Quantifying Confidence
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Discussion
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Quantifying Confidence

Set up: Business cycle model

- Monopolistic competition in intermediate goods sector
- Endogenous capital

Confidence shocks

- Reduced form way of capturing differences between first and higher order expectations

Main results: Confidence shocks can help explain observed co-movement between hours worked, consumption and investment

- Permanent TFP + Confidence shocks fit unconditional moments better than other 2-shock combinations
- Mechanism have robust implications: Confidence shocks induce similar dynamics in flexible and sticky-price models

Model Mechanics I

The key equation is the optimal output decision of a firm

$$y_{it} = g_a E_{it} a_t + g_y E_{it} y_t + o.t.$$

where a_t is log of productivity (i.e. TFP).

Strategic complementarity from "terms-of-trade" effect:

- When other firms produce more, real price of good i increases

So far, all is standard.

Model Mechanics II

All firms know that other firms face the same output optimality condition

$$y_{it} = g_a E_{it} a_t + g_y E_{it} y_t + o.t.$$

All firms observe productivity perfectly

$$E_{it} a_t = a_t$$

but second order beliefs are *not* model consistent

$$E_{it} E_{jt} a_t = a_t + \xi_t$$

where $\xi_t = \rho \xi_{t-1} + \zeta_t$. Expected aggregate output then given by

$$E_{it} y_t = g_a (a_t + \xi_t) + g_y E_{it} E_{jt} y_t + o.t.$$

A positive ξ thus leads to an increase in output (and co-movement) since wealth effect is small when $0 \leq \rho < 1$

Higher order predictions errors

The confidence shock ξ_t is a shock to agents' second order prediction error

$$\underbrace{E_{it}[a_t - E_{jt}a_t]}_{2^{nd}\ order\ prediction\ error} = \xi_t$$

and an unrestricted AR(1) process.

Higher order predictions errors

In a (noisy) rational expectations setting:

1. $Covar\left(E_{it}[a_t - E_{jt}a_t], a_t - E_{jt}a_t\right) > 0$
2. $Var(E_{it}[a_t - E_{jt}a_t]) < Var(a_t - E_{jt}a_t)$
3. (Higher order) prediction errors orthogonal to public information in real time, i.e.

$$E\left[E_{it}[a_t - E_{jt}a_t] \mid \Omega_t^p\right] = 0$$

where Ω_t^p is the intersection of all firms' information sets in period t

What are the costs and benefits of not imposing these restrictions?

Costs and benefits of beliefs short cut

Costs: A less disciplined exercise

- More free parameters, fewer restrictions on dynamics from theory

Benefits: A less disciplined exercise

- Observed fluctuations are persistent and predictable

Why not embrace your relative freedom?

- How much of the business cycle is orthogonal to the history of publicly available information?

Noise, confidence, undue optimism, animal spirits: The Future

Can we find less model-dependent evidence?

- Enders, Kleeman and Mueller (2015) present SVAR based evidence on the effects of undue optimism/pessimism shocks

What generates the noise/optimism/confidence shocks?

- Can we build a theory of why and when firms and households overestimate productivity/output?