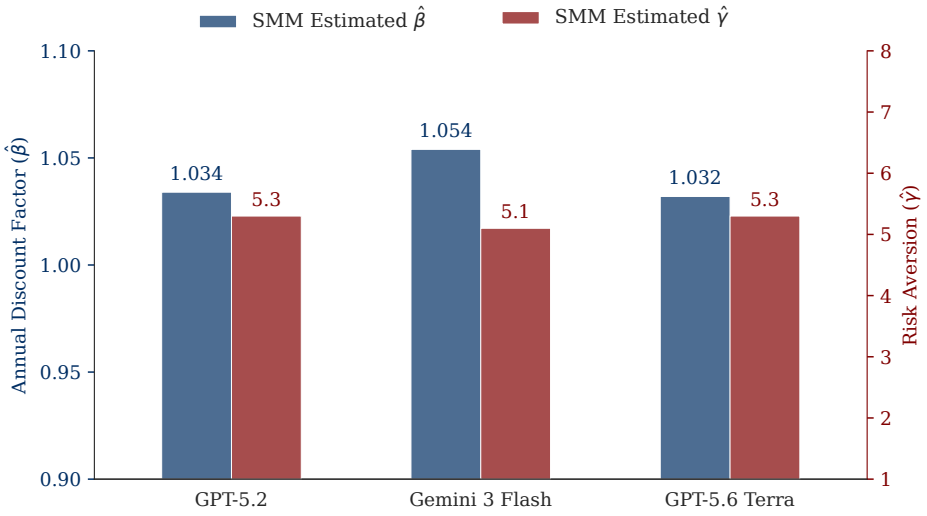
LLM Advice Implies Unusually High Patience



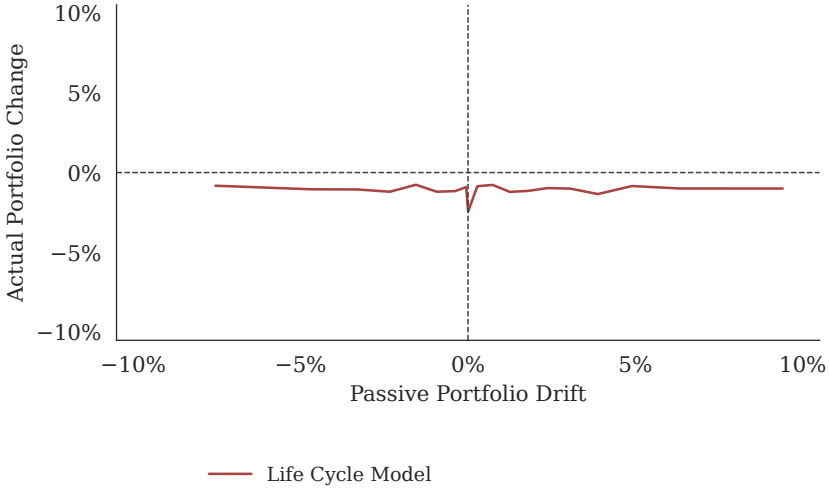
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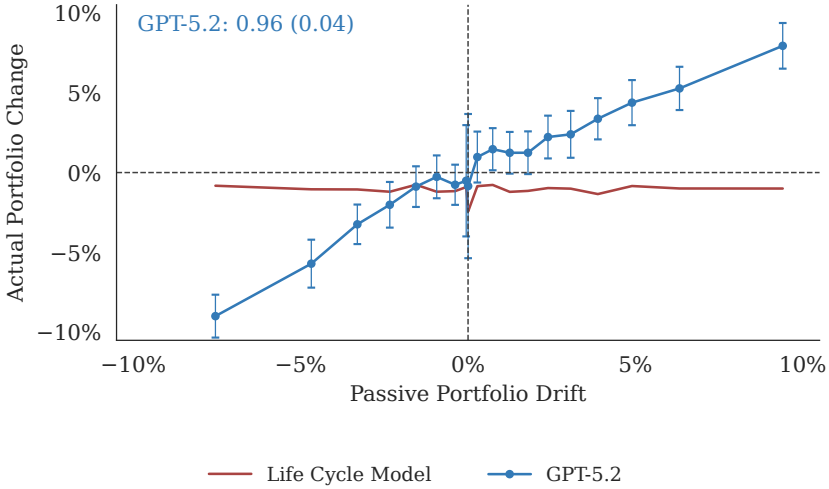
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LLM Portfolios Exhibit Substantial Inertia



LLM Portfolios Exhibit Substantial Inertia



Equity shares drift passively with realized returns (Calvet et al. 2009)

Academic Prompt Reduces Some Departures from Theory

1. **Fewer heuristics**: No bunching at round numbers + more withdrawals
2. **Better consumption-smoothing** over the life cycle and during unemployment
3. **More realistic patience**: SMM estimates become $\hat{\beta} = 0.99$ and $\hat{\gamma} = 4.7$
4. **No change in portfolio inertia**: Actual–passive portfolio slope unchanged

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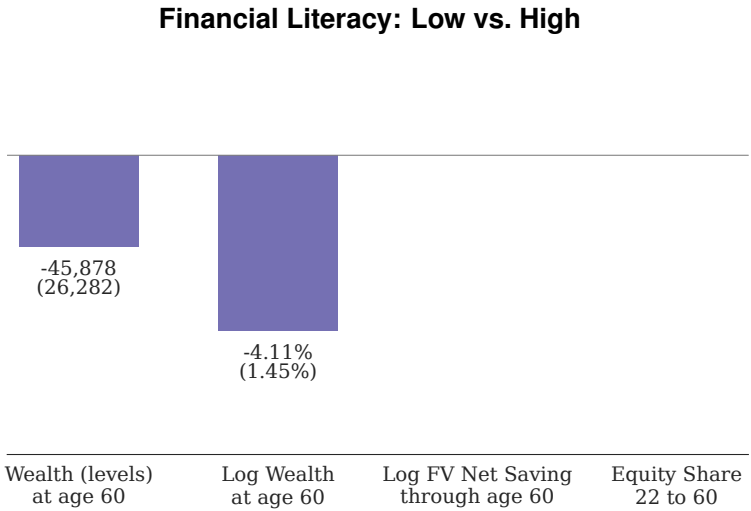
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$\Rightarrow$ LLM advice depends on characteristics of **prompts** (demand)

Fact 1: Advice moves most individuals towards life cycle theory

Fact 2: Advice departs from life cycle theory in systematic ways

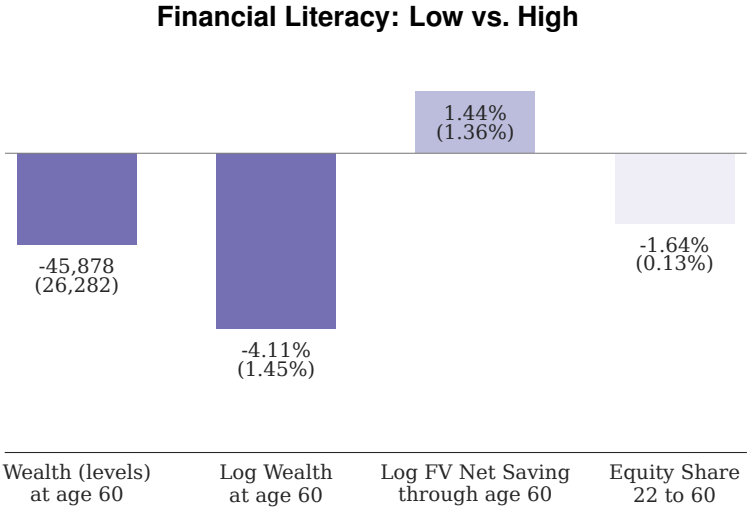
Fact 3: **Advice varies systematically across groups**



Note: Identical realization of shocks across simulations

(Lusardi and Mitchell 2023)

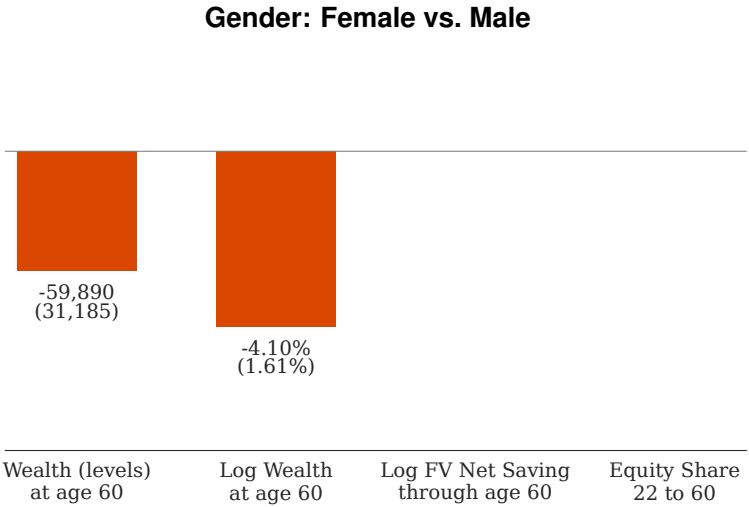
Low-Financial-Literacy Prompts Accumulate Less Wealth



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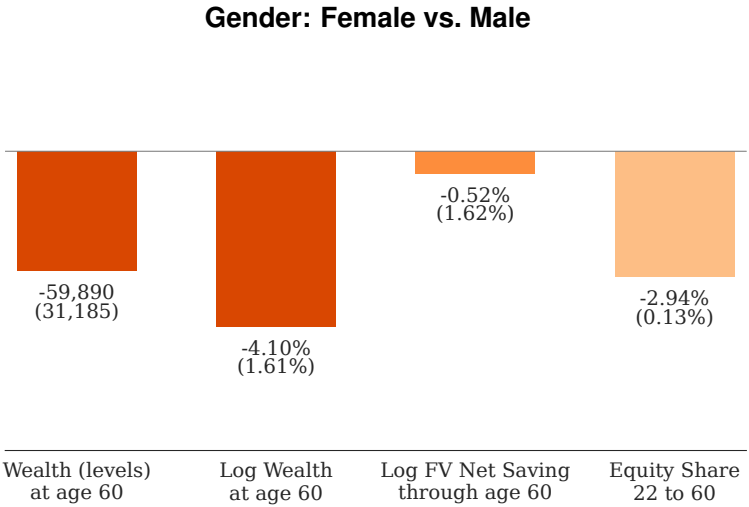
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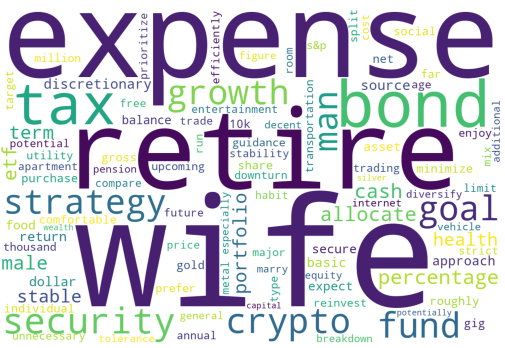
Are these Differences Driven by

Demand (Questions Asked)

or **Supply** (Model Response)?

Differences in **Prompts** Between Men and Women

Men

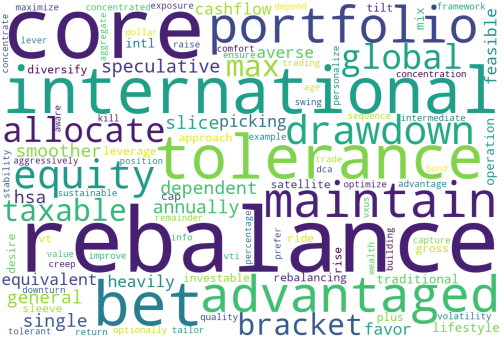


Women

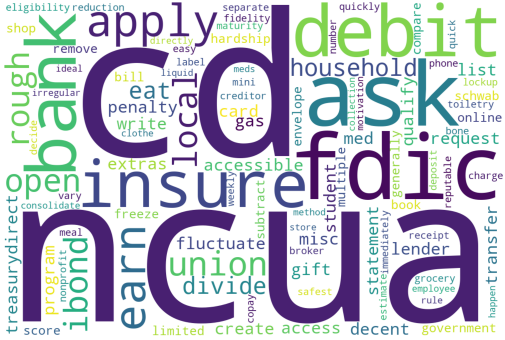
Word Size $\propto$ Pr(word | group) $-$ Pr(word | other group)

DIFFERENCES IN **LLM RESPONSES** BETWEEN MEN AND WOMEN

Men



Women



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Separating Supply and Demand: Methodology

Experiment: Consider prompts that do not identify gender (83%) and randomly insert:

"I am a man" or *"I am a woman"*

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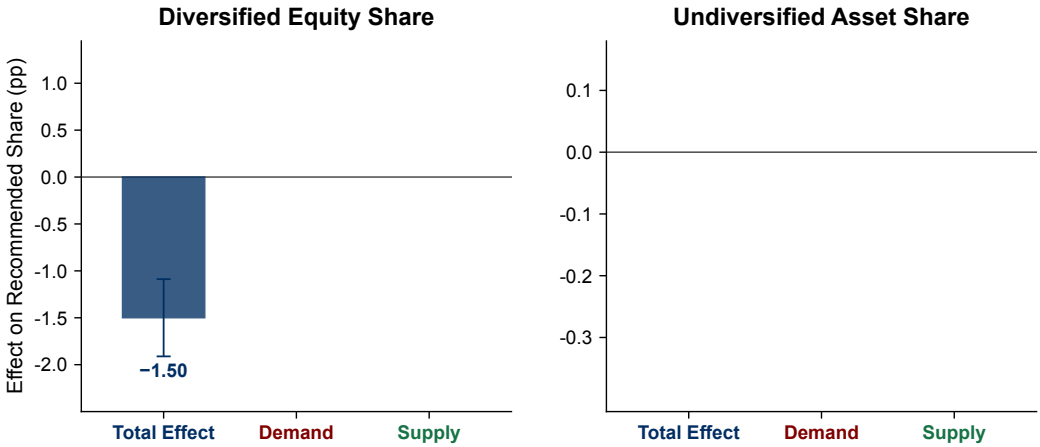
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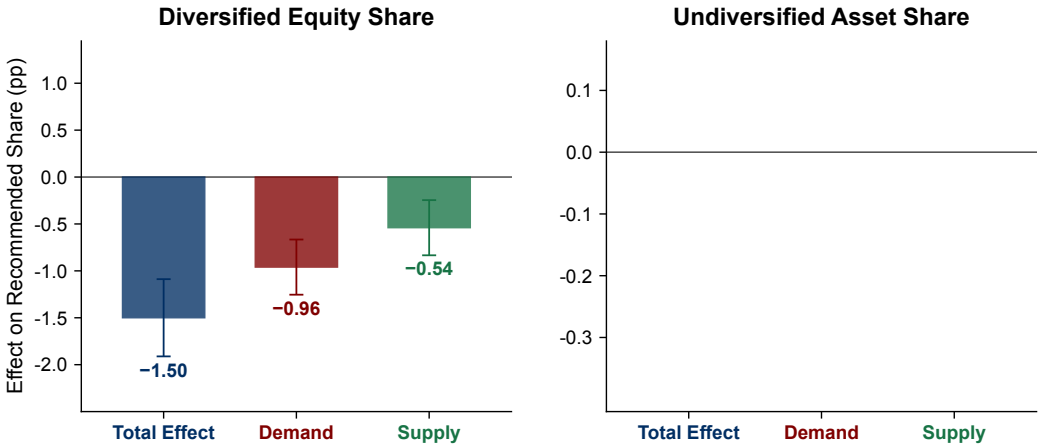
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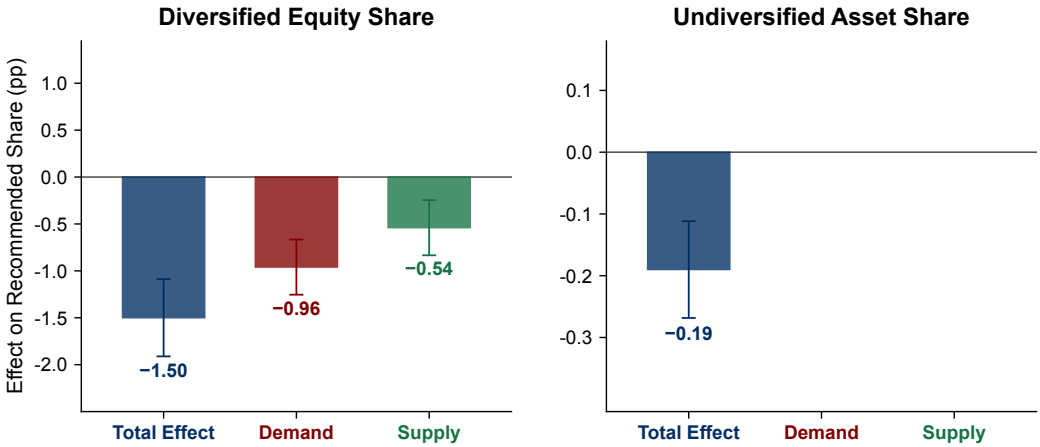


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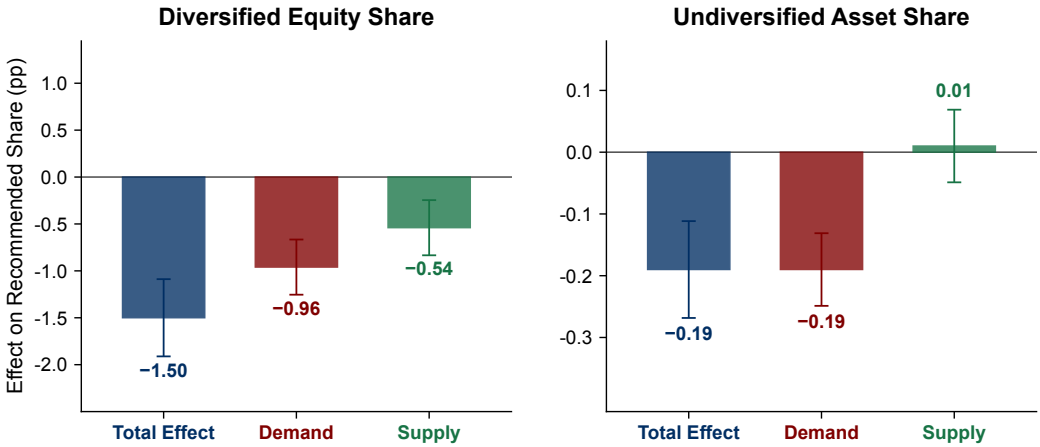


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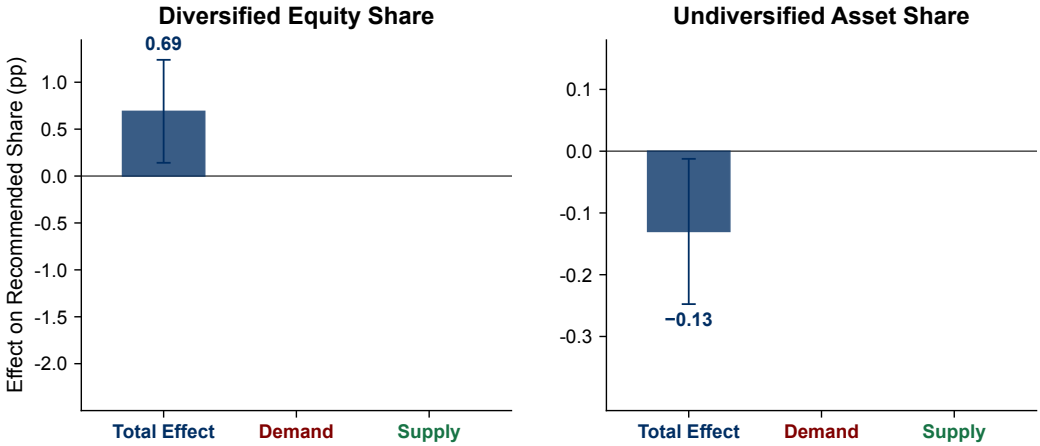
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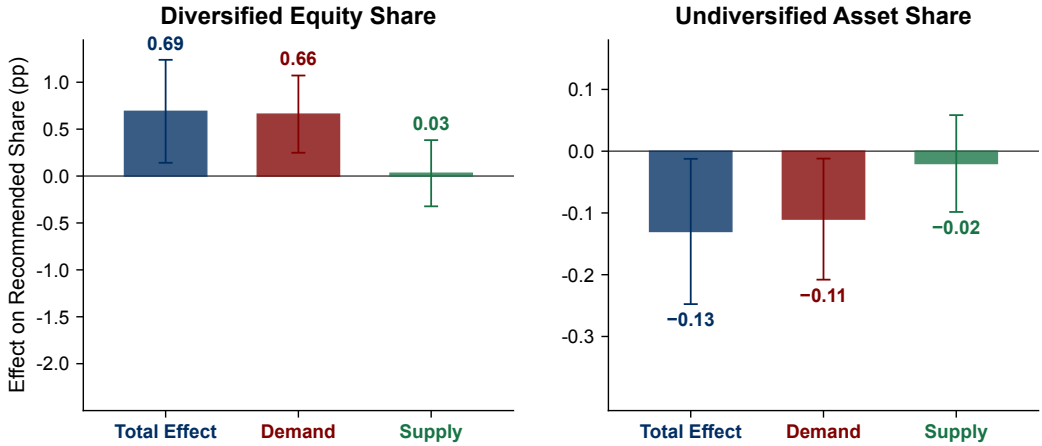
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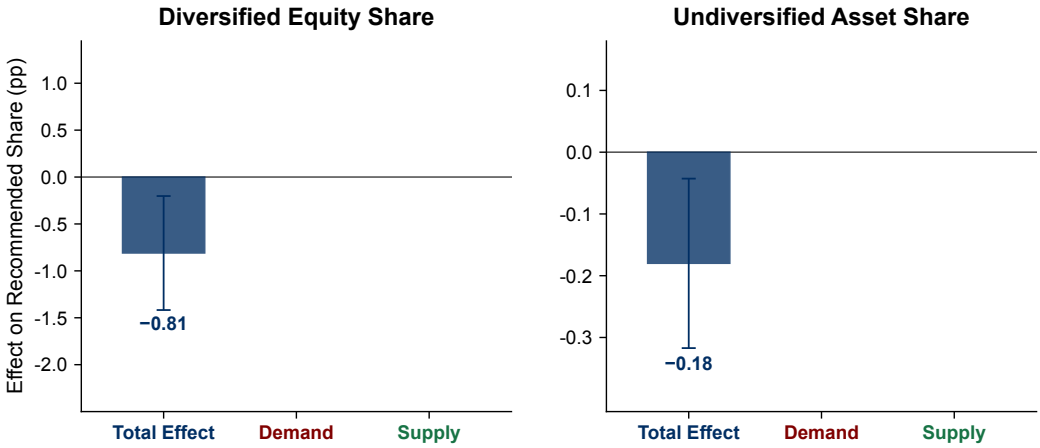
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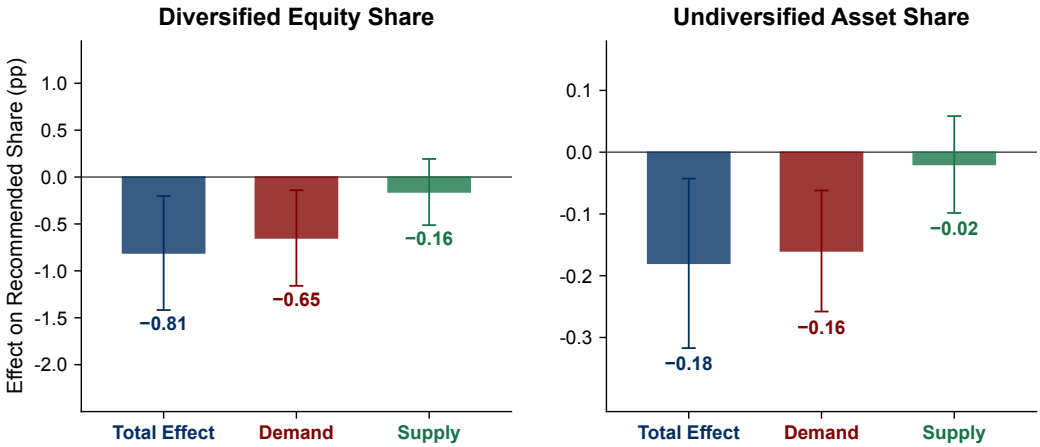
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Separating Supply and Demand: Interpretation

Separating **supply** from **demand** is **normatively important**

- **Supply**-driven differences may or may not be desirable
  - **Implicit inference**: demographics correlate with advice-relevant characteristics
  - Or **algorithmic bias**: reproduces training-data stereotypes
- **Supply** shaped by design: no race effect likely reflects **training safeguards**
- **Demand**-driven differences reflect what people actually write about
  - Good for **personalization**, but may amplify existing biases

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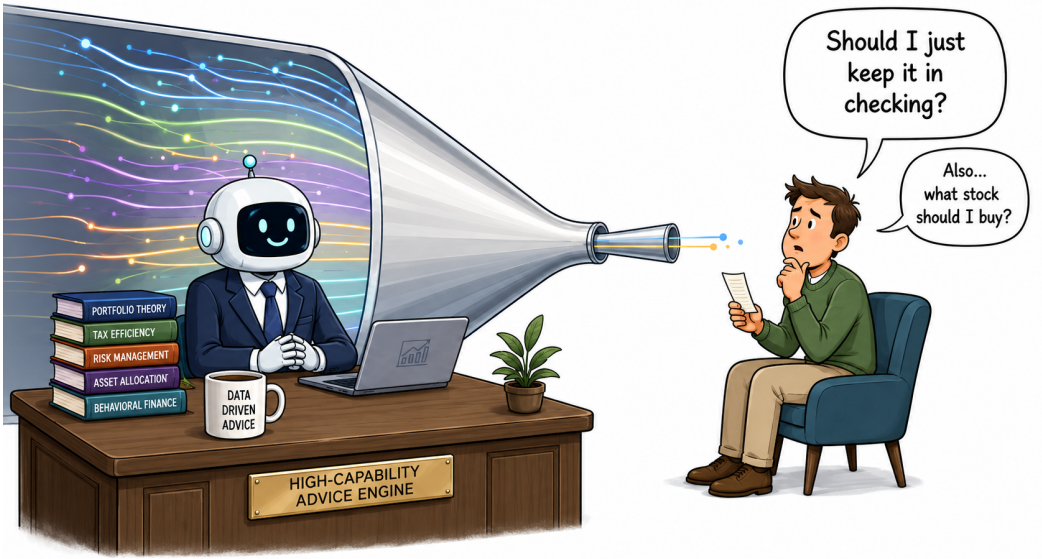
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How will these results change as models evolve?

This paper:

1. **Scalable methodology** to track model and user evolution
2. **Diagnostic tests grounded in life cycle theory** that can guide model design
3. **Demand-side** will likely evolve more slowly, remaining a binding constraint



Source: ChatGPT-5.6