Ricardian Non-Equivalence

Martin Eichenbaum
NU & NBER

Joao Guerreiro
UCLA & NBER

Jana Obradović
NU

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Introduction

What is the economic impact of **deficit-financed fiscal policy**?

- **Ricardian Equivalence**: deficits have no effect on aggregate demand [Ricardo (1820), Barro (1974)]
- Standard departures: finite lives, liquidity constraints, distortionary taxation
- **This paper:** people **do not estimate the future tax burden** of fiscal deficits

> *"but the people who pay the taxes never so estimate them"*
>
> David Ricardo

This Paper

1. **Measure response of tax expectations to transfers**
   - **Key finding**: expectations of taxes do not respond to rise in deficit-financed transfers
2. **Compare spending plans after individual vs. universal transfers**
3. **Show the results are robust across subgroups**
4. **Net effect of inattention in canonical HANK model** [Auclert–Rognlie–Straub, 2024]
5. **Policy implications**

This Paper

1. **Measure response of tax expectations to transfers**
2. **Compare spending plans after individual vs. universal transfers**
   - **Key finding**: Spending plan out universal and individual transfers are the same
3. **Show the results are robust across subgroups**
4. **Net effect of inattention in canonical HANK model** [Auclert–Rognlie–Straub, 2024]
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This Paper

1. **Measure response of tax expectations to transfers**
2. **Compare spending plans after individual vs. universal transfers**
3. **Show the results are robust across subgroups**
   - Including high-income, wealthy, educated, unconstrained, and financially sophisticated households
   - **Key finding**: the weak tax-expectation response and the MPC-like spending results are robust across different subgroups
4. **Net effect of inattention in canonical HANK model** [Auclert–Rognlie–Straub, 2024]
5. **Policy implications**

This Paper

1. **Measure response of tax expectations to transfers**
2. **Compare spending plans after individual vs. universal transfers**
3. **Show the results are robust across subgroups**
4. **Net effect of inattention in canonical HANK model** [Auclert–Rognlie–Straub, 2024]
   - Inattention to taxes (RNE) and GE effects have opposing effects on spending
     [Inattention dampens forward-looking iMPCs]
   - **Key finding**: RNE dominates GE-dampening, so inattention raises spending out of transfers– model consistent with survey evidence
5. **Policy implications**

This Paper

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4. **Net effect of inattention in canonical HANK model** [Auclert–Rognlie–Straub, 2024]
5. **Policy implications**
   - **Key finding**: Inattention raises both fiscal-transfer and spending multipliers
   - **Reinforces core HANK message**: deficit-financed fiscal policy is powerful stabilization tool

   [Auclert–Rognlie–Straub, 2024]

Empirical Evidence

Survey Design

Online survey experiment: roughly 6,000 U.S. adults, broadly representative of U.S. population

[Results robust to re-weighting]

➢ Respondents receive monetary incentives

Key experiments: tax expectations and spending plans after two types of transfers

Experiment 1	Experiment 2
Individual $1,400 transfer	Universal $1,400 transfer
No aggregate fiscal implication	Deficit-financed policy
Identifies MPC	**Tests RNE**

➢ Elicit **expected household federal taxes** before/after transfers (1, 2, 6 years ahead)

➢ Elicit **additional spending** using Colarieti–Mei–Stantcheva (2024) methodology

Tax Expectations: Universal Transfers Look Like Individual Transfers

$$E_i^{Post}[\Delta t_h] = \alpha_h + \gamma_h \mathcal{I}_i + \varrho_h E_i^{Pre}[\Delta t_h] + \xi_{i,h}$$

- γ_h: pass-through from universal transfer to expected tax growth

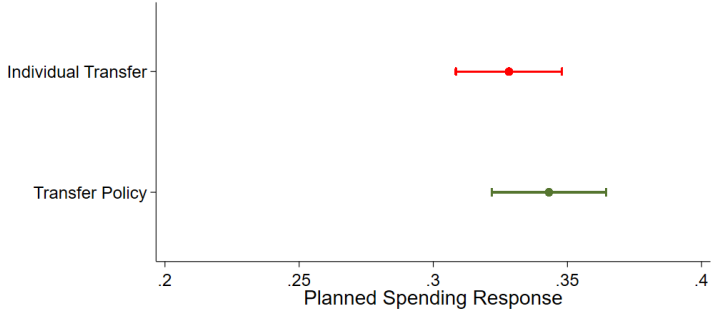
Horizon	1 year	2 years	6 years
γ_h	0.054	-0.027	-0.023
	(0.169)	(0.163)	(0.210)
Obs.	3,838	3,790	3,758

Question: do people map deficits into future tax liabilities?

- Compare posterior tax expectations in E1 and E2, controlling for priors
- No statistically significant increase at 1, 2, or 6 years

No evidence that people expect tax burdens to rise after deficit-financed transfers...

Spending Plans: Universal Transfers Look Like Individual Transfers



Planned spending out of transfers ≈ MPC

➢ Annual MPC: 0.33 vs. E2 planned propensity to spend: 0.34

[440$ out of 1,400$]

Heterogeneity

Demographics

- Education — Figure
- Income — Figure
- Age — Figure
- Gender — Figure
- Employment — Figure
- Political affiliation — Figure

Financial position

- HtM: Net-worth — Figure
- HtM: Kaplan–Violante — Figure
- Has $2,000 buffer — Figure

Decision-making and response quality

- Financial decision maker — Figure
- Planning horizon — Figure
- Time spent — Figure
- Attention check — Figure
- Clean sample — Figure

Message

Core facts are **robust** to considering different sub-populations and controls.

From Survey Moments to Macro Counterfactuals

The survey is informative about how spending plans respond to deficit-financed transfers

- **Micro**: spending plans, not actual realized spending
- **Forward-looking**: plans are affected by expected future taxes

The survey findings don't tell us about the aggregate implications of universal transfers.

- Absent FIRE, plans not equal to realized spending – update expectations over time

Inattentive HANK model

- Inattention captures Ricardian Non-Equivalence
- Use survey evidence to discipline the degree of inattention

[in paper: alternative models]

Inattentive HANK Model

Model Environment – Canonical HANK model + Inattention

[Auclert–Rognlie–Straub, 2024]

Quarterly HANK economy disciplined by the survey

- **Households**: idiosyncratic income risk, borrowing constraints, risk-free bonds
- **Nominal rigidity**: wage-setting unions with adjustment costs
- **Policy**: transfer shock, Taylor rule, future income taxes stabilize debt
- Compute **impulse-response** to time-0 transfer shock

Expectations over aggregate paths

FIRE

$$\bar{E}_t\left[\frac{dX_{t+h}}{d\varepsilon_0}\right] = \frac{dX_{t+h}}{d\varepsilon_0}$$

Forecast future taxes, income, and real rates.

Inattention via Cognitive Discounting

[Gabaix, 2020]

$$\bar{E}_t\left[\frac{dX_{t+h}}{d\varepsilon_0}\right] = \lambda^h \frac{dX_{t+h}}{d\varepsilon_0}, \quad \lambda < 1$$

Future aggregate states are cognitively discounted.

$X \in \{\mathcal{T}, Y, r\}$**: the tax-expectation evidence directly disciplines** λ**.**

Spending with Inattention

Average planned spending out of a **individual** transfer:

[No aggregate implications]

$$\frac{dC_0^{annual}}{d\varepsilon_0} = \underbrace{m_0}_{\text{current MPC}}$$

➢ **MPC** out of current income

Average planned spending out of a **universal** transfer: [Timing as in survey $t = -1$]

$$E_{-1}\left[\frac{dC_0^{annual}}{d\varepsilon_0}\right] = \underbrace{m_0}_{\text{current MPC}} - \underbrace{\sum_{t\geq 1} M_t^Y \lambda^{t+1} \frac{d\mathcal{T}_t}{d\varepsilon_0}}_{\text{iMPC x E[future taxes]}}$$

- **MPC** out of current income
- **RNE effect**: inattention to future taxes raises planned spending

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- **MPC** out of current income
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- **GE dampening**: inattention to income and interest-rate responses can dampen spending

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- **MPC** out of current income
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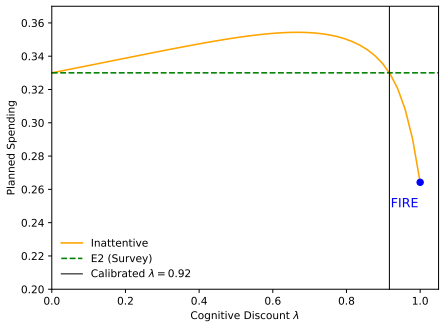
- Inattention ($\lambda \downarrow$) reduces effective iMPCs $M_t^Y \rightsquigarrow M_t^Y \lambda^{t+1}$
- Quantitative question: which force dominates after calibrating λ with the survey?

Calibrating Inattention



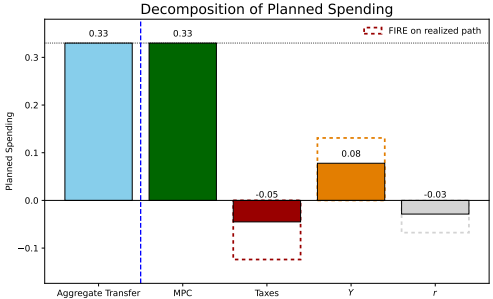
Two calibration strategies

1. **Conservative**: match the planned propensity to spend out of E2
   - $\lambda \simeq 0.92$
   - One-year tax expectations move about 70% of FIRE
2. **Tax-expectations target**: match the weak one-year tax-expectation response
   - $\lambda \simeq 0.41$
   - Larger deviation from FIRE

The tax-expectations calibration implies even stronger macro amplification.

Planned Spending in the Inattentive HANK Model

Inattentive Planned Spending ($\lambda = 0.92$)



Dotted lines – spending if people had FIRE

Key result: negative influence of future taxes on spending would have been $3\times$ larger

Inattention to taxes (RNE) for is crucial

$$E_{-1}\left[\frac{dC_0^{annual}}{d\varepsilon_0}\right] = \underbrace{m_0}_{\text{current MPC}} \underbrace{- \sum_{t\geq 1} M_t^Y \lambda^{t+1} \frac{d\mathcal{T}_t}{d\varepsilon_0}}_{\text{iMPC x E[future taxes]}} + \underbrace{\sum_{t\geq 0} M_t^Y \lambda^{t+1} \frac{dY_t}{d\varepsilon_0}}_{\text{iMPC x E[future income]}} + \underbrace{\sum_{t\geq 0} M_t^r \lambda^{t+1} \frac{dr_t}{d\varepsilon_0}}_{\text{iMPC x E[future real rates]}}$$

Macro Implications

Transfer Multipliers

Model	First-year mult.	Change from FIRE
FIRE HANK	0.26	–
Inattention, conservative calibration	0.31	+20%
Inattention, tax-expectations calibration	0.38	+46%

- RNE raises spending because households underforecast the future tax burden
- GE dampening is modest: income and real-rate inattention partly offset each other
- The amplification is stronger when λ is disciplined by the weak tax-expectation response

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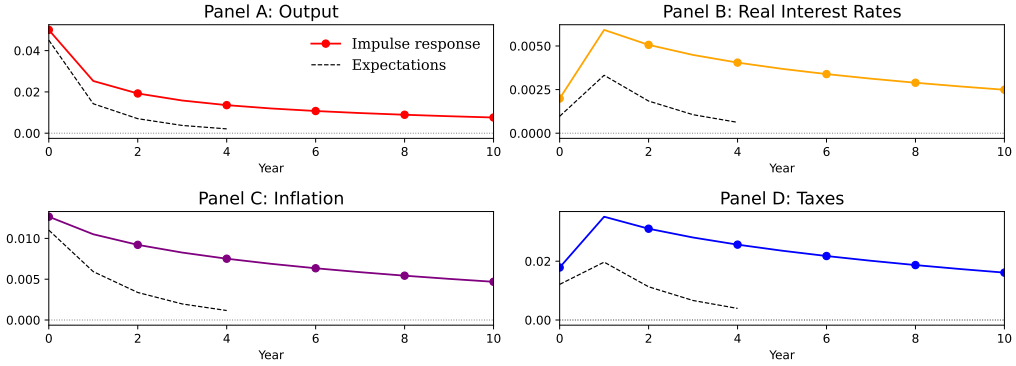
Bottom line: Inattention amplifies aggregate consequences of deficit-financed transfers.

- **HANK is crucial**: complementarity RNE and HANK

[see also Farhi–Werning, 2019; Angeletos–Huo, 2021; Angeletos–Guerreiro–Zhang, 2025]

Dynamic Responses



- Steeper and more persistent rise of aggregate output under inattention
- Muted expectations of future taxes responsible at the initial date

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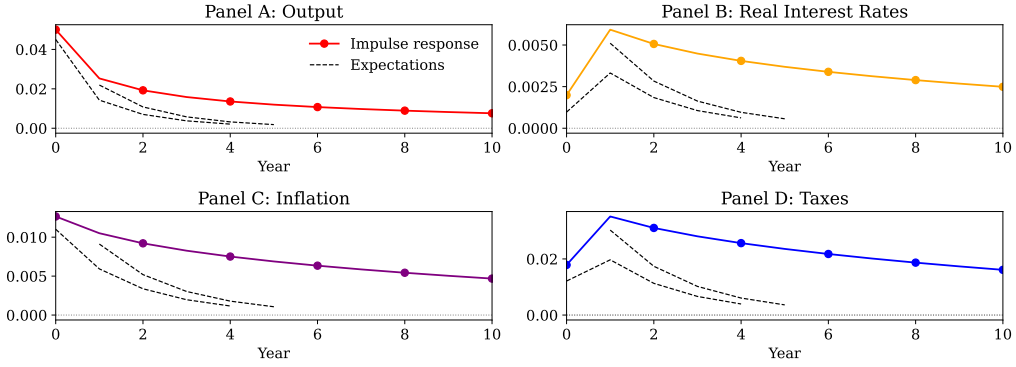

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- Some update of expectations in real time, but persistently underforecasting future taxes…

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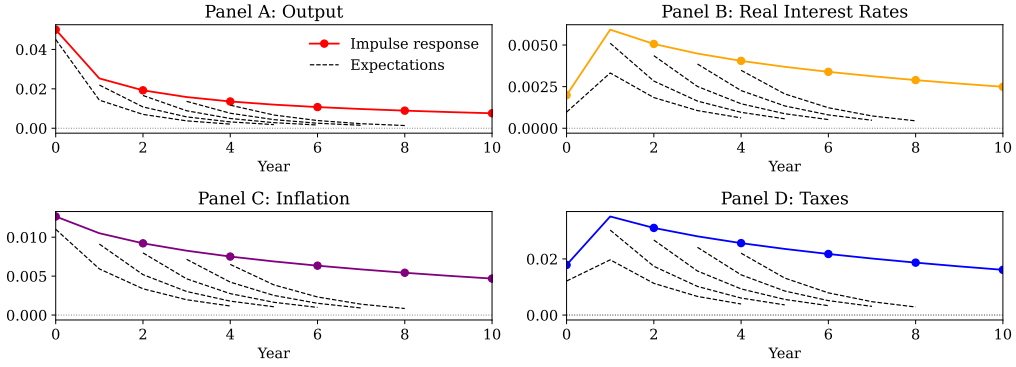

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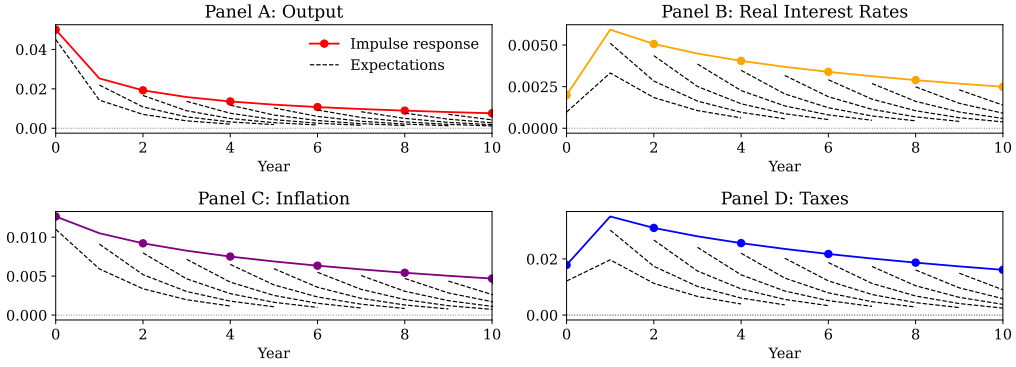

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Government Spending Multipliers

Model	1-Year Multiplier	Consumption
FIRE	0.98	**falls**
Conservative	1.10	**rises**
Tax expectations	1.16	**rises**

- The same tax-expectation mechanism applies to deficit-financed spending
- Under FIRE, higher future taxes crowd out private consumption
- Under inattention, households underweight the present value of future taxes

Spending multiplier rises above one.

Conclusion

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1. **Households do not map deficits into higher future taxes**
   - and their spending plans reflect that!
2. **Develop inattentive HANK to account for these findings and develop agg. implications**
3. **Transfer and government-spending multipliers are larger than under FIRE**
   - Inattention to taxes (RNE) dominates inattention to GE effects
4. **HANK and inattention are complements**
   - Heterogeneity/Incomplete Markets generates high iMPCs which amplify consequences of inattention
   - In paper: RANK and TANK cannot be made consistent with survey evidence and imply very different aggregate consequences of fiscal policy under inattention

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Inattention reinforces HANK-model message: Fiscal policy can have a large stimulative effect.

What else to look forward to when reading the paper?

1. Robustness to Debt-to-GDP process — Here
2. Lump-sum Taxation — Here
3. Alternative Calibration to Experiment 3 — Here
   - ➢ Essentially same quantitative conclusions
4. HANK vs RANK and TANK — Here
   - ➢ HANK is only model consistent with our evidence – quantitatively important!
5. HANK-OLG model with closed form solutions [Angeletos–Lian–Wolf, 2024] — Here
   - ➢ Emphasize key complementarity of high MPCs from incomplete markets and RNE

Appendix: Additional Evidence

Appendix

1. Experiment 3: information about future taxes

2. Heterogeneity figures

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Experiment 3: Information on Future Taxes

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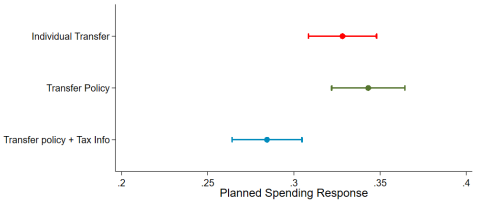

- E3 gives respondents explicit information about future taxes
- Planned spending falls relative to E1/E2
- But spending remains above the full-information benchmark

Interpretation: people can respond to clear tax information, but do not spontaneously map universal transfers into future tax liabilities.

Heterogeneity: Education

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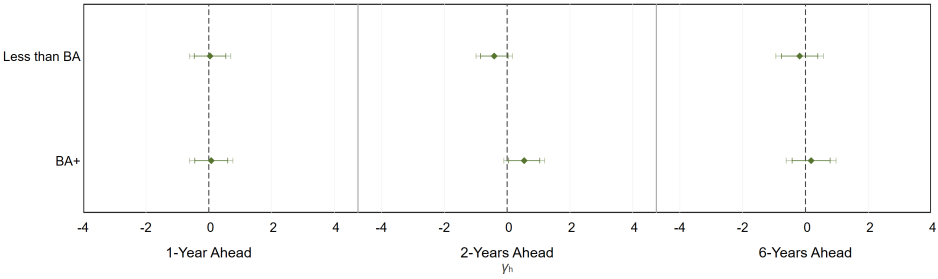

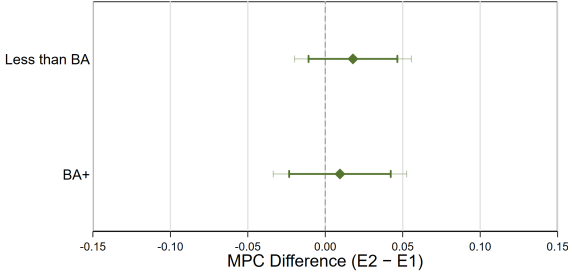

Heterogeneity: Income

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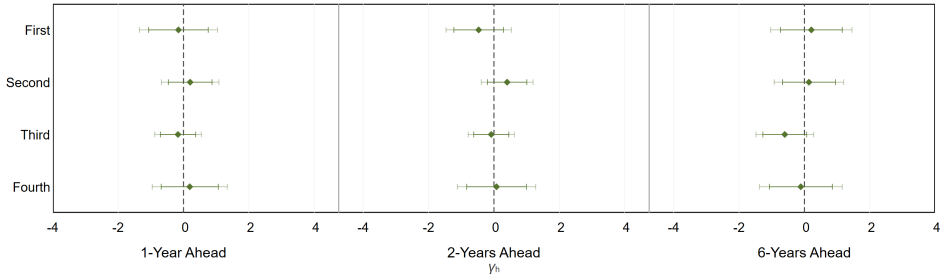

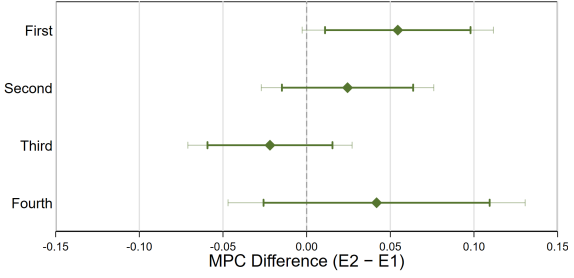

Heterogeneity: Age

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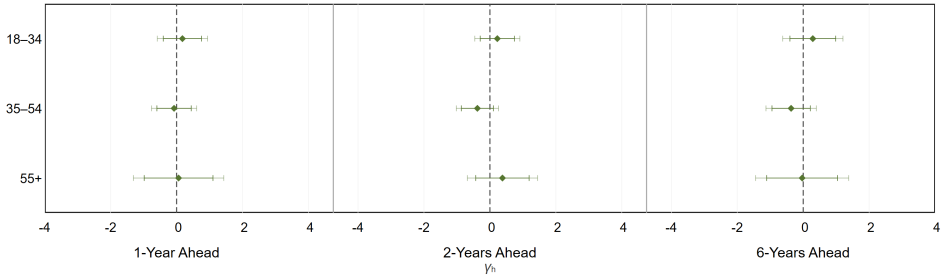

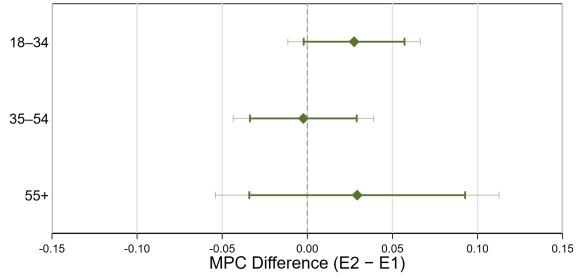

Heterogeneity: Gender

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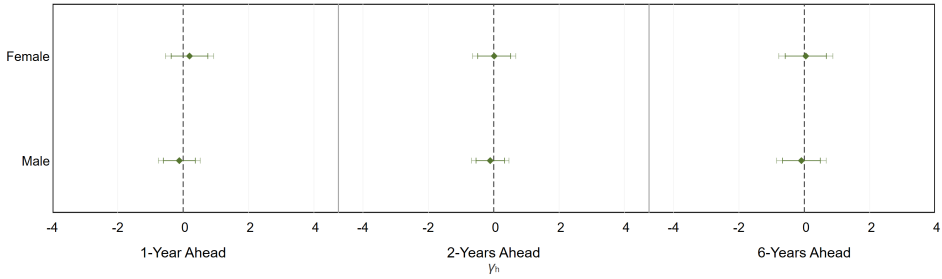

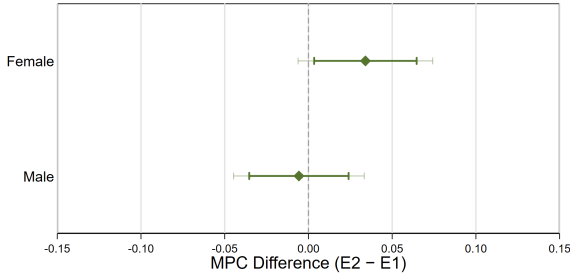

Heterogeneity: Employment

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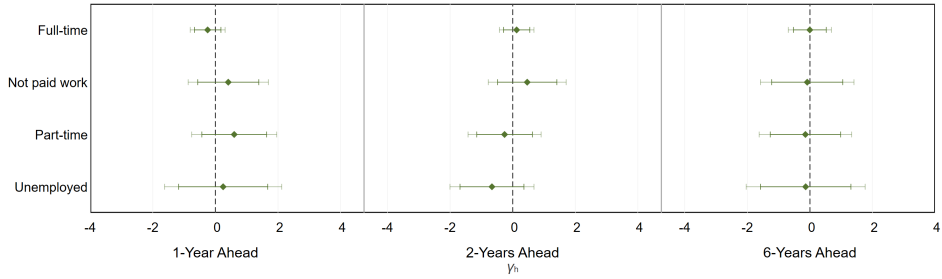

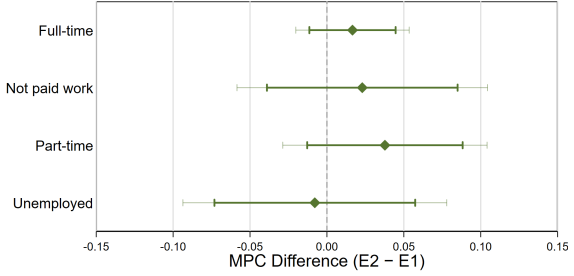

Heterogeneity: Political Affiliation

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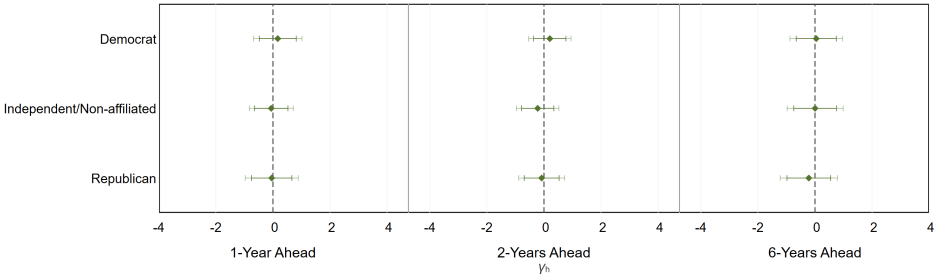

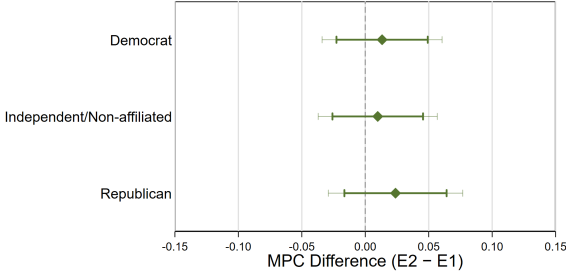

Heterogeneity: HtM by Net Worth

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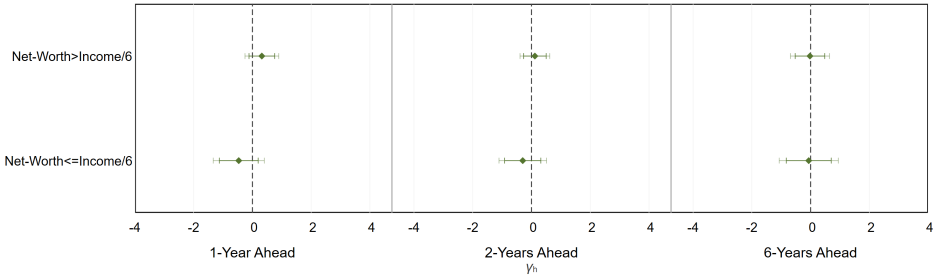

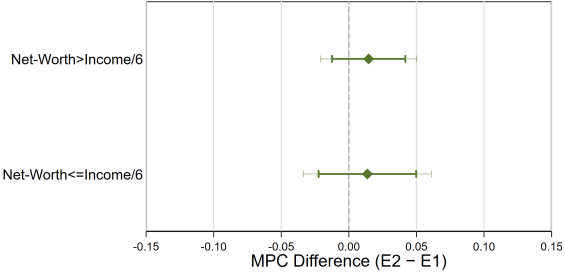

Heterogeneity: HtM by Kaplan–Violante

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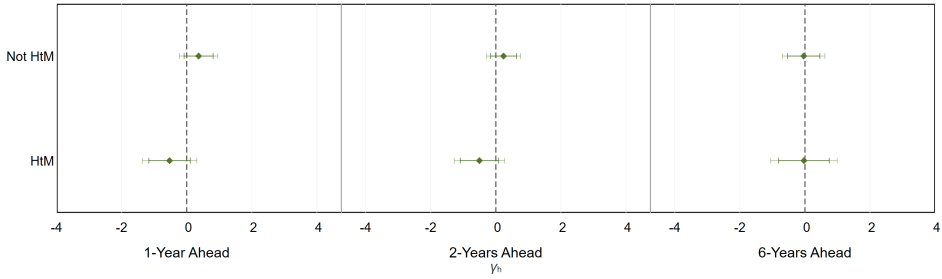

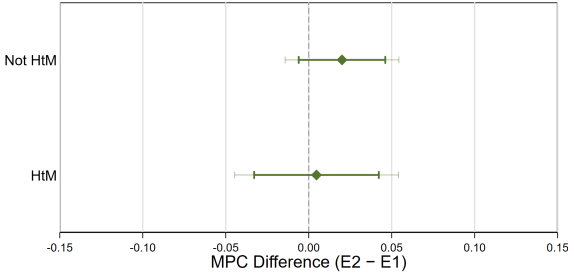

Heterogeneity: Has $2,000 Buffer

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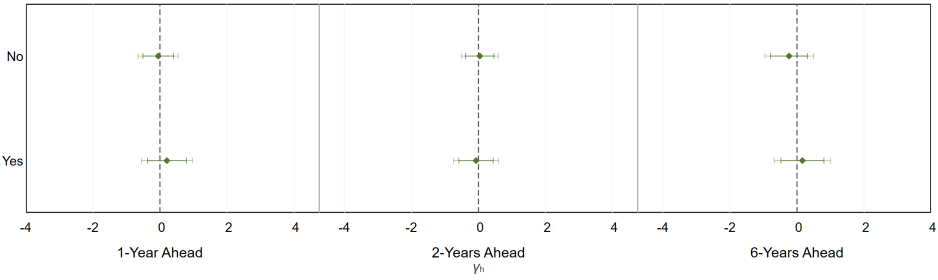

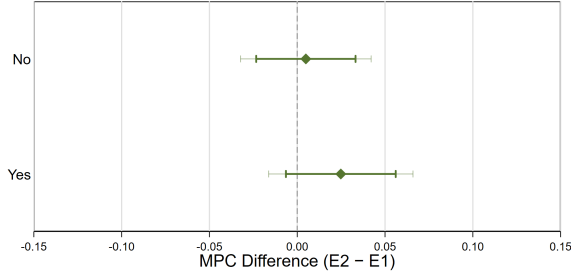

Heterogeneity: Financial Decisions

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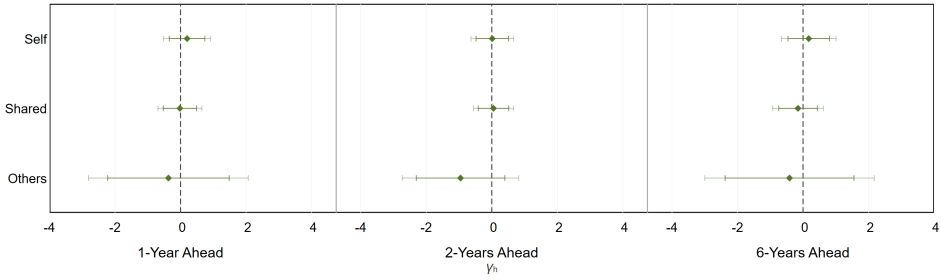

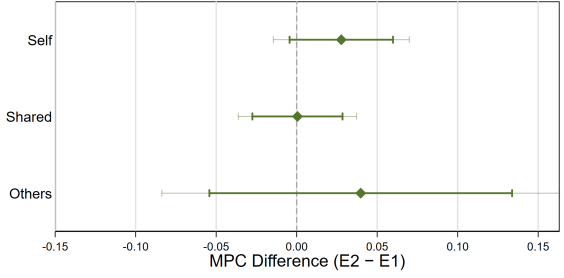

Heterogeneity: Planning Horizon

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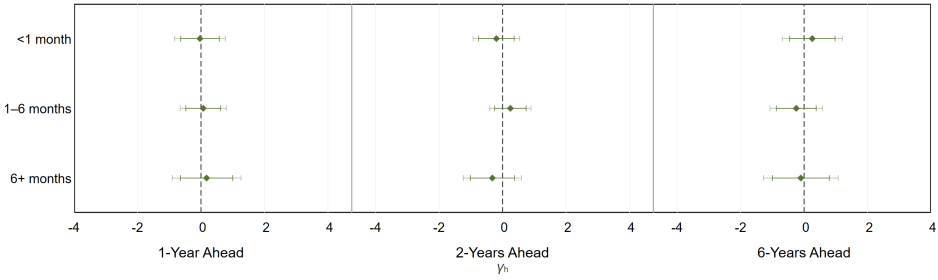

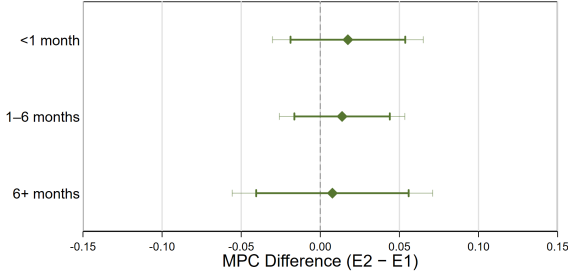

Heterogeneity: Time Spent

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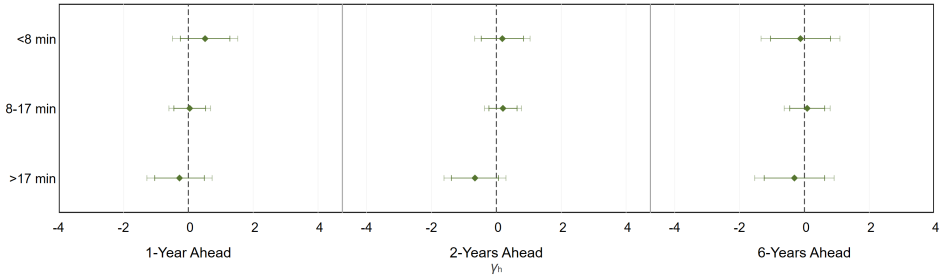

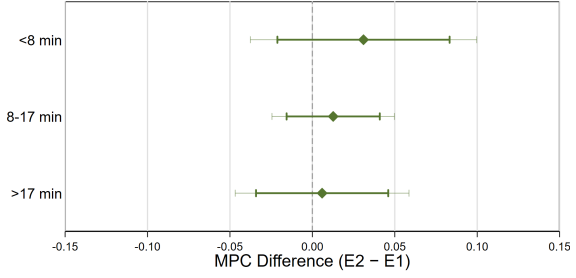

Heterogeneity: Attention Check

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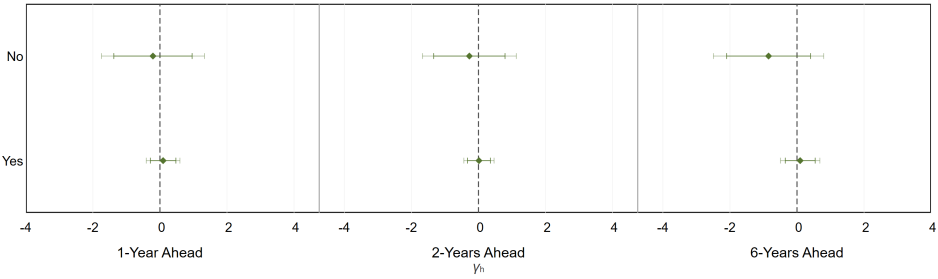

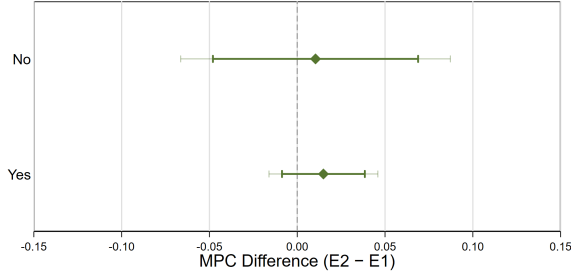

Heterogeneity: Clean Sample

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