

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

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August 2026

Motivation

- Large language models (LLMs) are transforming access to (financial) advice
 - ▶ More than **50%** of US adults have used LLMs for financial guidance
 - ▶ Already potentially **exceeds** human advisor usage (Lloyds 25, J.D. Power 25, Gallup 25)
- **Promise:** LLMs *can* improve financial decisions by providing advice that is...
 - ▶ Lower cost, widely-accessible, higher quality, more personalized with soft skills
- However, the **impact** of LLM financial advice will depend on:
 1. **The content of the advice itself** ← **This Paper**
 2. How people change their behavior in response to the advice

This Paper

What financial advice do large language models give?

How and **why** does this advice vary across individuals?

Challenges:

1. **Uncertainty/Dynamics:** Impacts of **financial** advice depend on entire life cycle
→ Simulate dynamic effects using realistic asset and labor market conditions
2. **Demand:** LLM responses depend on **questions** people ask
→ Conduct a survey to elicit human-written prompts for financial advice
3. **Supply:** Models are complex and may respond to many aspects of the prompt
→ Randomize prompt features to isolate supply from demand
Example: Gender gap in investment advice $\approx$ 2/3 demand, 1/3 supply

Outline

Methodology for Simulating LLM Financial Advice

Describing Prompts and Baseline LLM Financial Advice

Three Facts about LLM Financial Advice

Heterogeneity in LLM Financial Advice: Supply vs. Demand

Conclusion

State Variables



Policy Functions



Simulated Choices

EXOGENOUS STATES

- Income process
- Employment transitions
- Asset returns
- Mortality risk

SIPP + SSA + CRSP

ENDOGENOUS STATES

- Wealth
- Asset allocation

BENCHMARK I

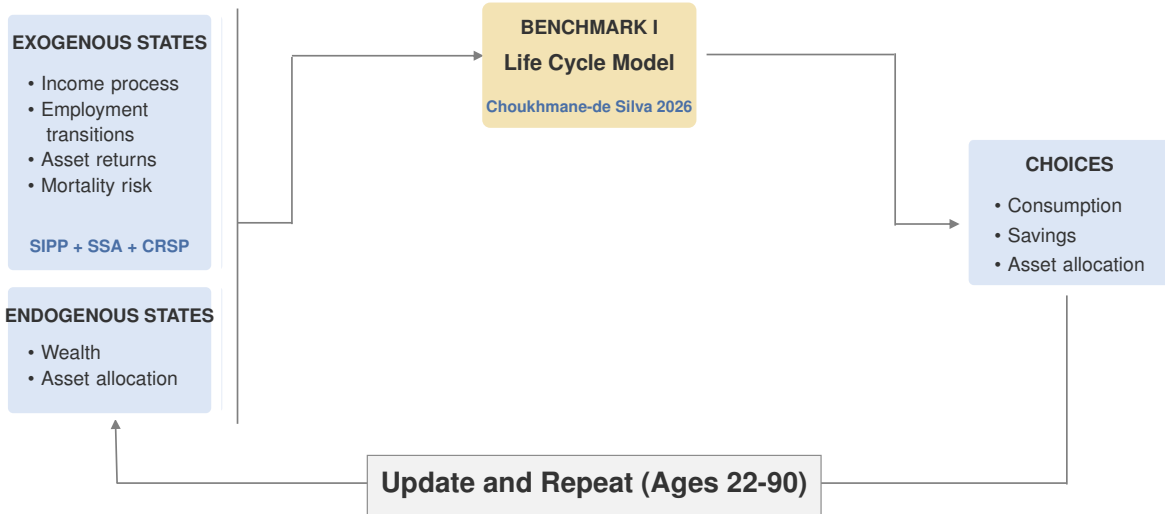
Life Cycle Model

Choukhmane-de Silva 2026

CHOICES

- Consumption
- Savings
- Asset allocation

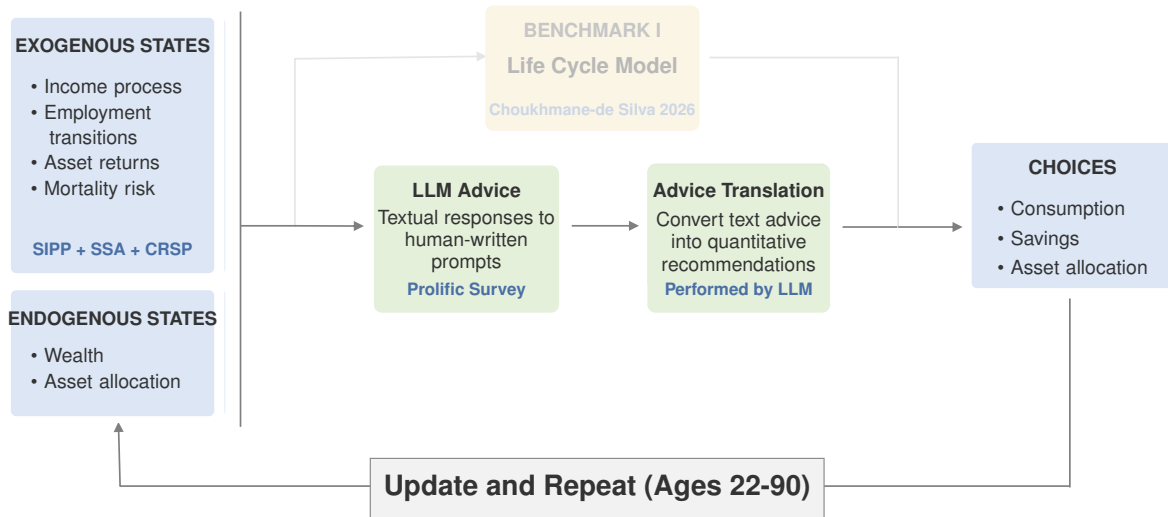
Update and Repeat (Ages 22-90)

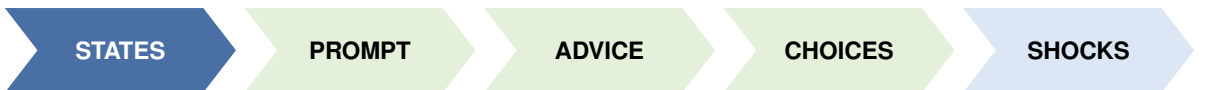


State Variables

Policy Functions

Simulated Choices





STATES

PROMPT

ADVICE

CHOICES

SHOCKS

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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Prolific Prompt (Random by Age-Employment-Income)

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}**.

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.

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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**.

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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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**.

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.

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

LLM Advice (Translated with LLM)

Consumption: **\$44,378**
Total savings: **\$17,845**
Asset allocation:
- Fixed income: **+\$5,400**
- Diversified stocks: **+\$12,445**
- Individual stocks: \$0
- Alternative assets: \$0

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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)
- Alternative assets: individual stock return process with independent realizations

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Simulated Individual

Age: **27**
Employment status: Employed
Pre-tax income: **\$73,016**
Asset allocation:
- Fixed income: **\$23,805**
- Diversified stocks: **\$19,505**
- Individual stocks: \$0
- Alternative assets: \$0

Labor Market Transitions

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

Asset Returns

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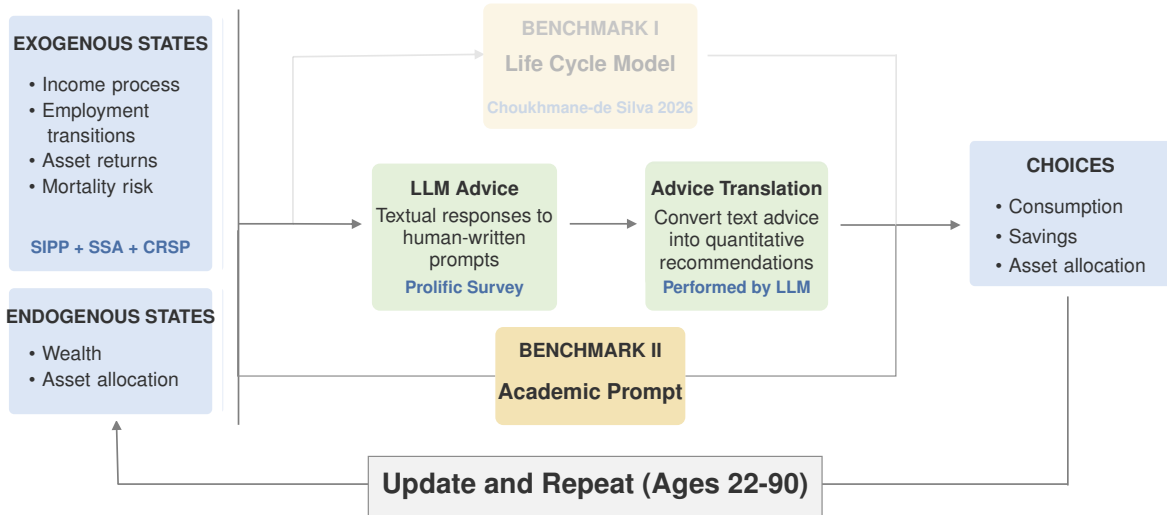
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Academic Prompt (Directly Outputs Numeric Choices)

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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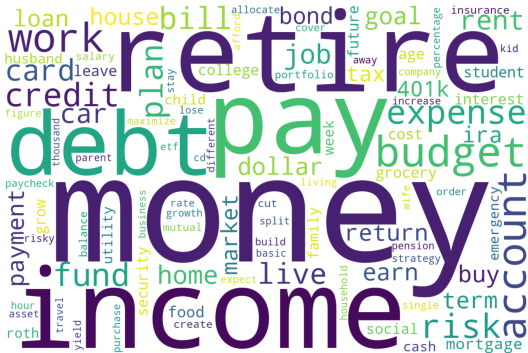
Survey Description

- 1,000 respondents on Prolific with representative US sample in January 2026
- Respondents write three prompts asking an LLM for personal financial advice:
 1. *“Write a **description of your situation**, including whatever details about yourself you think would help the AI tool give you useful financial advice”*
 2. *“In your own words, write a prompt asking an AI tool for advice on **how much to spend over the coming year**”*
 3. *“In your own words, write a prompt asking an AI tool for advice on **how to invest your savings** between stocks and safer options”*
- 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



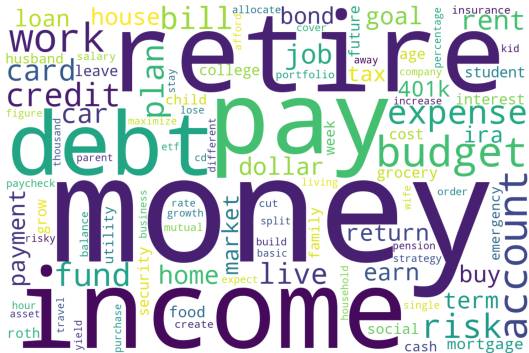
LLMs' Responses



Word Size $\propto \text{Pr}(\text{word})$

What Do LLMs Respond?

Individuals' Prompts

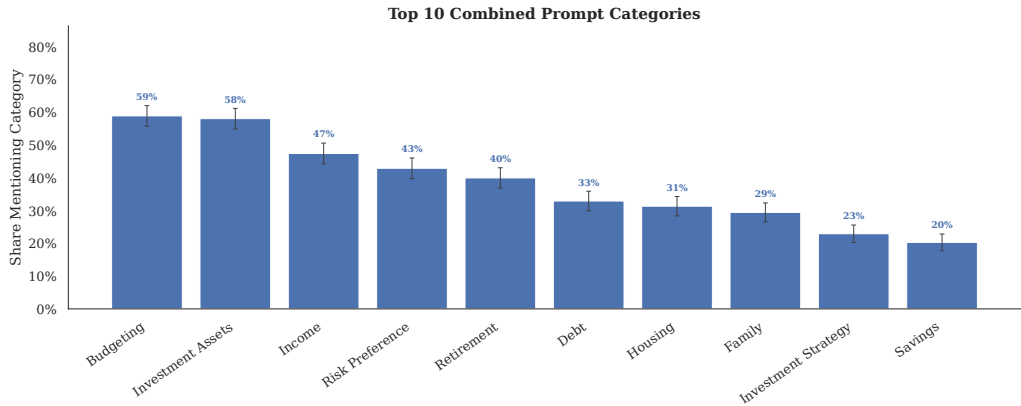


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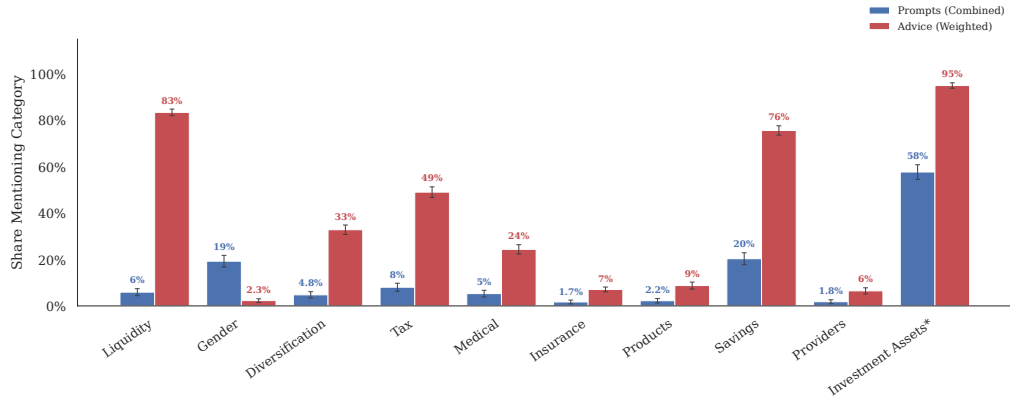


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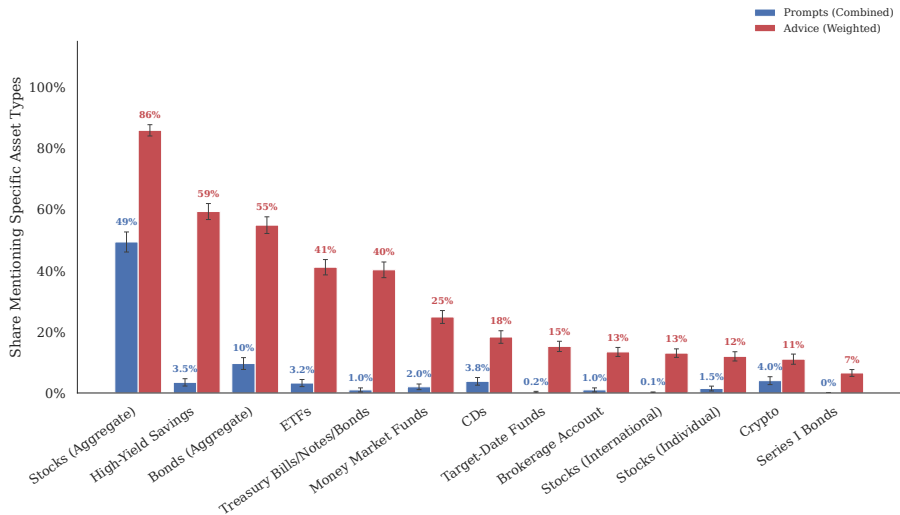
Which **Topics** Do Individuals Discuss?



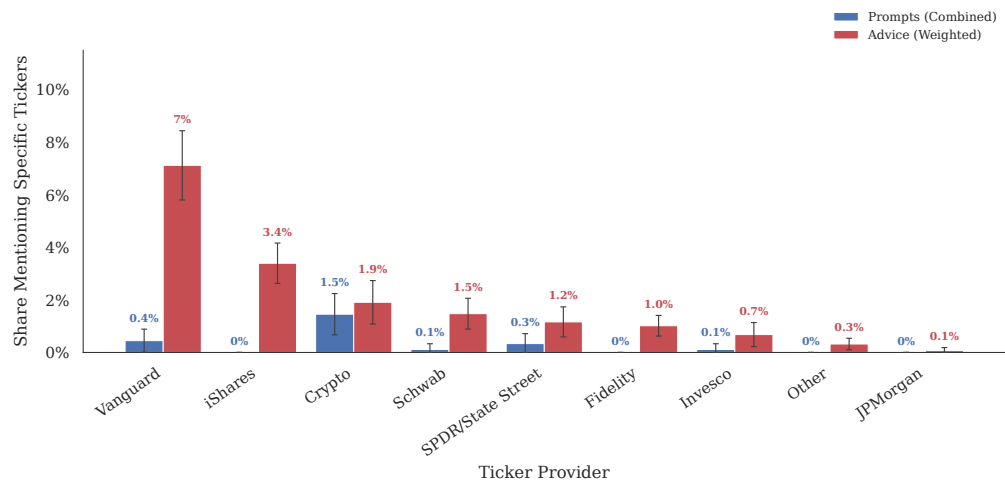
How Do LLM Responses Differ from Prompts?



Which Investment Asset Classes Are Discussed?

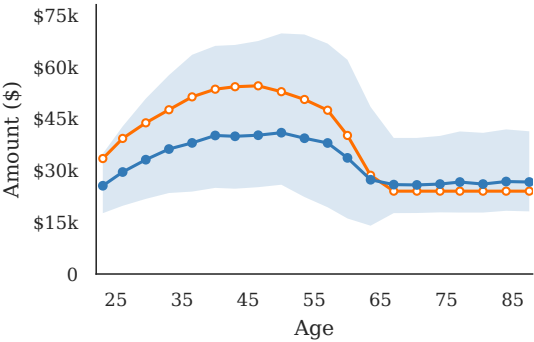


Which Investment **Products** Are Discussed?



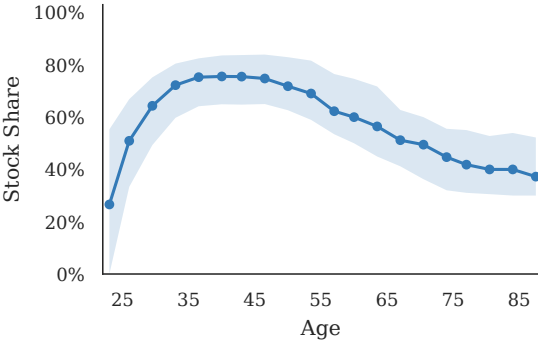
Quantitative Advice: Baseline Simulation

Consumption and Earnings



Median Earnings GPT-5.2

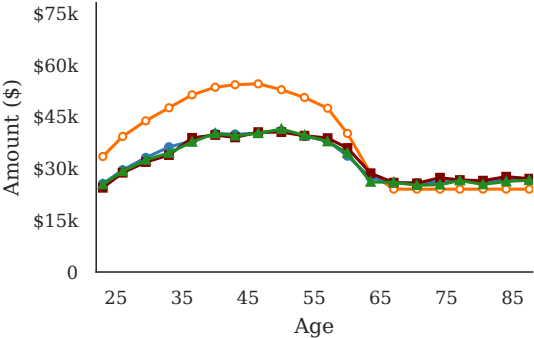
Equity Share



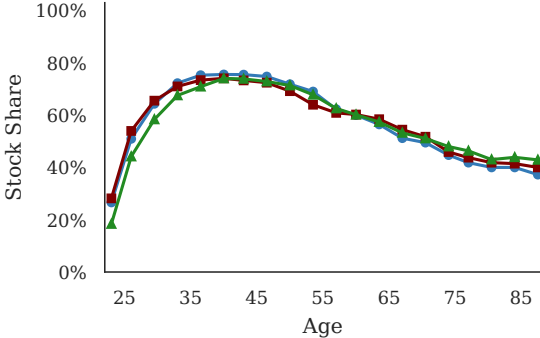
25th-75th Percentile

Quantitative Advice: Other Models

Consumption and Earnings



Equity Share



Median Earnings GPT-5.2 Gemini 3 Flash GPT-5.6 Terra

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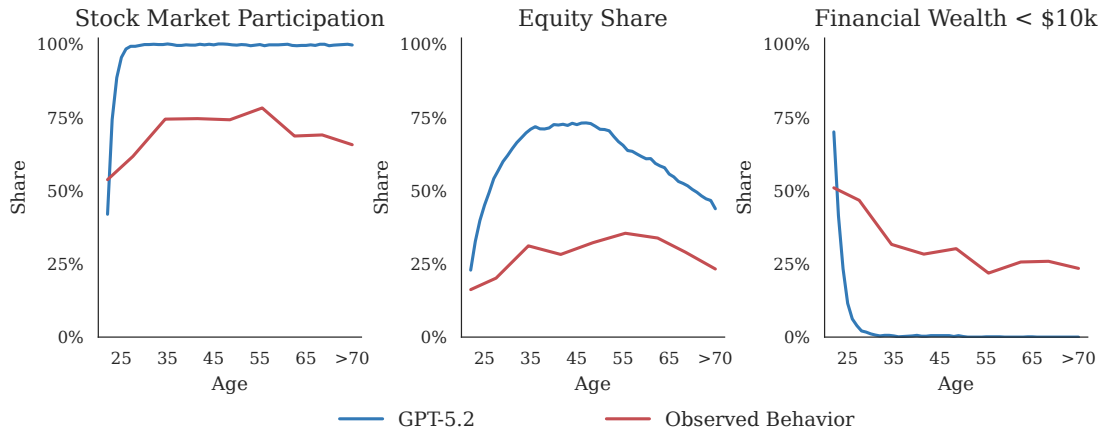
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Three Facts about LLM Financial Advice

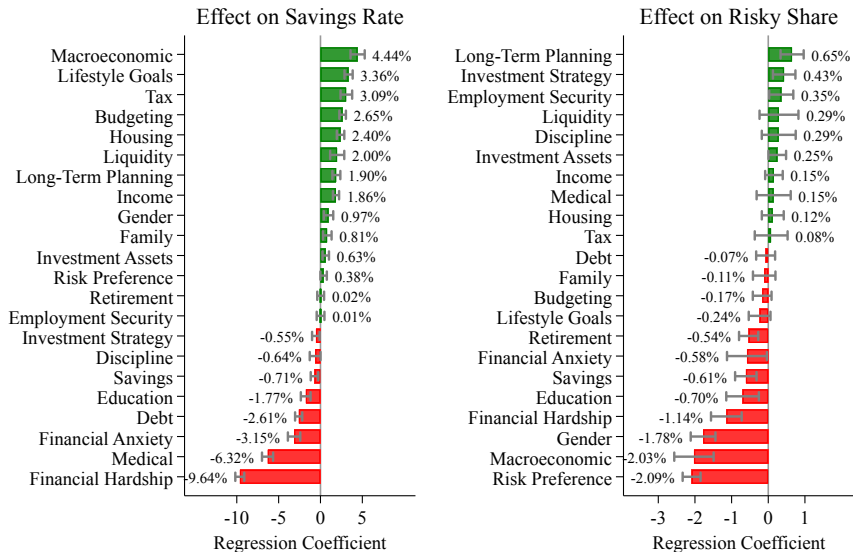
Fact 1: Advice moves most individuals towards life cycle theory

Observed Behavior versus LLM Advice



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

LLM Advice Responds Sensibly to Prompt Topics

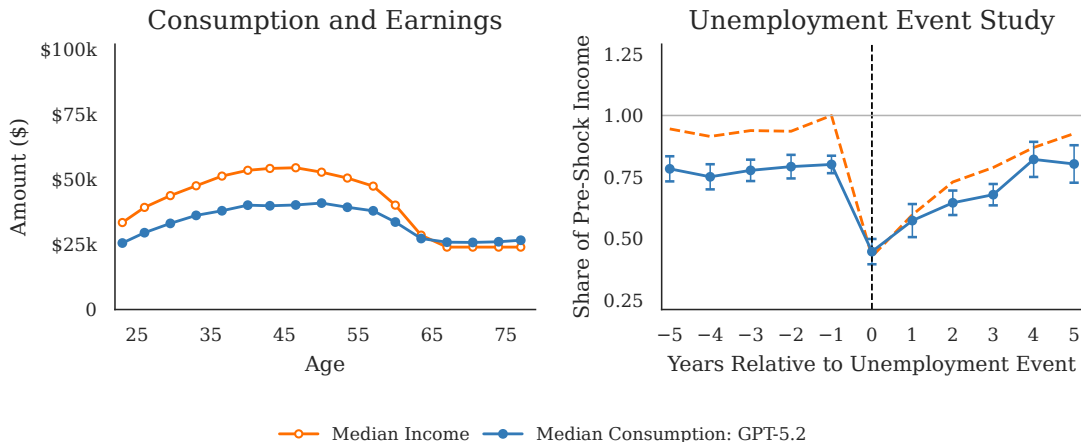


Three Facts about LLM Financial Advice

Fact 1: Advice moves most individuals towards life cycle theory

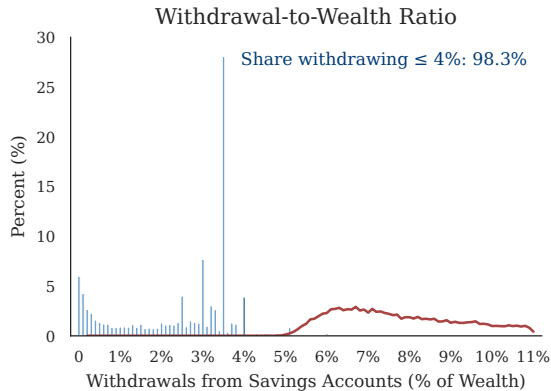
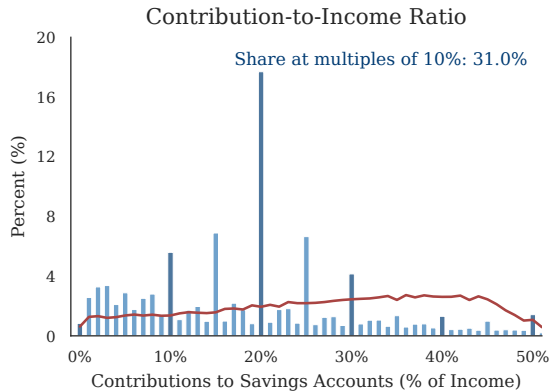
Fact 2: **Advice departs from life cycle theory in systematic ways**

LLM Advice Insufficiently Smooths Consumption



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

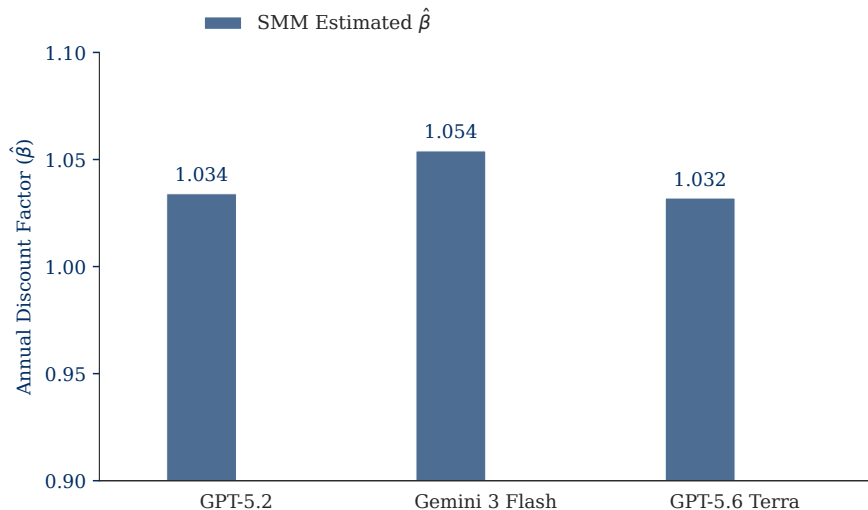
LLM Advice Relies on Heuristics



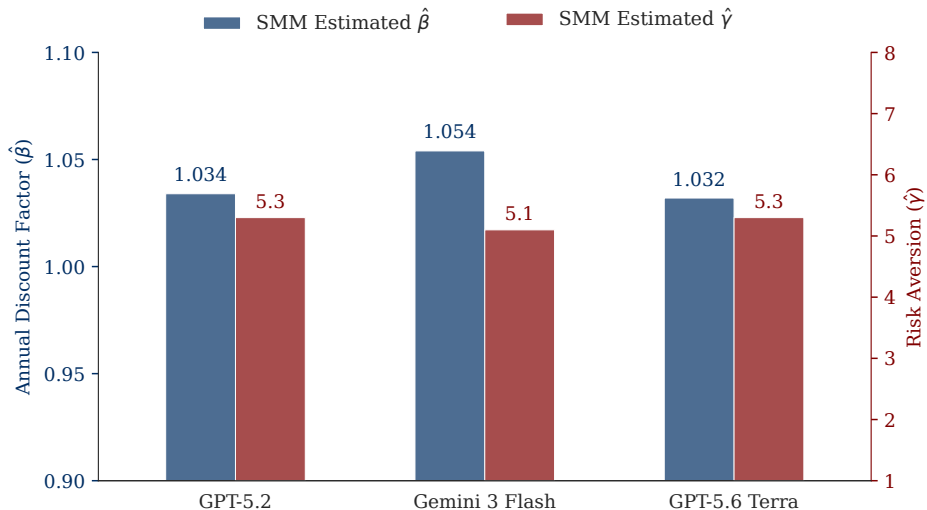
■ GPT-5.2 — Life Cycle Model

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

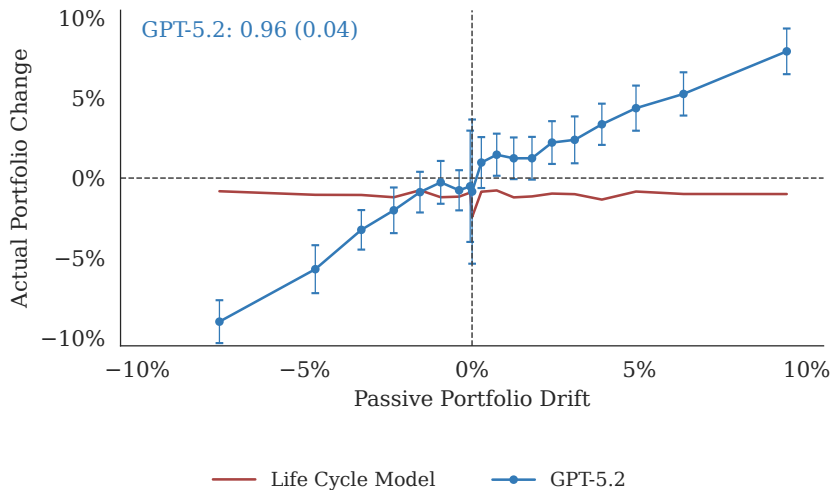
LLM Advice Implies Unusually High Patience



LLM Advice Implies Unusually High Patience



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

⇒ LLM advice depends on characteristics of **prompts** (demand)

Three Facts about LLM Financial Advice

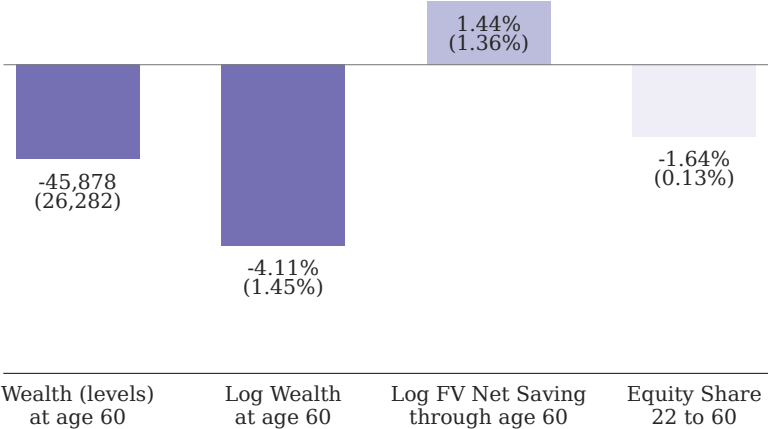
Fact 1: Advice moves most individuals towards life cycle theory

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

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

Low-Financial-Literacy Prompts Accumulate Less Wealth

Financial Literacy: Low vs. High



Financial Literacy: Example Prompts

High Financial Literacy User:

I am a short term futures trader usually executing **3 to 4 trades per daily session**. I do not hold any positions after the market closes. I **trade the futures micro contracts of indexes, crude oil, gold, currencies and bonds**. I also place option trades on the SPX. I am looking to improve my strategy which is based on Cumulative Delta and Orderflow. My account size is 10,000 USD. I'd like to know how much to spend over the coming year.

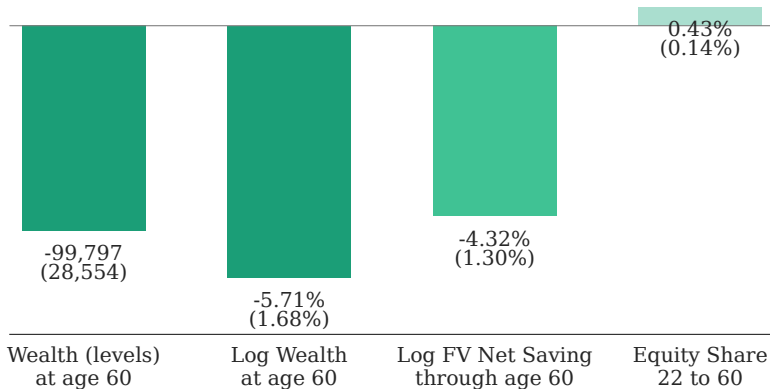
I'd like to know how to invest to improve my strategy and reduce my risk exposure.

Low Financial Literacy User:

Hello....Im in need of some financial advice. I need to invest some money into something that will make me money in the future. [...] I have current stocks invested, however, **I know very little about stocks** and how and when to buy/sell, and **what stocks I need to buy and/or avoid**? Some advice would be very helpful! Thank you! :)

Prompts Without AI Experience Accumulate Less Wealth

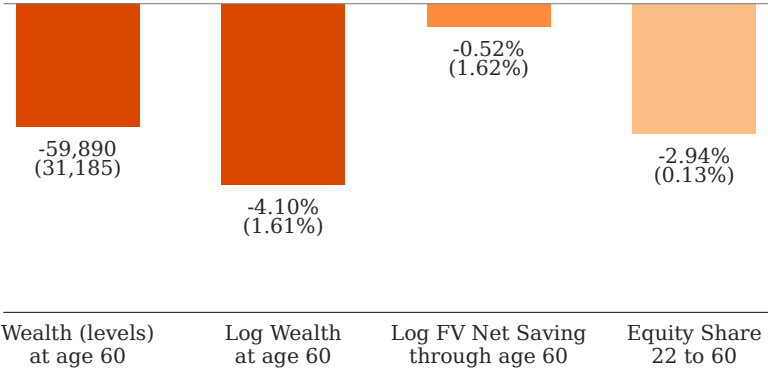
Prior AI Experience: No vs. Yes



Note: Identical realization of shocks across simulations

Prompts from Women Accumulate Less Wealth

Gender: Female vs. Male



Note: Identical realization of shocks across simulations

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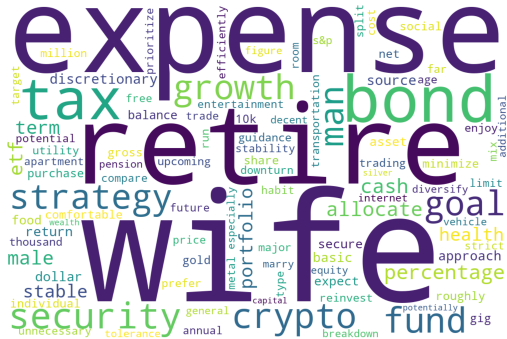
Are these Differences Driven by

Demand (Questions Asked)

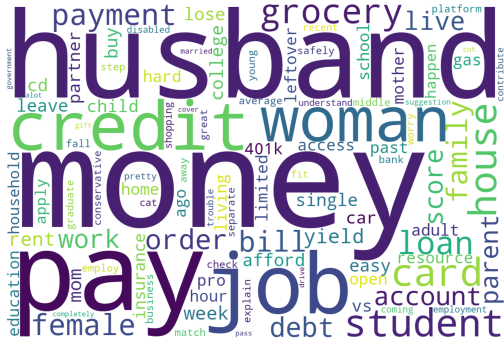
or **Supply** (Model Response)?

Differences in Prompts Between Men and Women

Men



Women



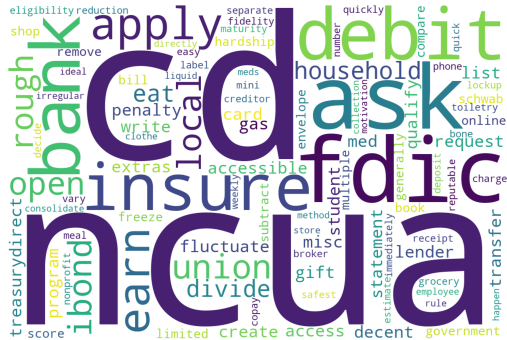
$$\text{Word Size} \propto \Pr(\text{word} \mid \text{group}) - \Pr(\text{word} \mid \text{other group})$$

Differences in LLM Responses Between Men and Women

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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"*

Specification:

$$Y_{i,t} = \beta_D \text{FemaleAuthor}_i + \beta_S \text{FemaleLabel}_{i,t} + \delta_{i,t}^{\text{bucket}} + \varepsilon_{i,t}$$

- **FemaleAuthor_i = 1**: prompt *actually* written by a woman
- **FemaleLabel_{i,t} = 1**: prompt *randomly identified* as being written by a woman

	Male Label	Female Label
Male Author	0 (reference)	β_S (supply)
Female Author	β_D (demand)	$\beta_D + \beta_S$ (total)

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

Specification:

$$Y_{i,t} = \beta_D \text{FemaleAuthor}_i + \beta_S \text{FemaleLabel}_{i,t} + \delta_{i,t}^{\text{bucket}} + \varepsilon_{i,t}$$

- $\text{FemaleAuthor}_i = 1$: prompt *actually* written by a woman
- $\text{FemaleLabel}_{i,t} = 1$: prompt *randomly identified* as being written by a woman

	Male Label	Female Label
Male Author	0 (reference)	β_S (supply)
Female Author	β_D (demand)	$\beta_D + \beta_S$ (total)

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"*

Specification:

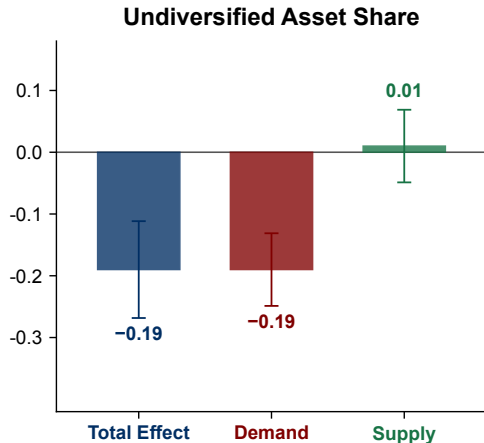
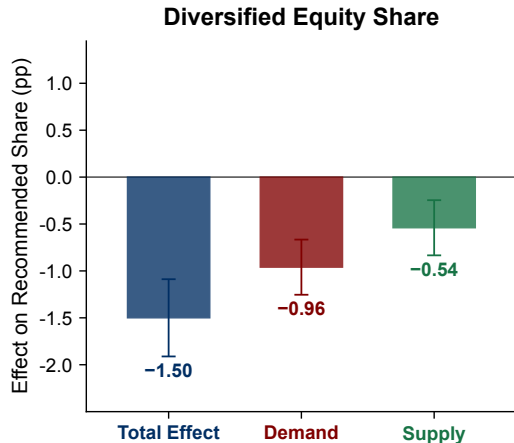
$$Y_{i,t} = \beta_D \text{FemaleAuthor}_i + \beta_S \text{FemaleLabel}_{i,t} + \delta_{i,t}^{\text{bucket}} + \varepsilon_{i,t}$$

- $\text{FemaleAuthor}_i = 1$: prompt *actually* written by a woman
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	Male Label	Female Label
Male Author	0 (reference)	β_S (supply)
Female Author	β_D (demand)	$\beta_D + \beta_S$ (total)

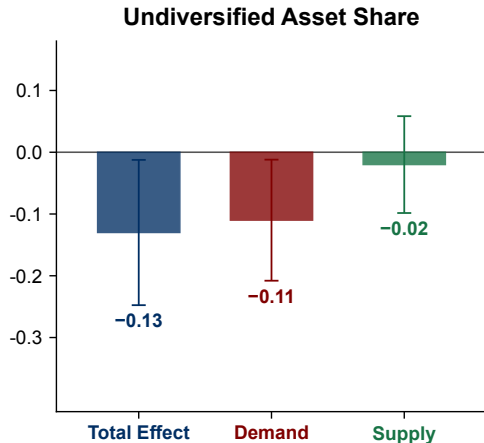
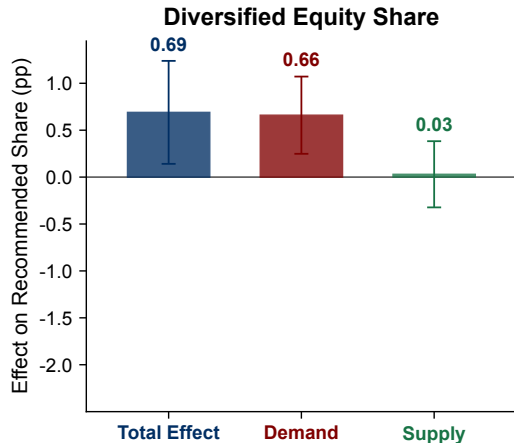
Separating Supply and Demand: Female versus Male

$$Y_{i,t} = \beta_D \text{FemaleAuthor}_i + \beta_S \text{FemaleLabel}_{i,t} + \delta_{i,t}^{\text{bucket}} + \varepsilon_{i,t}$$



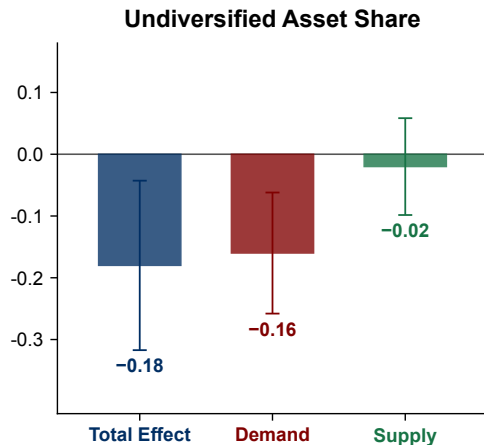
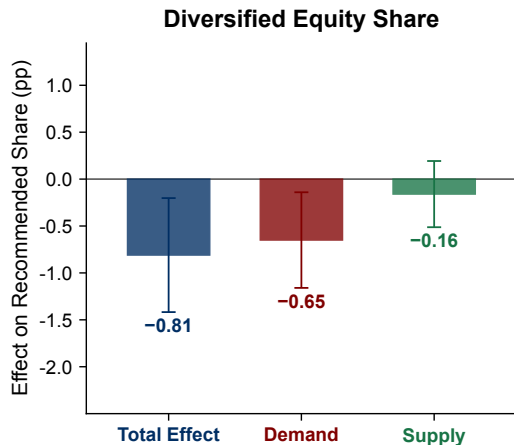
Separating Supply and Demand: Black versus White

$$Y_{i,t} = \beta_D \text{BlackAuthor}_i + \beta_S \text{BlackLabel}_{i,t} + \delta_{i,t}^{\text{bucket}} + \varepsilon_{i,t}$$



Separating Supply and Demand: Asian versus White

$$Y_{i,t} = \beta_D \text{AsianAuthor}_i + \beta_S \text{AsianLabel}_{i,t} + \delta_{i,t}^{\text{bucket}} + \varepsilon_{i,t}$$



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

Outline

Methodology for Simulating LLM Financial Advice

Describing Prompts and Baseline LLM Financial Advice

Three Facts about LLM Financial Advice

Heterogeneity in LLM Financial Advice: Supply vs. Demand

Conclusion

Three Facts about LLM Financial Advice

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

Looking Forward

- **Takeaway #1:** LLM financial advice can improve decision-making
 - ▶ Not obvious this should be the case, given how models are **trained!** (Fedyk et al. 2026)
- **Takeaway #2:** The impact of this advice varies across individuals
 - ▶ **Demand** (differences in prompts) is an important driver of these differences

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