Discussion of "Understanding HANK: Insights from a PRANK"

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Overview

- **Is heterogeneity relevant for monetary policy?**
- **Some lessons from HANK models: heterogeneity matters for**
  - transmission of monetary policy (e.g. “direct” vs “indirect”)
  - interactions monetary & fiscal policies (redistributive effects)

Overview

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- **Some lessons from HANK models: heterogeneity matters for**
  - transmission of monetary policy (e.g. “direct” vs “indirect”)
  - interactions monetary & fiscal policies (redistributive effects)
- **WANTED:** a simple tractable framework

This Paper

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- **Main contribution**
  - **Tractable framework**: CARA utility function & (log) normal shocks
    $\Rightarrow$ Pseudo - RANK (PRANK)
  - Show analytically role of **cyclicality of risk**
  - **Applications:** "Forward Guidance Puzzle" and Fiscal Multipliers

Main Comments

- **Praise**
  - Clear, elegant, transparent analysis
  - Useful framework, a good benchmark for future studies
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- **Comments**
  1. Key elements of HANK models: theory
  2. Key elements of HANK models: practice
  3. Tractable HANKs: the way forward

#1: Key elements of HANK models: Theory

Key Elements of HANK models

- **Back to the origins: 2 types of financial frictions**
  [e.g. Bewley-Huggett-Aiyagari]
  1. no insurance for idiosyncratic risk
  2. limited asset market participation

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  1. no insurance for idiosyncratic risk
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- **(Not so) Naïve question:** Why do we need both frictions?

Aggregate Dynamics in HANK

Log-linearized relationships, based on Debortoli-Galí (2018)

- Effects of changes in real interest rate on output

$$\hat{y}_t = -\gamma^{-1} \sum_{k=0}^{\infty} \hat{r}_{t+k} + \widehat{h}_t$$

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- **Response of h to aggregate shocks determines**
  - amplification vs dampening
  - endogenous propagation
- **... typically a black box!**

Components of Heterogeneity

based on Debortoli-Galí (2018)

The "heterogeneity" index can be decomposed as

$$\underbrace{\hat{h}_t}_{\text{Heterogeneity Index}} \equiv \underbrace{\hat{h}_t^{\gamma}}_{\text{gap}} + \underbrace{\hat{h}_t^{\lambda}}_{\text{share}} + \underbrace{\hat{h}_t^{\omega}}_{\text{switching}} + \underbrace{\hat{h}_t^{\theta}}_{\text{dispersion}}$$

Components of Heterogeneity

based on Debortoli-Galí (2018)

Representative Agent (RANK)

$$\underbrace{\hat{h}_t}_{\text{Heterogeneity Index}} = 0$$

$$\hat{y}_t = -\gamma^{-1} \sum_{k=0}^{\infty} \hat{r}_{t+k}$$

Components of Heterogeneity

based on Debortoli-Galí (2018)

Two-Agent Model (TANK)
[e.g. Bilbiie (2008)]

$$\underbrace{\hat{h}_t}_{\text{Heterogeneity Index}} \equiv \underbrace{\hat{h}_t^{\gamma}}_{\text{gap}}$$

$$\Rightarrow \hat{y}_t = -\frac{\gamma^{-1}}{1-\Phi_{\gamma}} \sum_{k=0}^{\infty} \hat{r}_{t+k}$$

Key aspect: Cyclicality of Income Heterogeneity (among agents with different MPC)

Components of Heterogeneity

based on Debortoli-Galí (2018)

Pseudo-RANK (This Paper)

$$\underbrace{\hat{h}_t}_{\text{Heterogeneity Index}} \equiv \underbrace{\widehat{h}_t^{\theta}}_{\text{dispersion}}$$

$$\Rightarrow \hat{y}_t = -\sum_{k=0}^{\infty} \Phi_{\theta}(k)\hat{r}_{t+k}$$

where $\Phi_{\theta}(k) \equiv \gamma^{-1}\Theta^k + \Lambda \sum_{s=1}^{k} \tilde{\beta}^s \Theta^{k-s}$

Key aspect: Cyclicality of Risk (MPC varies over the cycle)

Components of Heterogeneity

based on Debortoli-Galí (2018)

TANK + Idios. Risk, No Liquidity (T-HANK)
[Ravn-Sterk (2018), Bilbiie (2019)]

$$\underbrace{\hat{h}_t}_{\text{Heterogeneity Index}} \equiv \underbrace{\hat{h}_t^{\gamma}}_{\text{gap}} + \underbrace{\hat{h}_t^{\lambda}}_{\text{share}} + \underbrace{\hat{h}_t^{\omega}}_{\text{switching}}$$

$$\Rightarrow \hat{y}_t = -\frac{\gamma^{-1}}{1-(\Phi_\gamma+\Phi_\lambda)} \sum_{k=0}^{\infty} (\Phi_\omega)^k \hat{r}_{t+k}$$

Alternative Tractable HANK: Comparison

PRANK

$$\hat{y}_t = -\sum_{k=0}^{\infty} \Phi_\theta(k)\hat{r}_{t+k}$$

T-HANK (no liquidity)

$$\hat{y}_t = -\frac{\gamma^{-1}}{1-(\Phi_\gamma+\Phi_\lambda)} \sum_{k=0}^{\infty} (\Phi_\omega)^k \hat{r}_{t+k}$$

- PRANK and T-HANK have qualitatively similar effects
  ... (subtle) differences in channels

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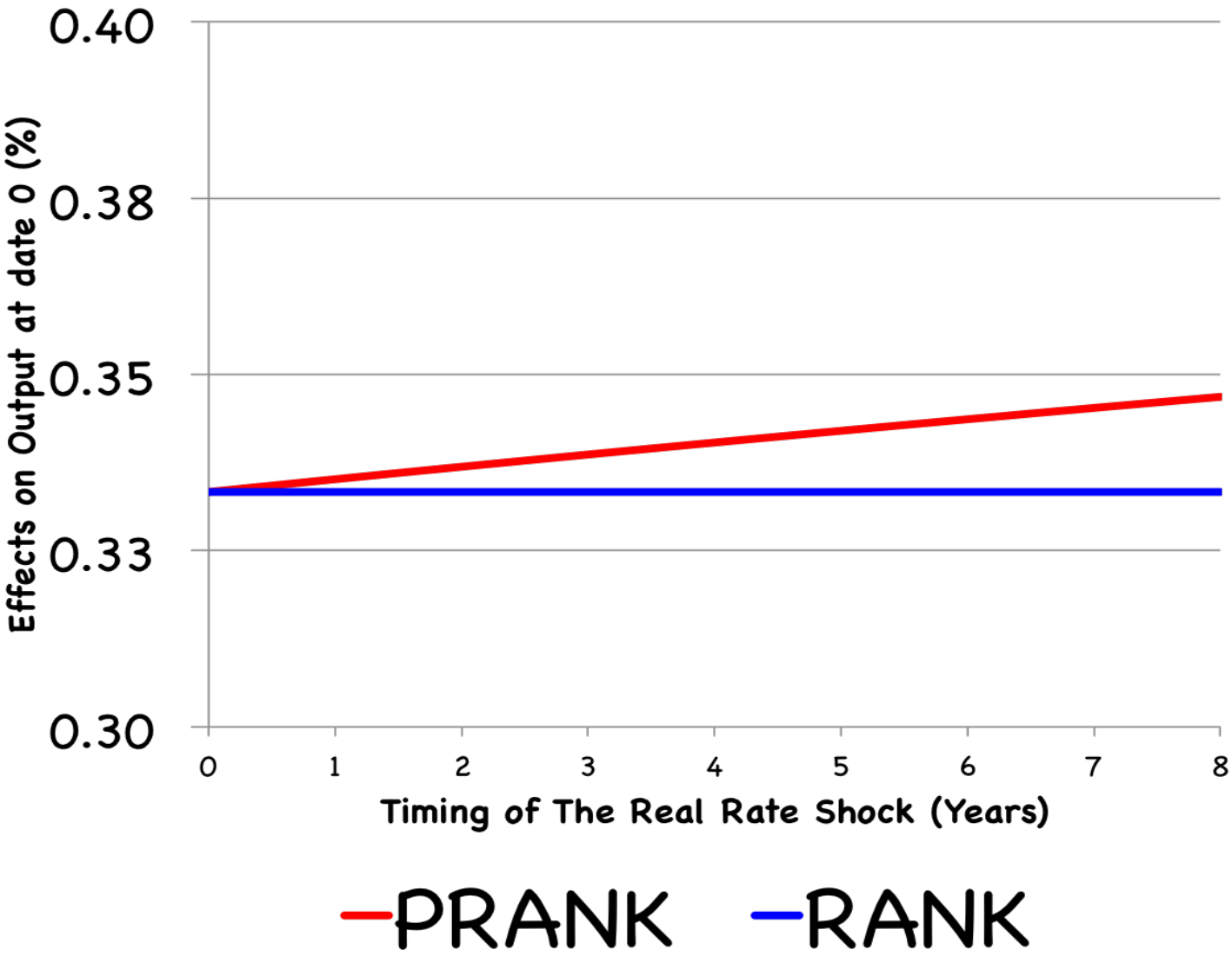
- **Why two types of financial frictions?**
  - **Limited Participation**
    $\Rightarrow$ Affect elasticity of output to interest rate at all horizons
  - **Idiosyncratic Risk + Incomplete Markets**
    $\Rightarrow$ compounded/discounted effects of future policies

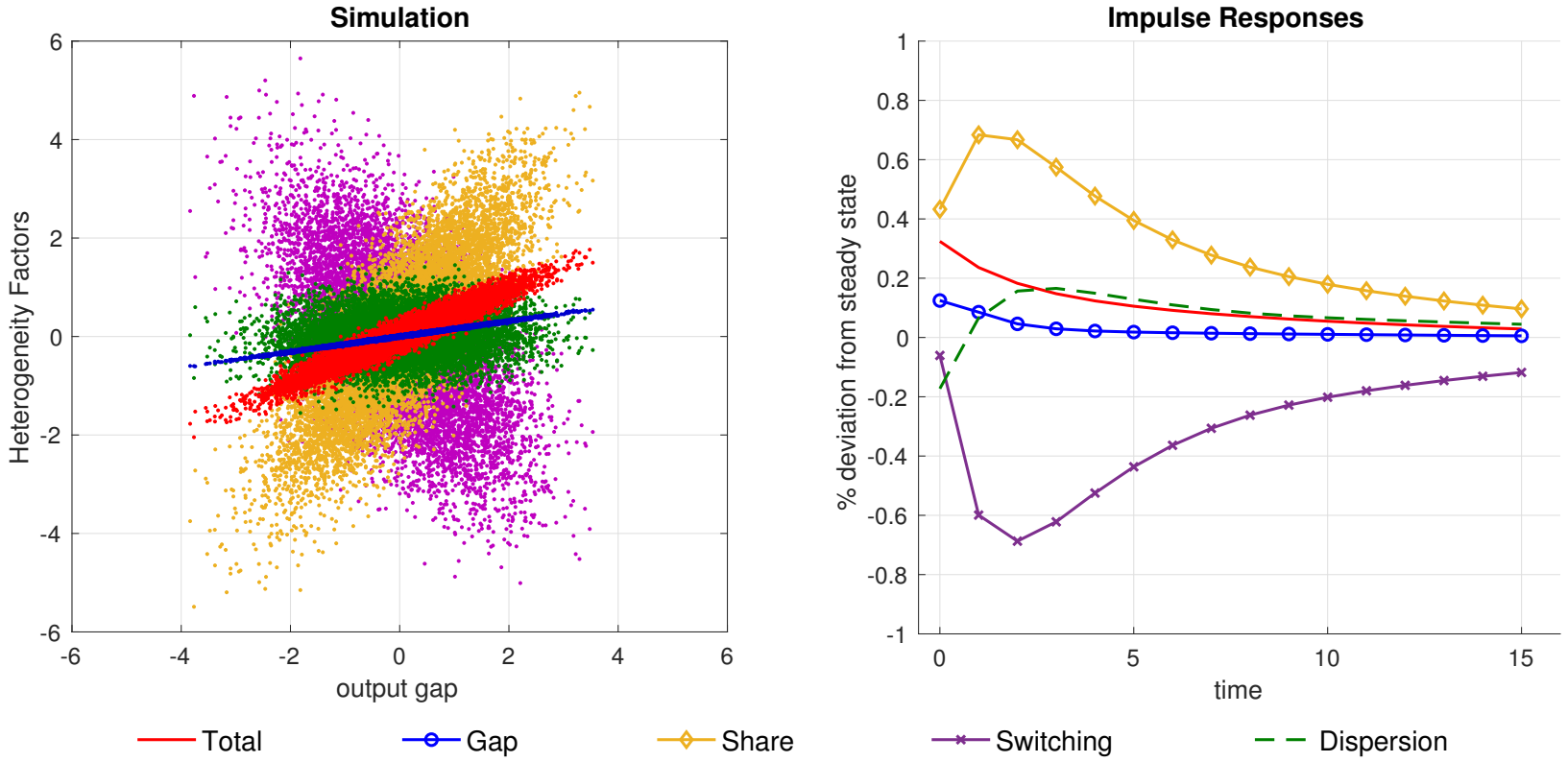
#2: Key elements of HANK models: Practice

Effects of Real Rate Shocks in PRANK

Baseline calibration (countercyclical risk)



Heterogeneity in Baseline HANK



- **No big role of heterogeneity among unconstrained households (dispersion)**

Taking Stock

- **Precautionary savings** *per se*
  ⇒Distinct theoretical effects
  ⇒Small quantitative difference wrt RANK
  ⇒Exacerbates "Forward Guidance" puzzle

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- **My view:**
  - **incomplete markets & limited participation needed to get more action!**
  - ... or T-HANK model (without liquidity)
  - **Aside:** quantitative advantage of considering liquidity?

#3: HANK and Monetary Policy: The Way Forward

HANK & Monetary Policy: The Way Forward

- **Good news:**
  - Tractable frameworks (TANK + PRANK) capture all components of heterogeneity
  - ... no need to solve for wealth distribution
  - potentially useful framework for policy analysis

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- **Good news:**
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  - ... no need to solve for wealth distribution
  - potentially useful framework for policy analysis
- **Bad news:**
  - HANK may not help rationalizing existing puzzles (e.g. "Forward Guidance") [... models with bounded rationality, or limited credibility more promising]
  - Better Microfoundations ... but worse Macro implications