Output dynamics in Real-Business-Cycle Models

T. Cogley and J. M. Nason, AER 1995

Discussion by Flurin Conradin, Katarina Ivas and Charlotte Werger
Outline

• General comments - Flurin
• More “sophisticated” RBC models - Katarina
• Summary and impact - Charlotte
General comments

- Model selection
- Simple way of testing accuracy
- Necessity to comply
Gestation/employment lags and capital/labor adjustment costs

- Models featured by additional assumptions on the production function.
- LABOR: employment lags, labor adjustment costs => partially successful
- CAPITAL: gestation lags, capital adjustment costs => not successful (i.e. hardly any improvement w.r.t baseline model).
Burnside & Eichenbaum

• Factor hoarding model: adjusted for capital utilization and work effort

• Production function:

\[ Y_t = (K_t U_t)^{1-\alpha} [N_t f W_t X_t]^\alpha \]

- \( K_t \)......capital stock
- \( U_t \)......capital utilization rate
- \( N_t \)......number of individuals working
- \( f \)........fixed length of hours worked (indivisible labor)
- \( W_t \)......work effort
- \( X_t \)......level of technology
Fève & Matheron (2005)

• Based on Kydland&Prescott (1982); 2 changes:
  1. Labor supply complementary across time (leisure habit)
  2. Labor wedges (preference) shock instead of gvt
     – (technology shocks much more important for output dynamics than transitory shocks (Prescott: 70%))

• The same test as CN
• Can reproduce the stylized facts
The stylized facts; a reminder

• Two Stylized Facts
  1) GNP growth is positively autocorrelated in the short run and weakly negatively autocorrelated over longer horizons
  2) GNP has an important trend-reverting component that has a hump-shaped moving average representation
Main findings

• Standard RBC models rely heavily on exogenous factors to replicate the two stylized facts

• The RBC models have weak internal propagation mechanisms and thus do not generate interesting dynamics via their internal structure
Impact of the paper

• Criticism on standard RBC models, not only by Cogley and Nason (e.g. Rotemberg and Woodford (1996))
• Development of more complex models, at the cost of losing simplicity (Fève and Matheron (2005)).
• Methodology proposed by Cogley and Nason more often applied in literature – Benhabib and Wen (2004)
Thank you for your attention