Discussion: "Decomposing HANK" by Zheng Gong

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[1]**De Nederlandsche Bank**.

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- **Methodology:** Find transfers as functions of idiosyncratic shock histories - both analytically and numerically

- **Main finding:** Redistributive effects in a standard one-asset HANK model are relatively small but qualitatively in line with previous literature.

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1. **Main contribution**

2. **Relation to previous literature on HANK decompositions**

3. **Empirical support**

4. **Generality of the methodology**

Contribution

Focus on consumption response after a perturbation ϵ [following Hagedorn et al 2019]

- Denote aggregate consumption in complete & markets: C_t^{CM} & C_t^{IM} and define $\gamma_t \equiv \frac{C_t^{CM}}{C_{ss}^{CM}}$
- If markets were complete and households faced *CM* prices: $C_t^{IM} = \gamma_t C_{ss}^{IM}$
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- The difference $c_{i,t}^{IM,FG} - \gamma_t c_{i,t}^{IM,ss} \neq 0$ arises due to different relative income changes across the distribution
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This paper: Find transfers as functions of idiosyncratic shock histories and decompose into different effects

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Transfer decomposition of Gong (2023)

$$-\omega\left(z^t\right) = \underbrace{\left(\hat{y}^A\left(z^t\right) - \hat{Y}_t^A\right) y^*\left(z^t\right)}_{\text{income exposure}} + \underbrace{\left(b^*\left(z^{t-1}\right) - B\right)\left(r_t^A - r^*\right)}_{\text{interest rate exposure}}$$

$$+ \underbrace{\left(T_t^A - T^*\right) - \left(\tau^A\left(z^t\right) - \tau^*\left(z^t\right)\right)}_{\text{tax payment}} + \text{other (optional or small) channels}$$

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Decompositions in HANK models are already prominent in the literature.

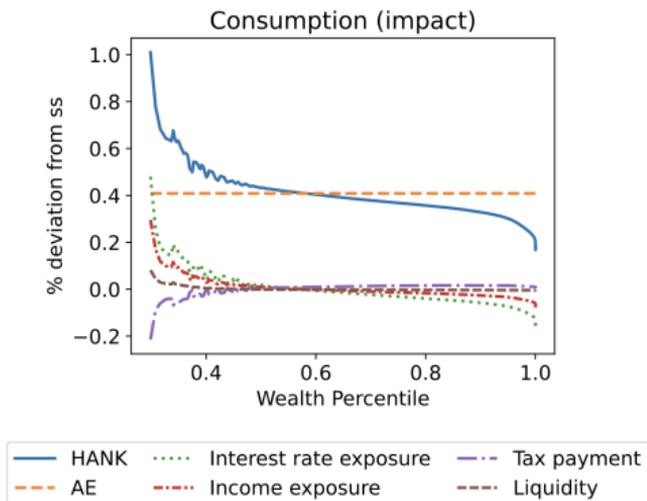[see Auclert 2019, Kaplan et al 2018 and others]

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$$\text{Kaplan et al: } dC_0 = \underbrace{\int_0^\infty \frac{\partial C_0}{\partial r_t^b} dr_t^b dt}_{\text{direct effect}} + \underbrace{\int_0^\infty \left(\frac{\partial C_0}{\partial w_t} dw_t + \frac{\partial C_0}{\partial r_t^a} dr_t^a + \frac{\partial C_0}{\partial \tau_t} d\tau_t + \frac{\partial C_0}{\partial T_t} dT_t\right) dt}_{\text{indirect effects}}$$

- What is the relation between these decompositions in a benchmark model?
- When do they coincide? When do they not?
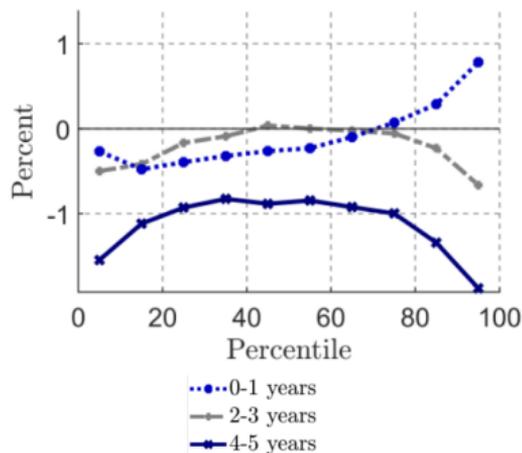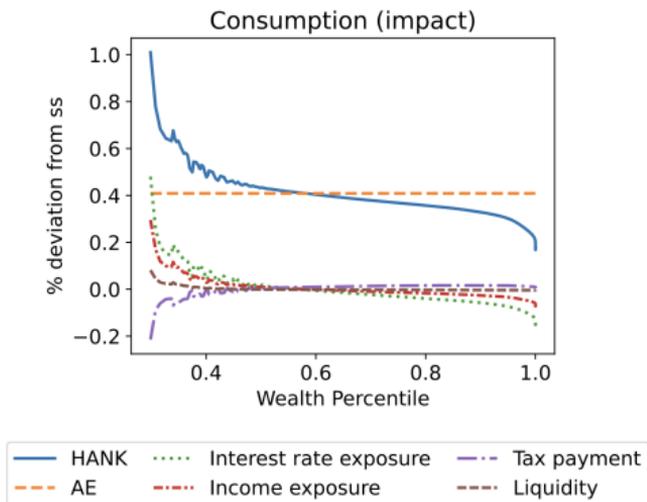- How important are general equilibrium effects in driving divergences?

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- Nice decomposition of responses of $c_{i,0}$ over the wealth distribution [LHS]

Consumption (impact)

% deviation from ss vs Wealth Percentile

Legend: HANK, AE, Interest rate exposure, Income exposure, Tax payment, Liquidity

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- Compare the $c_{i,t}$ IRF slice by Holm et al (2021) [RHS]
- Qualitatively in line! [LHS: neg. MP innovation, RHS: pos. MP innovation]

Comment #2: Connection to empirics

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- Compare the $c_{i,t}$ IRF slice by Holm et al (2021) [RHS]
- Qualitatively in line! [LHS: neg. MP innovation, RHS: pos. MP innovation]
- But can go further - use methodology as connection between empirics and theory [see also Amberg et al 2021, Andersen et al 2021, etc.]
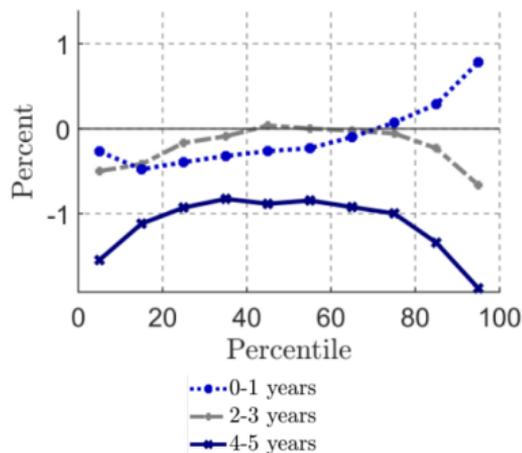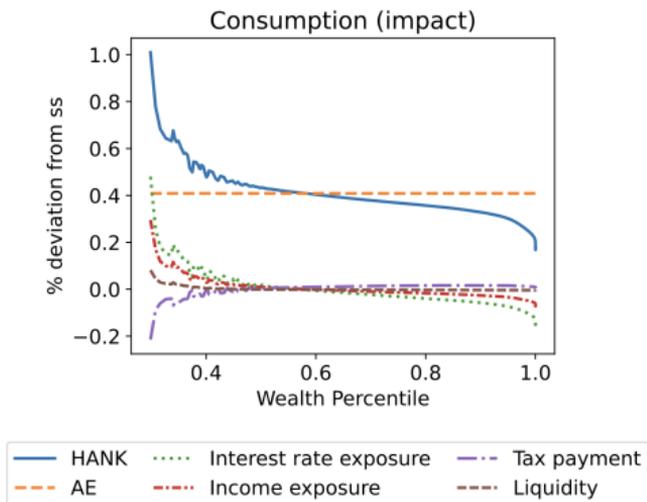
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So it would be good to understand generality and limitations more. So a few suggestions:

1. Prove that transfers are be equal in the zero-liquidity case [i.e. Werning 2015]
2. Compare a pure RA economy to the as if RA economy to understand the difference [e.g. due to different discount factors in EE]
3. Apply to more general models such as the two-asset model with liquid and illiquid assets [e.g. Auclert et al 2021, Kaplan et al 2018, Bayer et al 2019]
4. Focus on other crucial components [e.g. Investment, Labour Supply]

Policymakers are interested in questions that HANK is predestined to tackle:

1. Contribution and decomposition of demand factors to current inflation [see e.g. Ascari et al 2023 or Shapiro 2022]
2. Effectiveness of monetary policy in the current high inflation regime
3. Uncertainty around lags of monetary policy effects [see e.g. Carvalho et al 2023]

Appendix

To first order, in response to dY_i, dY, dP, and dR, aggregate consumption changes by

$$dC = \underbrace{\mathbb{E}_I\left[\frac{Y_i}{Y}\widehat{MPC_i}\right]dY}_{\text{Aggregate income channel}} + \underbrace{\text{cov}_I\left(\widehat{MPC_i}, dY_i - Y_i\frac{dY}{Y}\right)}_{\text{Earnings heterogeneity channel}}$$

$$-\underbrace{\text{cov}_I\left(\widehat{MPC_i}, NNP_i\right)\frac{dP}{P}}_{\text{Fisher channel}}$$

$$+\left(\underbrace{\text{cov}_I\left(\widehat{MPC_i}, URE_i\right)}_{\text{Interest rate exposure channel}} - \underbrace{\mathbb{E}_I\left[\sigma_i\left(1 - \widehat{MPC_i}\right)c_i\right]}_{\text{Substitution channel}}\right)\frac{dR}{R}.$$

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