Typical Constructions of DSGE Models

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Outline

- A very simple framework for closed economy.
- A DSGE model with banking sector.
- DSGE models employed by some central banks.

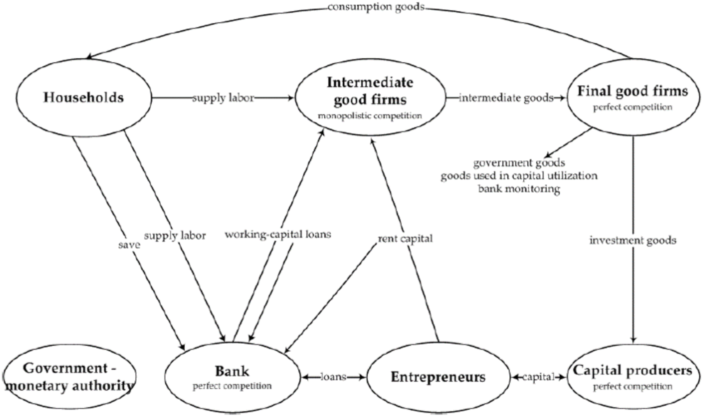
A Simple Framework for Closed Economy

- Household
  - utility maximization
    - consumption
    - investment
    - stock of capital
- Firm
  - NK models (price stickiness)
    - final goods (perfect competition)
    - intermediate goods (monopolistic competition)
- Government
- Monetary authority

Christiano *et al.* (2010) EU Central Bank WP

- A standard monetary DSGE model.
  - banking sector
  - financial markets
- Fit the model to Euro area and US data.
- Many important results.
  - Financial intermediation turns an otherwise diversifiable source of idiosyncratic economic uncertainty, the “risk shock”, into a systemic force.

Christiano *et al.* (2010) Framework



Christiano *et al.* (2011) JEDC

- A small open economy setting.
  - financing frictions for capital
    e.g., moral hazard, informational asymmetry
  - employment frictions for labour
    e.g., search costs, wage rigidity, labour mobility
  - three models in total
    1) no financing and employment frictions
    2) with only financing friction
    3) with both financing and employment frictions
- Main results
  - financial shock is pivotal for explaining fluctuations in investment and GDP
  - marginal efficiency of investment shock has negligible importance
  - labour supply shock is unimportant in explaining GDP
  - no high frequency wage markup shock is needed

References

- Christiano, L.J, Motto, R. & Rostagno, M. (2010). Financial factors in economic fluctuations. European Central Bank Working Paper Series, No.1192. Available at: `https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1192.pdf`
- Christiano, L.J, Trabandt, M. & Walentin, K. (2011). Introducing financial frictions and unemployment into a small open economy model. *Journal of Economic Dynamic and Control*, 35(12), 1999-2041.

Summary

- DSGE models can be very simple.
- DSGE models can also be very complicated with hundreds of variables and equations.