”Subjective Uncertainty and the Marginal Propensity to Consume” by Koşar and Melcangi

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Perceived/subjective income risk vs. observed income dynamics

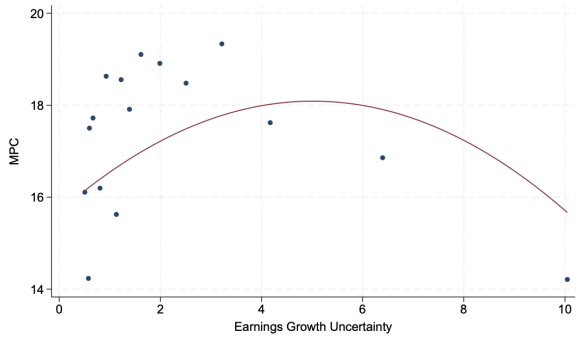
- Large literature on idiosyncratic income dynamics using "observed" earnings histories.
  - Wide dispersion in persistent income growth across workers after controlling for observables.
  - Incomplete-markets models are calibrated using these income processes.

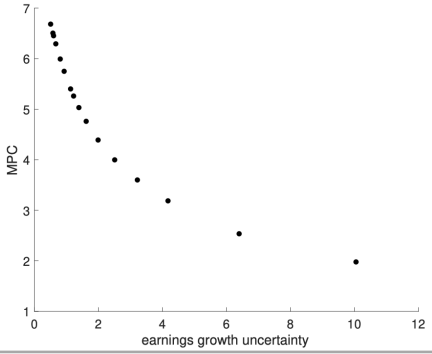
- New research on "perceived" income risk—what households perceive their income risk to be.
  - e.g., Caplin *et al.* (2023), Wang (2023), Arellano *et al.* (2026), and Kosar and Melcangi (2026).
  - Use survey data on expectations, e.g., the SCE and the Copenhagen Life Panel.

- Subjective uncertainty is heterogeneous and much smaller than realized income fluctuations.
  - Motivates deviations from the full-information rational-expectations (FIRE) benchmark.

- This paper: What does perceived risk imply for consumption/saving behavior?

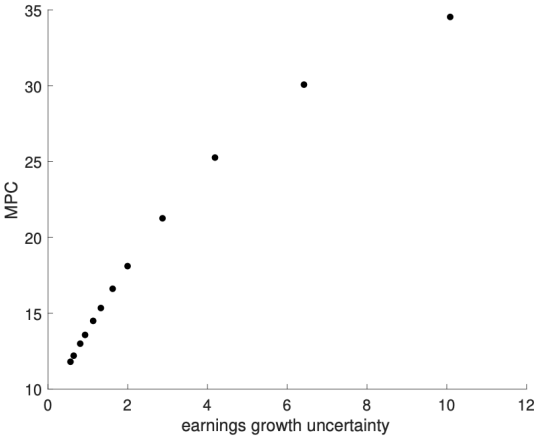
Puzzle: MPC is increasing and concave in perceived risk across households.





- Bewley-Imrohoroglu-Huggett-Aiyagari model (right panel) with heterogeneity in variance of shocks $\Rightarrow$
  - **(i)** Given a, MPC $\uparrow$ with uncertainty (i.e., consumption function is more concave/steeper).
  - **(ii)** Richer households have lower MPC (i.e., consumption functions are closer to linear)
  - **(iii)** Higher uncertainty $\Rightarrow$ higher asset holdings—this force dominates.
- This empirical pattern is robust to controls and the puzzle survives different calibrations and common extensions.

Solution to puzzle: Relax FIRE assumption



1. Overoptimism. Uncertain households make positive forecast errors. $\Rightarrow$

- Too little savings, $a \downarrow$
- Higher MPCs that increase with uncertainty.

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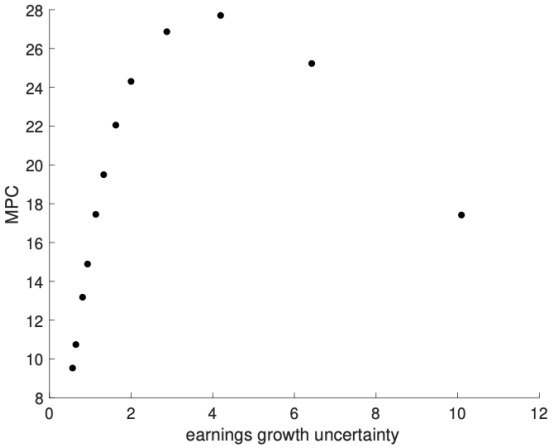

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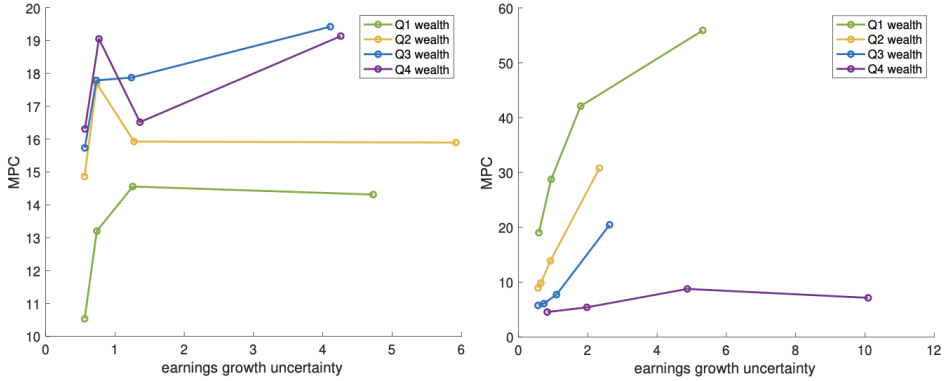
2. Misperception. Perceived uncertainty is lower than realized earnings volatility:

- Misperceptions induce negative forecast errors in the level of income $\Rightarrow$
- households' ex post wealth $\uparrow$

Reality is messier than overoptimism and misperception alone can capture.



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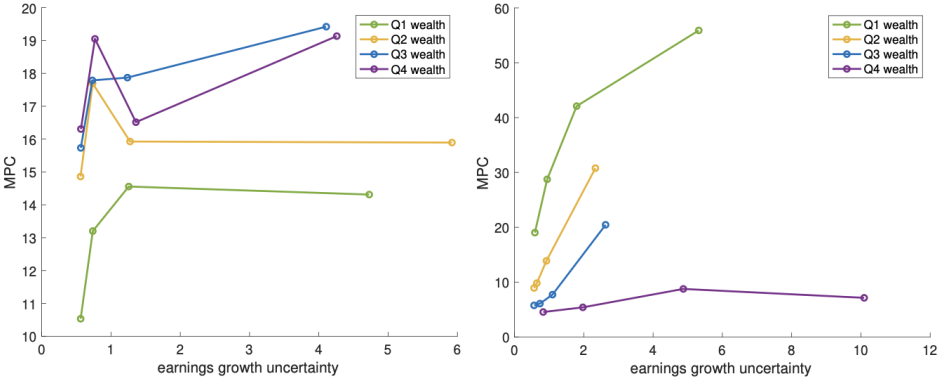

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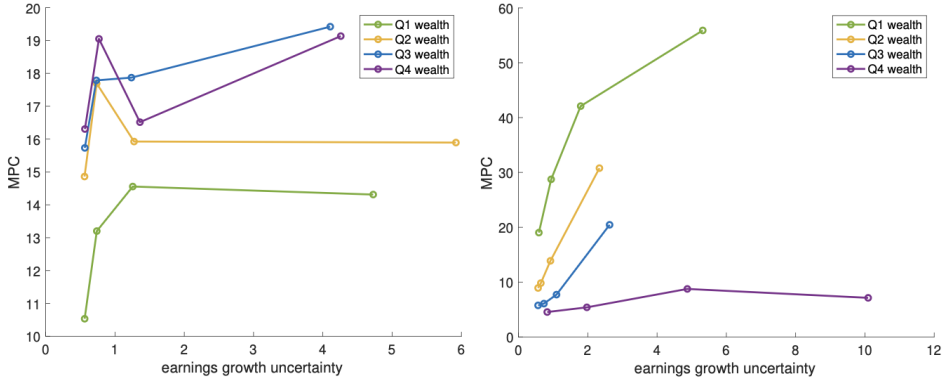


1. Data: MPCs are roughly increasing in uncertainty for all quartiles, consistent with model, but their level is off.
2. Model: MPC decline w/ liquid wealth vs. Data: Q1 has lowest MPC with others roughly similar.
3. Model: Q4 are those with highest uncertainty vs. Data: All Qs have similar uncertainty.

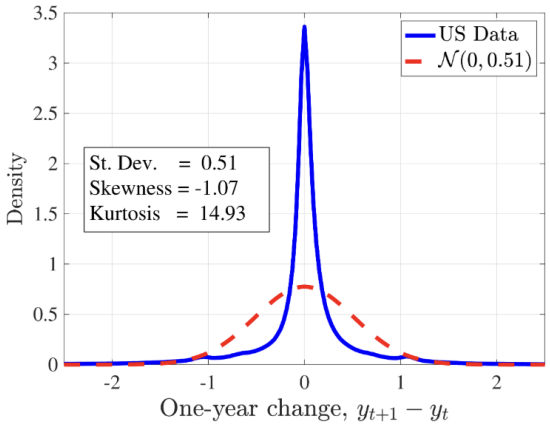
Other possible forces at play in MPC variation:

- The authors investigate an extensive set of theories before ruling them out.
- But different parts of the distribution may require a different mechanism. For example,
- High MPC of Q4 calls for hand-to-mouth wealthy mechanism (Kaplan and Violante (2014)).
- Lowest MPC of Q1 can be explained by nonlinear borrowing costs (Koşar *et al.* (2025)).
- Current simple AR(1) cannot explain all wealth groups having similar uncertainty.
  - How about income dynamics with correlated risk and income (Guvenen *et al.* (2021))?
  - Is there information in the SCE about the persistence of subjective uncertainty?
- How about other forms of deviations from FIRE (Wang (2023))?

Why is there such a large gap between reality and subjective perception?

- Subjective uncertainty is much smaller than actual income fluctuations, ~ 20%.
- Possible reasons why perceived risk is smaller than observed income fluctuations.
  1. Unobserved ex-ante heterogeneity in income growth rates (HIP).
  2. Advance information about future income changes (Jappelli and Pistaferri (2000)).
  3. Delusion/overconfidence/overoptimism/misperception.
     - 3.1 Bayesian updating/history-dependent expectations?
     - 3.2 Bounded rationality?
     - 3.3 Simple delusion?
- Different mechanisms would have different consumption/savings implications.

What if households have misperceptions about tail risk?



- Earnings growth is leptokurtic and left skewed (Guvenen *et al.* (2014, 2021)).
  - Variance of income growth is driven by low-probability tail shocks.
- Expectations formed from personal experiences ⇒possible FIRE failures on rare events (Hertwig *et al.* (2004)).
  - Malmendier and Nagel (2011): Economic decisions of depression cohort vs post-depression cohort.

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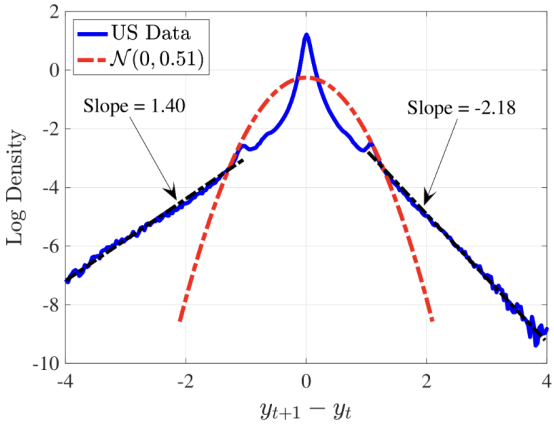

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A Bayesian Learning Model of Subjective Uncertainty

$$\Delta y_{i,t+1} \sim \begin{cases} \mathcal{N}(0, \sigma_L^2) & \text{with probability } 1 - \lambda_i \\ \mathcal{N}(0, \sigma_H^2) & \text{with probability } \lambda_i \end{cases}$$

- Households learn λ_i in Bayesian fashion: $\hat{\lambda}_{it} = E[\lambda_i \mid h_{it}]$, $h_{it} = (\Delta y_{i1}, \ldots, \Delta y_{it})$.
- Subjective uncertainty: $V_{it}^S \equiv \text{Var}_{it}(\Delta y_{i,t+1}) = (1 - \hat{\lambda}_{it})\sigma_L^2 + \hat{\lambda}_{it}\sigma_H^2$.

Predictions of the model:

1. Subjective uncertainty is low for most households most of the time.
2. Subjective uncertainty is heterogeneous and persistent.
3. Large forecast errors occur in rare episodes.
4. The objective-subjective gap should vary across jobs.

Other Remarks and Conclusion

- The 12-month panel is short for learning about persistent individual types.
- κ is borrowed from Caplin *et al.* (2023) using Danish data—worth a sensitivity check.
  - Same with β: 4-month-ahead annual earnings vs 12-month-ahead on-the-job earnings-growth
- κ is assumed to be multiplicative; why not an additive wedge (Wang (2023))?
- There is also heterogeneity in job ladder risk (Ozkan *et al.* (2023)) and misperceptions.

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- Important contribution to the literature!
- Very clearly written. Very careful work; a battery of robustness checks.
- Made me think more about subjective uncertainty! Enjoyed reading it a lot.

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