On the future of macroeconomic models

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Introduction
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- Macroeconomics has been under scrutiny as a field since the financial crisis. Should it have similar effects?!
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- Macroeconomics has been under scrutiny as a field since the financial crisis. Should it have similar effects?!
- Widespread acknowledgement that the DSGE models performed poorly, but little agreement on what alternative future paradigm should be pursued
The challenge to DSGE models

DSGE models play a dominant role in macro research

Reasons to dislike current DSGE models:

- They are based on unappealing assumptions
- Their standard method of estimation (a mix of calibration and Bayesian estimation) is unconvincing
- Their normative implications are not convincing
- DSGE models are bad communication devices
Initial response to this challenge

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DSGE modelling needed to evolve in two ways:

1. It has to become less insular
   - The consumption example: rather than looking for repairs, build the model based on large amount of work on consumer behaviour
   - DSGEs should be the architecture to integrate and discuss findings from the various fields of economics

2. It has to become less imperialistic
   - Macroeconomists must realize that different model types are needed for different tasks
   - Models can have different degree of theoretical purity, simplicity, ad hocery
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What we agree on and what we do not

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- Three widely believed propositions
  1. Macroeconomics is about general equilibrium
  2. Different types of general equilibrium models are needed for different purposes
  3. Partial equilibrium modelling and estimation are essential to understanding the particular mechanisms of relevance to macroeconomics
Two more controversial propositions

1. The specific role of DSGEs in the GE models is to provide a basic macroeconomic Meccano set.
2. The only way in which DSGEs can play this role is if they are built on explicit micro foundations.
What we agree on and what we do not

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The way forward

► If someone accept them, the wholesale dismissal of DSGEs is not an option
► The discussion must be about
  ▶ the nature of the micro foundations
  ▶ the distortions current models embody
  ▶ and how we can do better
► So the advise for researchers as their priorities:
  1. write down a basic model most of us would be willing to take as a starting point
  2. then explore serious improvements in various dimensions
We need five kinds of macro models:

1. Foundational models
   - Purpose: to make a deep theoretical point, likely of relevance to nearly any macro model
   - Limitation: but not pretending to capture reality closely
   - Best examples: consumption-loan model (Samuelson)- OLG (Diamond)- Models of money (Wallace, Wright)- Equity premium model (M&P)- Search models (DMP)
Different classes of macro models

2 DSGE models

- Purpose: to explore the macro implications of distortions or sets of distortions. They must be built around a largely agreed common core.
- Two issues with this models:
  2.1 what the core model should be
  2.2 how close these models should be to reality
3 Policy models

- Purpose: to help policy, to study the dynamic effects of specific shocks, and to allow for the exploration of alternative policies.
- For these models, capturing actual dynamics in data is essential.
- Limitation: the theoretical structure must by necessity be looser than for DSGE.
- Possible examples:
  - models used in central banks
  - quantitative effects of a slowdown in China on the United States,
  - effects of a US fiscal expansion on emerging markets
4 Toy models

- Purpose: They allow for a quick first pass at some question, and present the main answer from a more complicated model
- They may come before or after writing a more elaborate model
- How close they remain formally to theory is not a relevant criterion
- They are art as much as science, but art is of much value
- Best examples: variation of IS-LM model, Mundell-Flemeng model, RBC model, basic New Keynesian model
Different classes of macro models

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5 Forecasting models

- Purpose: give the best forecasts, and this is the only criterion by which to judge them
- If theory is useful in improving the forecasts use it, otherwise should be ignored
- The issues are then statistical: overparameterization, instability of the underlying relations, etc
Integration of the models

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- Ideal: a model that have both a tight theoretical structure and fits the data well
  - Dangerous illusion! "the marriage of a carp and a rabbit"
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- DSGE modellers trying to fit the data have extended the original structure
  - These changes are entirely ad-hoc
  - do not correspond to any micro evidence
  - make the theoretical structure of the models heavier and more opaque
Integration of the models

Policy modellers, looking to tighten the theoretical structure of their models
  • attempted to derive the observed lag structures from optimization
  • These constraints have little justification, theoretical or empirical
  • Go your way! equations that truly fit the data can have loose theoretical justification

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  - Go your way! equations that truly fit the data can have loose theoretical justification
- Both classes (theory and policy) should interact and benefit from each other
- There should be scientific cointegration, but not full integration
Conclusion

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- Current DSGEs are flawed, but they contain the right foundations and must be improved rather than discarded.
- We need different types of macroeconomic GE models for different purposes: both in theory and policy classes.
- The attempts of some of these models to do more than what they were designed to do seem to be overambitious.
- The different classes of models have a lot to learn from each other, but full integration is counterproductive.
- All should be built on solid partial equilibrium foundations and empirical evidence.