

Lecture 3: Typical Constructions of DSGE Models

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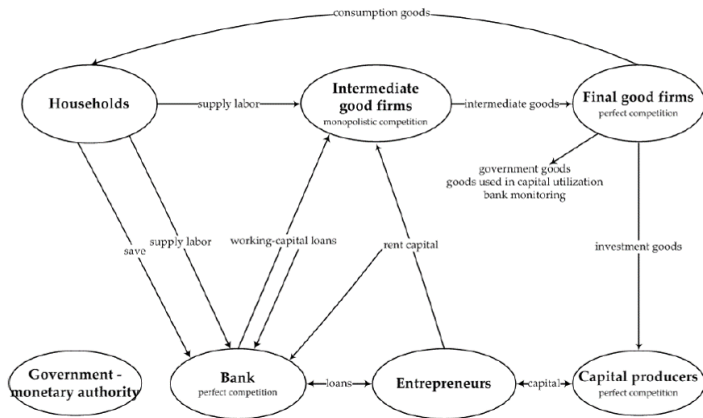
- A very simple framework for closed economy.
- A DSGE model with banking sector.
- A small open economy model.

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

- 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



- 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

- 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.

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