

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

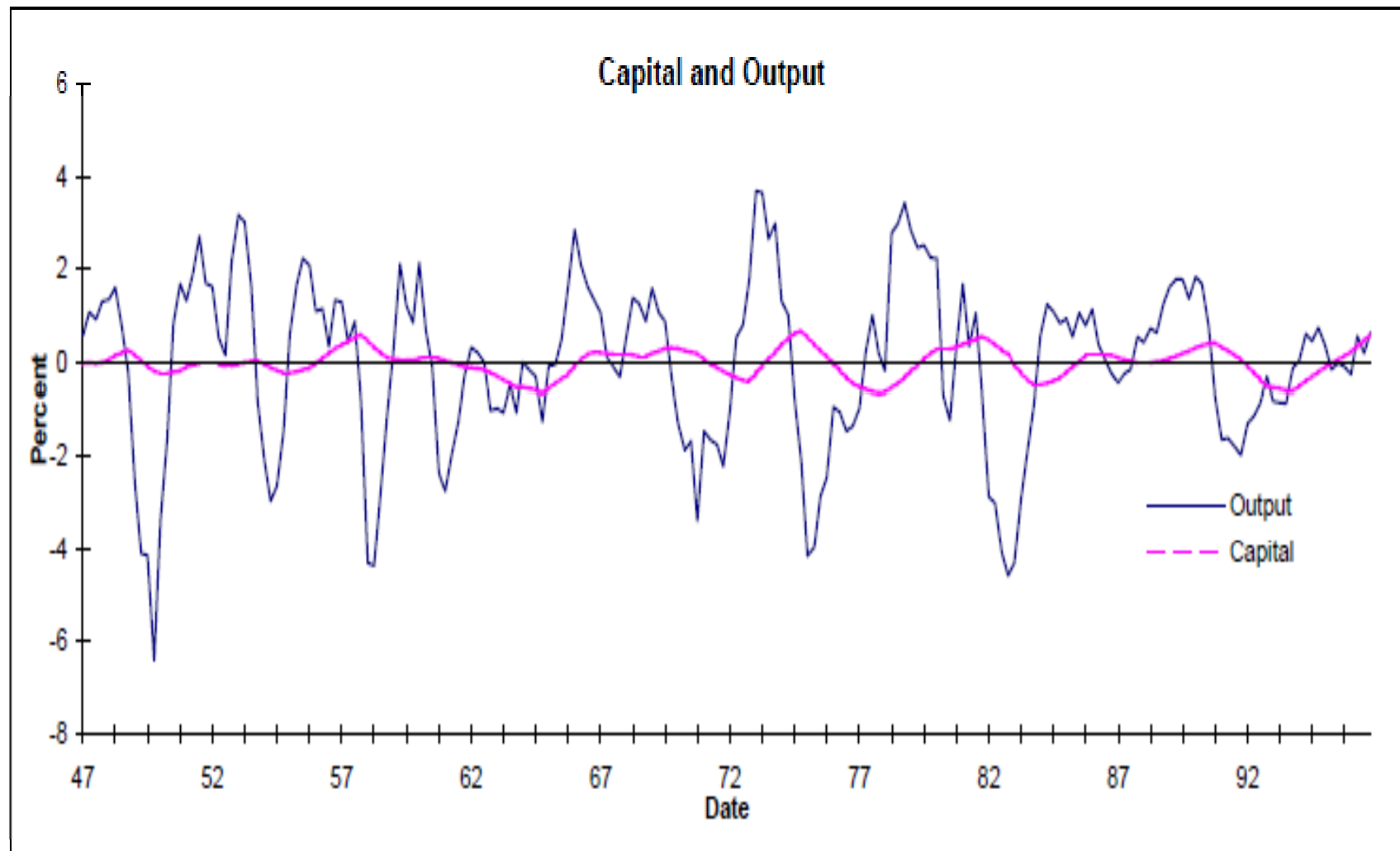
- General comments - Flurin
- More “sophisticated” RBC models - Katarina
- Summary and impact - Charlotte

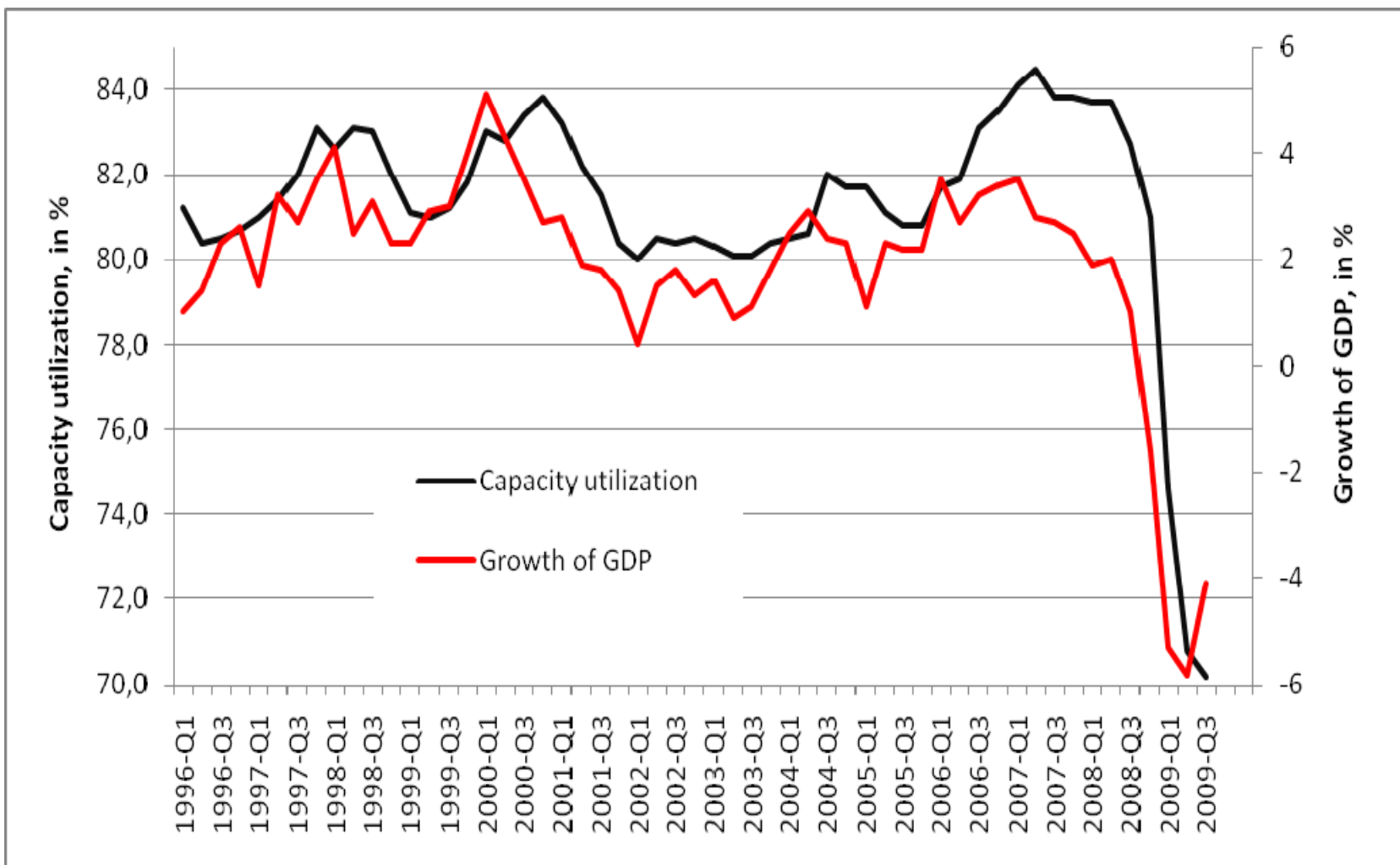
General comments

- 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).





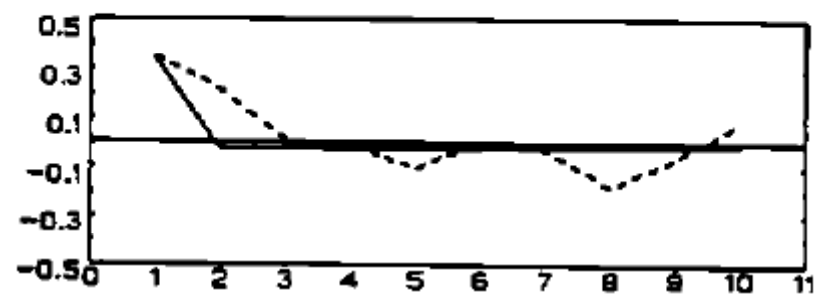
Burnside & Eichenbaum

- Factor hoarding model: adjusted for capital utilization and work effort
- Production function:

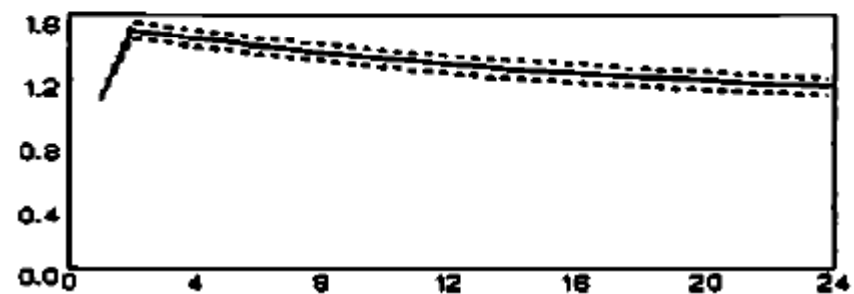
$$Y_t = (K_t U_t)^{1-\alpha} [N_t f W_t X_t]^{\alpha}$$

- K_tcapital stock
- U_tcapital utilization rate
- N_tnumber of individuals working
- ffixed length of hours worked (indivisible labor)
- W_twork effort
- X_tlevel of technology

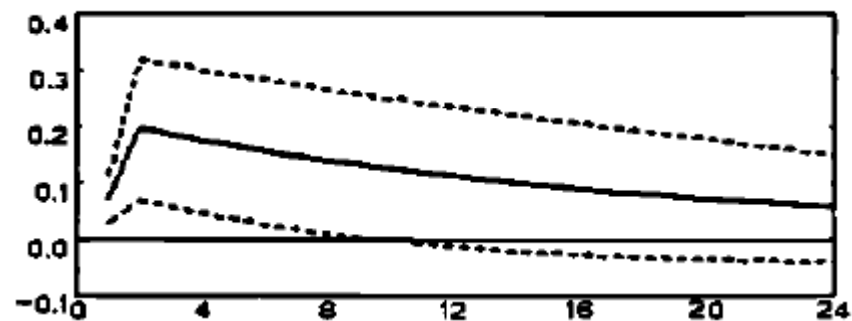
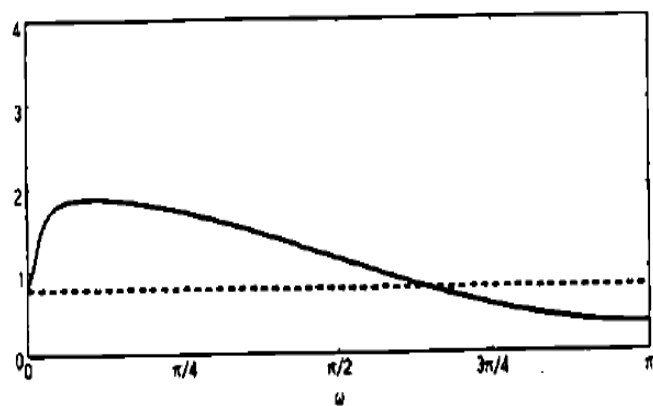
Factor Hoarding Model



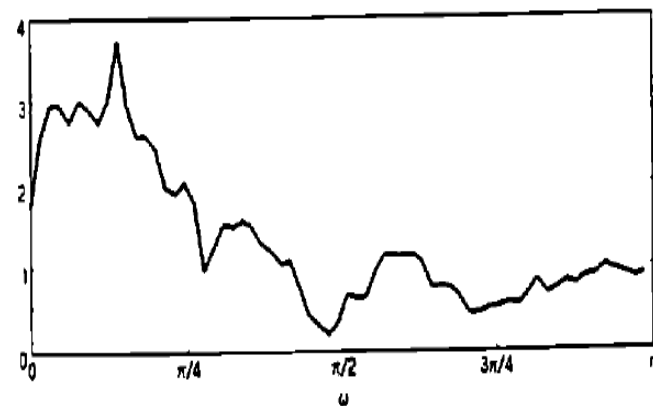
Factor Hoarding Model



Factor Hoarding Model



US Data 55Q3-84Q1



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

Figure 1: ACF of output growth

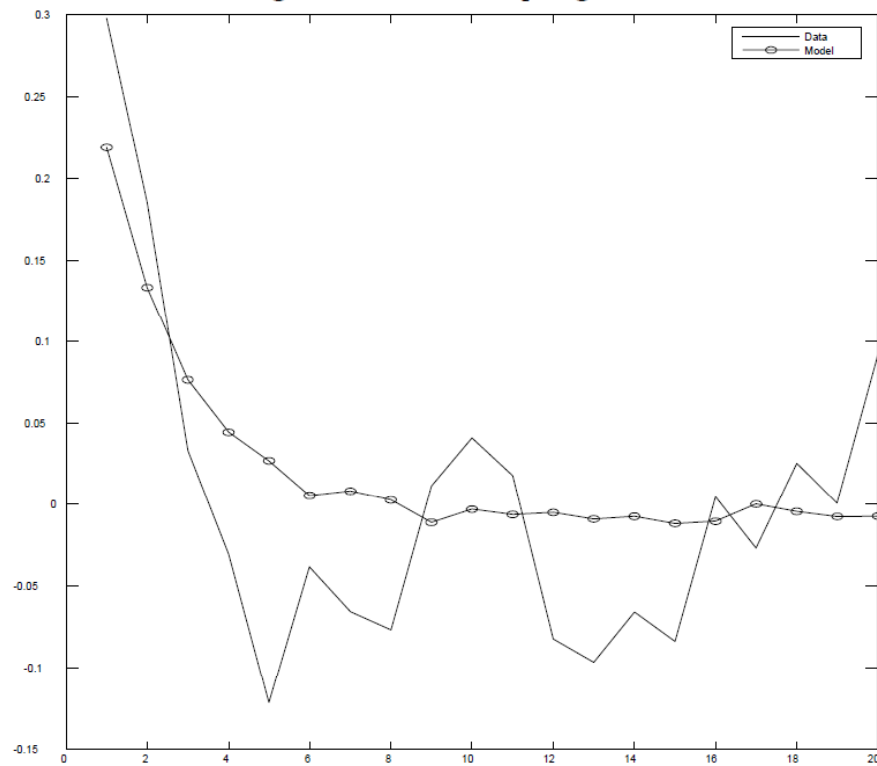
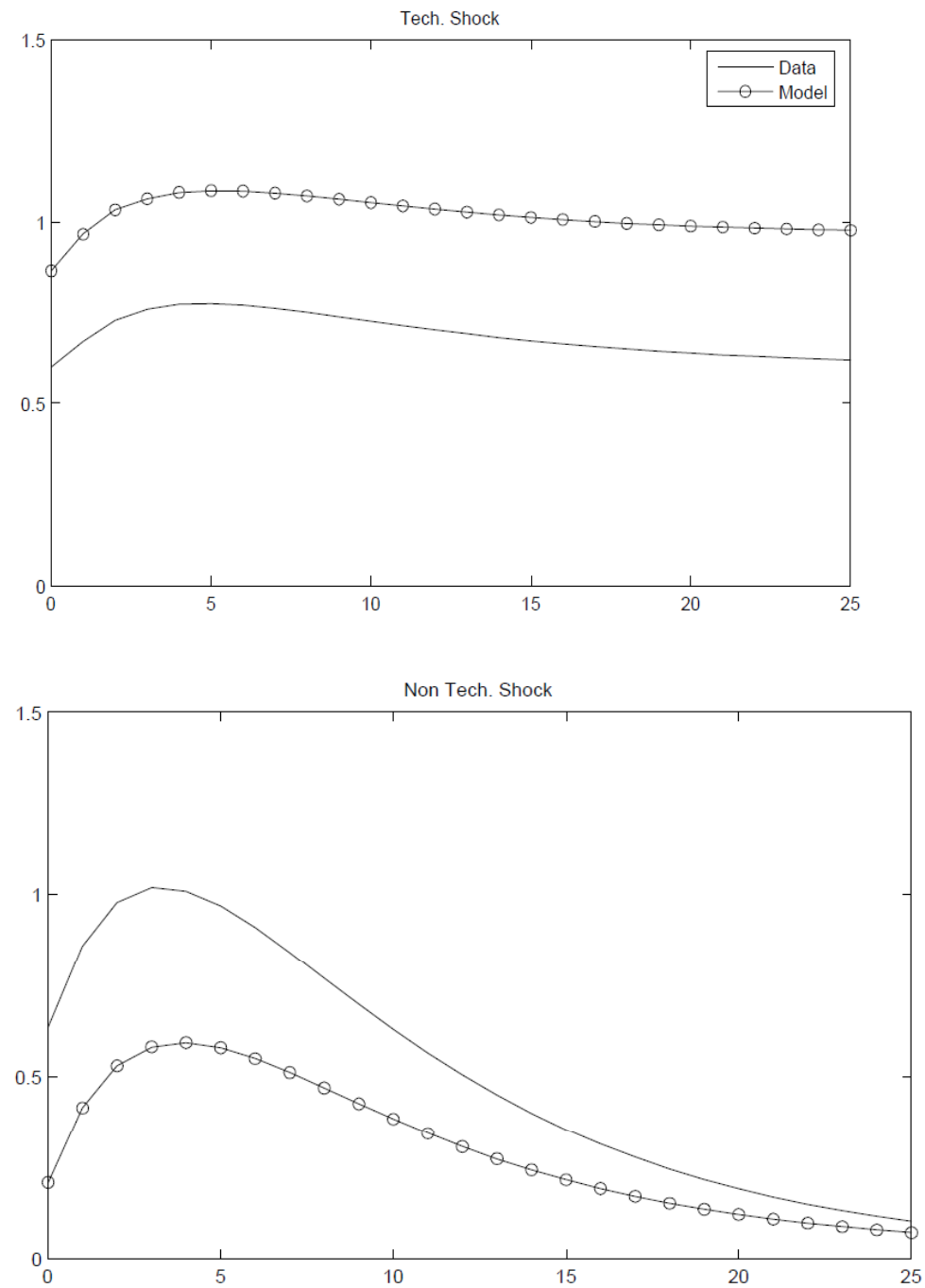


Figure 2: IRFs of output growth



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