Discussion of "Monetary Policy/Forward Guidance According to HANK" by Greg Kaplan, Ben Moll, and Gianluca Violante

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Overview of HANK literature

- Study monetary policy by combining
  - standard sticky-price NK model
  - workhorse incomplete markets heterogeneous agent (HA) model
    - One asset (Huggett '93, Aiyagari '94) $\rightarrow$ Gornemann-Kuester-Nakajima, McKay-Nakamura-Steinsson, Auclert, ...
    - Two assets (Kaplan Violante '14) $\rightarrow$ **This paper**
- Overall message:
  - HANK transmission mechanism quite different from RANK
  - Multiple potential sources of *amplification* / *dampening*
  - Compositional change towards GE effects
  - Redistributive effects really matter:
    - Who works/who owns the firms
    - Fiscal policy rule: taxes vs transfers vs spending

Then came Iván Werning

- Maybe none of this matters for the *aggregate* effect of mon. policy
  - PE and GE effects may cancel out
  - Intuition: if dR purely transitory

$$dc = \underbrace{MPCdy}_{\text{Income (GE) effect}} - \underbrace{\sigma c\left(1-MPC\right)\frac{dR}{R}}_{\text{Substitution (PE) effect}} \tag{1}$$

and $dc = dy$, then $\frac{dc}{c} = -\sigma\frac{dR}{R}$ irrespective of MPC

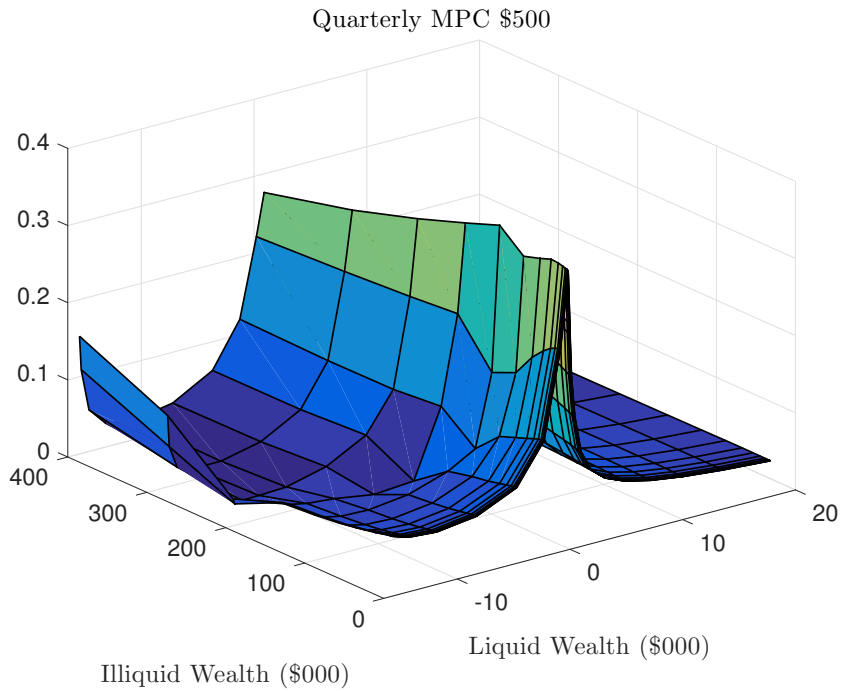
- Werning's assumptions are fairly extreme. In benchmark:
  1. No trading (borrower/saver redistribution)
  2. No investment (source of labor demand)
  3. No government
- Can be relaxed a little, but ultimately quantitative question how close to RA we get with more realistic assumptions
  - This is where this paper comes in!

Strong points of KMV

- Innovative continuous-time methods
- Income process consistent with 'new' income risk evidence
- Careful mapping between hh balance sheets and macro aggregates
- Even better calibration relative to previous iteration:
  - Replaced GHH preferences with more conventional separable prefs
    - GHH was convenient for aggregation on labor supply side
    - but c/n complementarities implied strong 'GE' effects even in RANK
  - Neutralized some of the distributional incidence of profits

More on GHH

Propensities to earn with separable preferences



- Separable preferences:
  $u(c) - v(n) = \log c - bn^2$
- Real wage w, skill e^i, FOC:

$$\frac{v'\left(n_t^i\right)}{u'\left(c_t^i\right)} = w_t e_t^i \qquad \forall i, t$$

- Differentiate (σ EIS, ψ Frisch)

$$w_t e_t^i MPN_t^i = -\underbrace{\frac{\sigma}{\psi}}_{=1} \underbrace{\frac{w_t e_t^i n_t^i}{c_t^i}}_{\simeq 1} MPC_t^i$$

- Empirical evidence?

Role of investment and dynamic GE effects

- How come still get $> 66\%$ contribution from GE effects?
  - With separable preferences, no investment and no persistence, cf (1):

$$\text{Share of GE effect} \simeq MPC \simeq 20\%$$

- My hunch: combination of two reasons
  1. Investment plays a big role
     - It does in the RA model too: importance of **clear RA benchmark**
     - Both for composition GE/PE, and for aggregate effect
     - Show impulse responses for I and G separately
     - Explain better role of hh-level adjustment costs and variable capacity utilization

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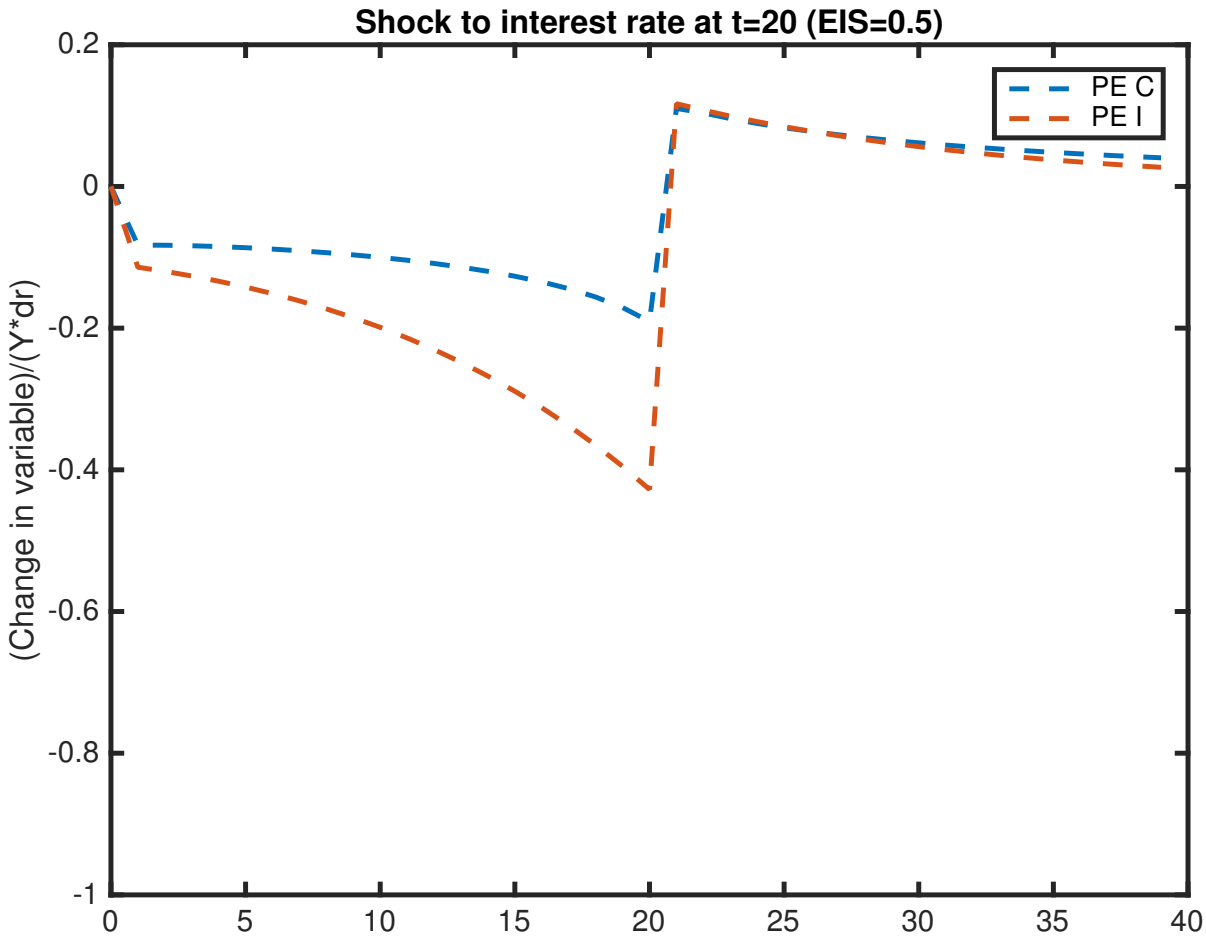
  2. Dynamic GE effects are important
     - Future income changes (from future response to shocks) feed into current response
     - "Intertemporal keynesian cross" (with Matt Rognlie & Ludwig Straub)

An alternative

- **Wage rigidities** solve a lot of the issues with price rigidities
  - Profits mildly procyclical (vs highly countercyclical)
  - Effective MPN out of AD increases can be controled directly
- Example: Auclert-Rognlie (2016)
  - One asset, investment with adj. costs, all equity is traded
  - Income process same as KMV
  - Here: perfectly sticky wages

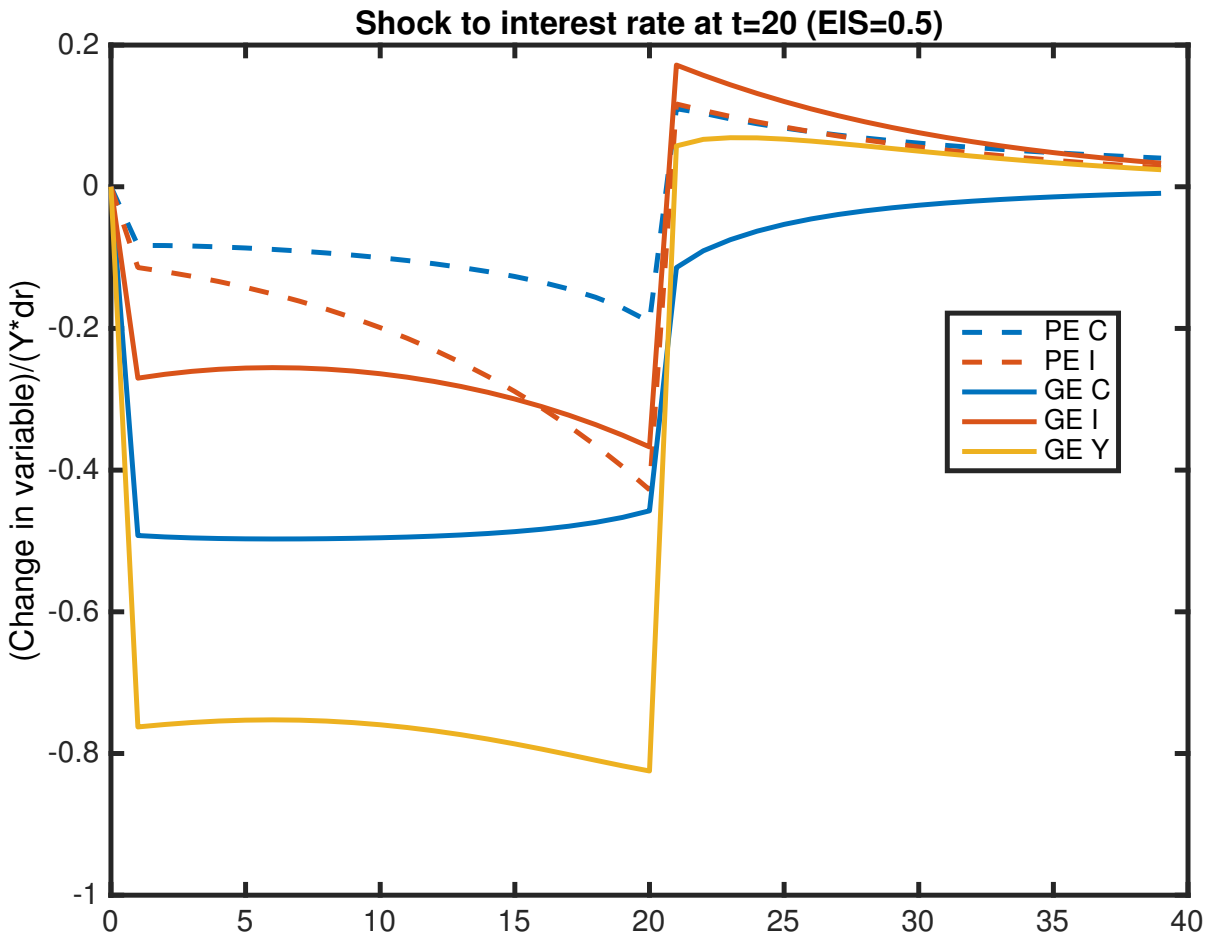
Forward guidance shock in Auclert-Rognlie

- PE Effect:



Forward guidance shock in Auclert-Rognlie

- GE Effect: reviving Werning neutrality



Conclusion

- Very exciting paper, substantial advance to literature
- Leaves open many questions for follow-up work
- Next frontiers:
  - More empirical evidence, notably
    - Incidence of labor demand expansions
    - Marginal rules for govtt tax/transfers/spending
  - More theory/empirics on mp + investment with heterogeneous firms

Thank you!

RANK model with GHH preferences

- Assume linear production

$$y_t = c_t = n_t$$

Euler equation

$$u'\left(c_t - v\left(n_t\right)\right) = \beta \mathbb{E}_t\left[R_{t+1} u'\left(c_{t+1} - v\left(n_{t+1}\right)\right)\right] \tag{2}$$

intertemporal substitution with respect to *net* consumption $g_t = c_t - v\left(n_t\right)$

- Consider a one-time expansion of $\frac{dR}{R} < 0$. By (2), implies $\frac{dg}{g} = -\sigma \frac{dR}{R}$
- At steady-state with labor wedge τ,

$$v'\left(n\right) = v'\left(c\right) = \left(1 - \tau\right)$$

so $\frac{dg}{g} = \frac{\left(1 - v'(c)\right)dc}{c - v(c)} = \tau \frac{c}{c - v(c)} \frac{dc}{c} = -\sigma \frac{dR}{R}$

- Hence

$$\frac{dc}{c} = -\frac{\sigma}{\tau} \frac{c - v\left(c\right)}{c} \frac{dR}{R}$$

- Note τ in the denominator: large general equilibrium effects in this RANK