What Have We Learned
From HANK Models, Thus Far?

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Central Banks’ Modelling Strategy

- Central Banks uses a suite of different models to inform monetary policy decisions, with two objectives:
  - **Forecasting**: VAR
  - **Interpret data, and run counterfactuals**: structural DSGE models
    - Representative household, or very limited heterogeneity (2-types)

- From the *Review of Macroeconomic Modelling in the Eurosystem*
  - *Given the achievements in the academic HANK literature, central banks should venture into this area of modelling [...] and advancing the empirical validation of those models*
HA + NK

- **NK**: New Keynesian block
  - Phillips curve + Monetary policy rule

- **HA**: Heterogeneous Agent
  - Replaces the aggregate Euler Equation (IS curve) with \textit{modern theory of consumption and saving} (‘buffer stock’ model)
  - Households are heterogeneous ex-ante and ex-post, and there is \textit{imperfect risk sharing} among them

  \rightarrow \textit{Distribution} of income, consumption and wealth that resembles data

- Three groups of households (with mobility among them)
  1. **Hand-to-mouth**: low liquidity and high MPC
  2. **Middle class**: precautionary saving to stay away from credit limit
  3. **Wealthy**: high net-worth individuals
1. Transmission

Monetary transmission to individual consumption

- Direct effects (PE)
- Intertemporal Substitution
- RANK model

- Woodford
- Gali
- Gertler
- Eichenbaum, Rebelo, Wong
- Berger, Milbradt, Tourre, Vavra
- Wong
- Beraja, Fuster, Hurst, Vavra
- McKay, Wieland
- Greenwald
- Auclert
- Sterk, Tenreyro
- Doepke, Schneider
- Gornemann, Kuester, Nakajima
- Alves, Kaplan, Moll, Violante
- Kekre, Lenel
- Kaplan, Moll, Violante
- McKay, Nakamura, Steinsson
- Auclert, Rognlie, Straub
- McKay, Reis
- Kaplan, Moll, Violante
- Luetticke
- Auclert
- Auclert, Rognlie, Straub
- Werning
- Bilbiie
- TANK model
- Gornemann, Kuester, Nakajima
- Acharya, Dogra
- Holm
- Ravn, Sterk
- Auclert
- Kaplan, Moll, Violante
- Broer, Hansen, Krusell, Oberg
- Bilbiie
1. Transmission

Monetary transmission to individual consumption

- **Direct effects (PE)**
  - Intertemporal Substitution
  - Income Effects

- **Indirect effects (GE)**
  - Asset Prices
  - Fiscal Policy
  - Labor Income

- **Income Effects**
  - Income Effects through Interest Rates
  - Valuation Effects from Inflation (Fisher Effects)
  - Income Effects through Mortgage Rates

- **Valuation Effects**
  - Dividends/Profits
  - Capital Gains

- **Risk**
  - Level
  - Risk

- **Fiscal Policy**

- **Labor Income**

- **Centrality of indirect general-equilibrium channels**

- **Even truer for QE**

- **Lots of intermediating factors outside central banks’ control and depend on institutions and market structure which are country-specific**
2. Amplification: redistribution channel

1. Redistribution of income / wealth toward households with:
   - High marginal propensity to consume
   - High marginal propensity to take risk
2. Amplification: cyclical risk channel

Cyclicality of labor market risk

2. Countercyclical precautionary saving motive

- Further fall in spending and employment
- By reverting downward spiral, effects of monetary policy amplified
2. Amplification: fiscal response channel

\[ B_{t+1} + \text{Net Tax Revenues}_t = r_t B_t + G_t \]

3. Fiscal response to monetary policy shock matters in Non-Ricardian world

- Size of the ‘extra resources’ is a function of the maturity structure of debt

- Where, in the income distribution, these extra resources end up determines amplification
3. Impact on Income and Wealth Inequality

- HANK models:
  1. Monetary policy is **redistributive** and this matters for transmission
  2. Stabilization policy ⇔ Redistributive policy
  3. Fiscal policy is better suited to redistribute and insure risks because it can be ‘targeted’ more accurately

- Key obstacle of fiscal side: institutional delays and political compromise

- Should the monetary authority be concerned with inequality?
  - **Fed**: Yes, explicitly aiming for an ‘inclusive recovery’
  - **ECB**: No, unless it interferes with price stability
    - Institutions with narrowly defined mission have many strengths
    - Perhaps, aim for: ‘price stabilization’ in the most equitable way?
4. New Data Requirements

- **Granular micro data** are essential to the mission of the ECB

- **HFCS** is a great first step, but ideally:
  1. Larger **sample size** to explore all dimensions of heterogeneity
  2. **Longitudinal** dimension
  3. Better coverage of the **top of the distribution**

- Possible complementary data sources:
  1. Administrative big-data (public or proprietary), e.g. bank-transaction
  2. Links through SSN
  3. **Real-time**, or high frequency, data

- **Needed**: rich dataset providing comprehensive **household finance pulse**