Macroeconomics II

Chapter 8: RBC to NK DSGE

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Criticism 1: Non-neutrality

- RBC model cannot replicate evidence of non-neutrality of money
- An increase in money supply
  1. Prolonged, but not immediate, positive effect on output and consumption. Clear non-neutrality!!!
  2. Delayed positive effect on inflation (persistence)
  3. Negative effect on nominal interest rate (liquidity effect)
- Non-neutrality of money is big challenge for RBC model
- But, is it monetary shocks or is it monetary policy?
  - Systematic (rule-based) vs. non-Systematic (shocks) component of policy
  - Contribution of monetary policy shocks to variance of output is small

Criticism 2: Prices change only infrequently

- Evidence (monthly) for Euro Area (Altissimo, Ehrmann and Smets, 2006)
  - Substantial degree of heterogeneity in the frequence of (monthly) price changes across products
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- What about the US? (Bils and Klenow, 2004)
  - Recent micro-based evidence points to smaller degree of price stickiness
  - Median duration of price spell in the US is 4.3 months
- Nakamura-Steinsson (2006): accounting for sales bring it back to median duration of 8-11 months

Ten facts on prices (Klenow and Malin 2011)

- Prices change at least once a year
- Sales/product turnover are important for micro price flexibility
- Reference prices are stickier/ more persistent than regular ones
- Substantial heterogeneity in the frequency of price change across goods
- More cyclical goods change prices more frequently
- Price changes are big on average, but many small changes occur
- Relative price changes are transitory
- Price changes are not synchronized over the business cycle
- Neither frequency nor size is increasing in the age of a price
- Price changes are linked to wage changes

Criticism 3: Weak propagation mechanism

- RBC model has weak propagation mechanism (Cogley and Nason, 1995)
- RBC simple propagation chain

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- Data shows that output growth is highly serially correlated. In basic RBC model we find almost zero serial correlation
- In RBC model impulse response of output tracks exogenous productivity almost one to one. Thus RBC models could not produce the hump-shaped impulse response patterns and volatilities observed in US data

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  - Unconditional correlation between productivity (more or less real wages) and hours in the data is close to zero (Gali 1999)
- Effect of a Technology Shock on labor demand
  - For any given real wage, a rise in productivity entails a rise in labor input: Labor demand shifts outward
  - RBC model predicts strong positive correlation between real wage (productivity) and hours
  - To obtain low correlation between real wage and hours need also a shift in labor supply

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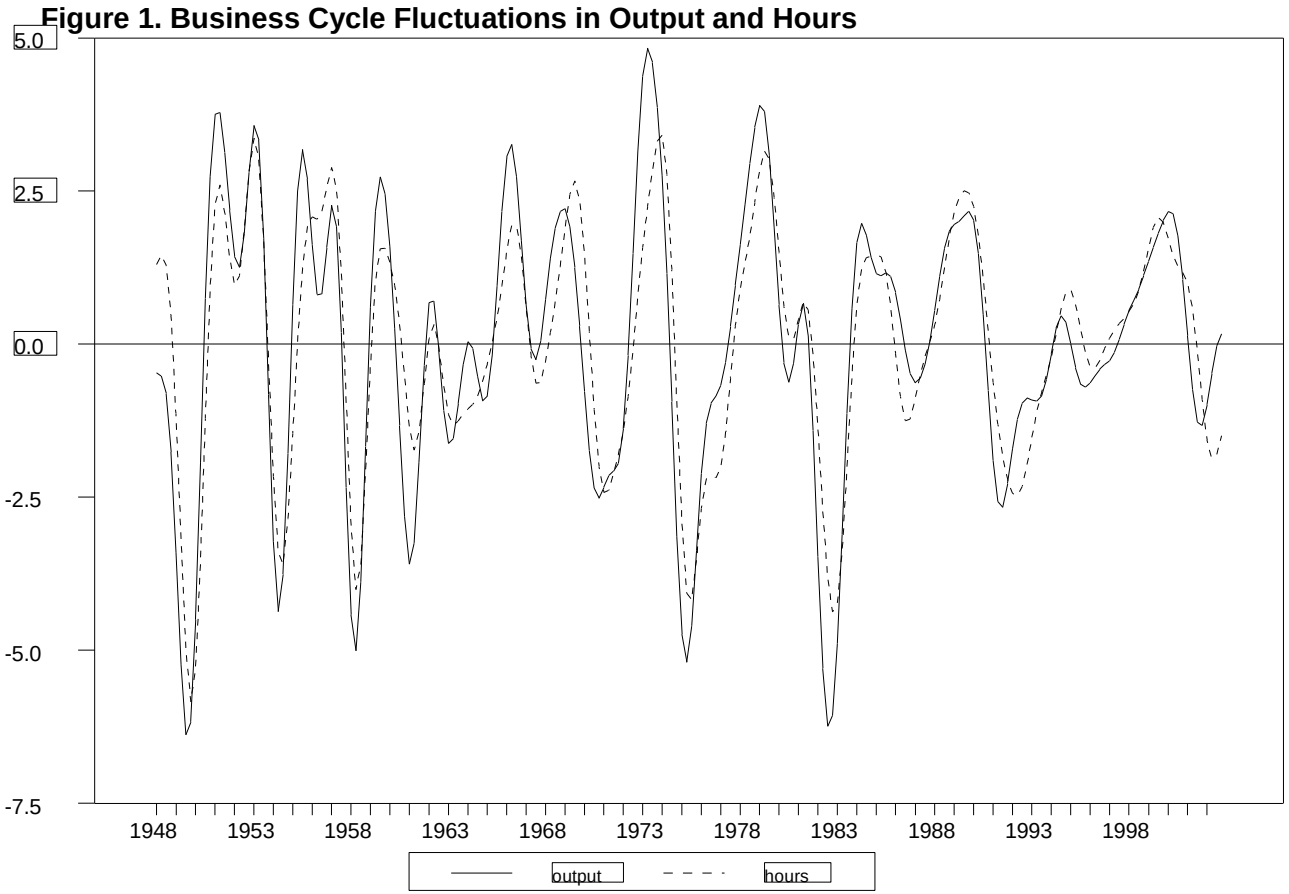
- But are government spending shocks enough?

Output and hours (Galí and Rabanal, 2004)

- Positive output-employment co-movement is key business cycle fact (unconditional correlation)



Criticism 4: Technology shock fluctuations

- Positive output-employment co-movement is key business cycle fact (unconditional correlation)
- But data seem to suggest that labor hours decrease in response to technology shocks
- Hence it is the transmission mechanism of technology shocks in RBC models which seems questionable
- However, lively debate on this (Altig et al., 2006)

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- New Keynesian DSGE model is characterized by
  1. Role of money and monetary policy
  2. Imperfections in goods markets (monopolistic competition)
  3. Role of nominal rigidities (price and/or wage stickiness)
  4. Reconsideration of role of technology shocks