The MAKRO model

Peter Stephensen, DREAM

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MAKRO

- Large-scale macroeconomic model for Denmark
- Developed for the Danish ministries of finance and economic affairs
- Project: spring 2017- spring 2020
- Developed by new model group under the auspices of the Danish research institute DREAM

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MAKRO

- Combines short- and long term projections
- Assess the medium term budgetary outlook and the sustainability of fiscal policy
- Policy analysis

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For this we need:

1. A high quality baseline
2. The ability to assess the effects of alternative policies and assumptions

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High Quality Baseline

- Public revenues (taxes under current policy)
- Public expenditures (demography, health)
- Overlapping generations (OLG)
- Labor supply
- Productivity
- Foreign demand
- Closure of gaps (medium run behavior)
- Structural development (long run)
- Not Steady State (Dynamic Calibration)

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Short run behavior

Firms

- Sticky prices (Calvo)
- Costs of installation
- Financial Intermediation (a bank)
- Finansial accelerator

Labor marked

- Sticky wages (seach- and matching labor marked)

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Short run behavior

Households

- Habit formation
- Rule-of-thumb consumers
- Credit rationing
- Financial Intermediation (a bank)

Other

- Alternative expectations
- Sticky export

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Modeling behavior

- Forward looking? People are typically forward looking based on backward looking analysis
- Rational? People *try* to be rational (behavioral economics)
- Representative agent? Peoples are different!

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Expectations

- Proto-type-model:
  1. No uncertainty (not a DSGE-model)
     - High Quality Baseline (non-steady-state)
     - Robust and easily expandable model
     - Not important in many DSGE's
     - When is it important? (please tell us – we might fix it)
  2. Perfect foresight households and firms (not a SEM-model)
     - Easy to understand, test and compare
  3. Hand-to-mouth households

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Expectations

- Alternative expectations
  1. Static or Adaptive
  2. VAR (FRB/US)
  3. Sticky information (Mankiw & Reis, 2001)
  4. Hyperbolic discounting (Laibson, 1997)
  5. Bounded rationality (Gabaix, 2016)
  6. Optimistic or pessimistic non-model-consistent expectations

Hybrid: DSGE/SEM

- DSGE: Dynamic Stocastic General Equlibrium model
  1. Rational agents that optimize under uncertainty
  2. System estimation
- SEM: Structural Econometric Model
  1. No uncertainty
  2. Not stringent microfoundation
  3. Single equation estimations

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Hybrid: DSGE/SEM

- MAKRO:
  1. No uncertainty, forward looking, representative agents
  2. Estimation:
     - Small SVARs (and Local Projections)
     - Kalman filters (estimation of CES-parameters)
     - Single equation estimations if needed

Thank you!

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