

Bør Finansdepartementet (og MMU) beskjeftige seg med agentbaserte modeller?

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Standard macroeconomic models

- *What's wrong with standard macroeconomic models (DSGEs)?*
 - **Over-simplicity** Features that generated the financial crisis are overlooked; heterogeneity of agents, markets that do not clear, regulatory frameworks, financial innovations etc..
 - **Rationality** In real and financial markets, many agents are acting on basis of overconfidence, heterogeneous beliefs, imperfect knowledge of the states of the world etc.
 - **Equilibrium** Standard models focus on states of the economy in which all markets clear. But labour market does not clear, so how can one analyse policy implications in crisis?

Agent based models (ABMs)

- Depart from representative agent paradigm, introduce heterogeneity of agents characteristics and behaviour, allow for markets that do not clear. Complex institutional arrangements.
- No central authority. Market interactions are local and occurs through a network of existing relationships across agents.
- A key notion is that simple behavioural rules (microeconomic patterns) can generate complex dynamics for macroeconomic variables of interest. In ABMs, the agent do not know the “model” wherein they operate.

Policy in ABMs

- Policy may have both short run and long run effects. In DSGEs, effect of fiscal and monetary policy limited to short run. But assumes economy returns to equilibrium (natural rate of employment etc.)
- But if economy is persistently away from equilibrium, policy can span over the short run. ABM allows you to study when fiscal (or monetary) policy has long run effects.

Limitations

- **Finer-grained analysis comes at a cost...**
- More complex models, analytical investigation is difficult/impossible.
- Monte Carlo methods are used to introduce randomness and analyse model. How to validate results of simulations?
- What rules should agents follow to take their decisions?
- Over-complicated models. Causal relations are hard to understand.

Take home message for policymakers

- *Policymakers need to deal better with heterogeneity across agents and the interactions among those heterogeneous agents*
- *Need to re-examine assumption of RE. Need to consider richer characterisation of expectation formation*
- *Financial system need to be better integrated into macro*
- **Agent based models provide a fruitful, promising and usable approach to address complex problems of market design and policy analysis**
- Start simple! Set up a toy model so that it can reproduce endogenous short-term fluctuations and well as long run growth.