What causes business cycles?

- Many candidates: technology, oil, fiscal and monetary policy, sectoral shifts.
- Inability to account for all fluctuations prompts search for alternative shocks: Hall (2004), Fisher (2005)
- Could unobservable shocks to beliefs play an important role?

Key features of the model

- Preferences: Goods are imperfect substitutes.
- Linear production: $Y_{it} = \exp(a_{it})\, N_{it}$
- Information: Island tech $a_{it} = a_t + \varepsilon_{it}$
  Aggregate signal $s_t = a_t + e_t$
- Trade: Island model prevents information aggregation. (Lucas 1972)

3 problems to solve

1. **Produce a positive correlation between consumption and labor.**
   Cochrane (1994), Beaudry Portier (2004)

Solution: **Agents confuse signal noise with productivity**

- Suppose average productivity is low, but public signal is high.
- High aggregate signal suggests high demand.
- High expected demand prompts ↑ price, labor, consumption, output.

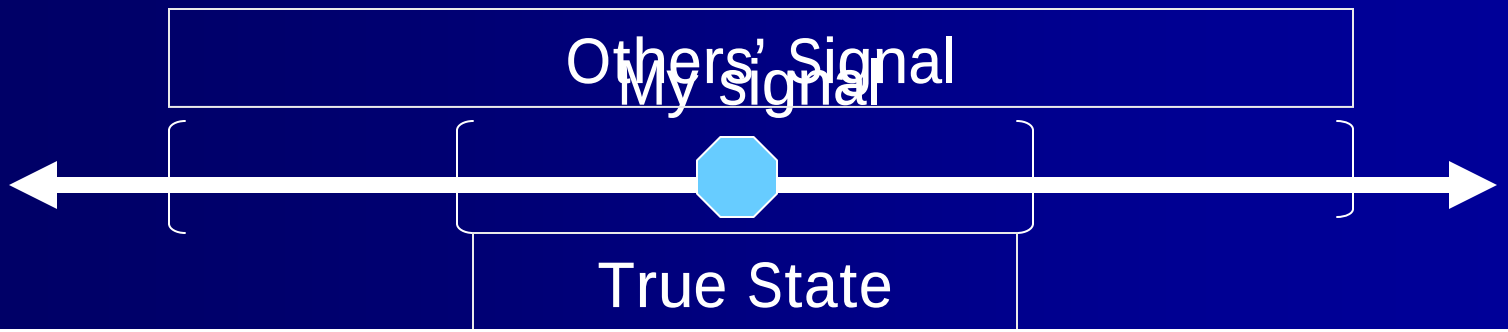
3 problems to solve

1. Produce a positive correlation between consumption and labor.

2. **Make cycles persistent.**

Solution: **Learn higher-order beliefs** (Woodford 2001)

- Monopolistic competition makes price setting a coordination game.
- Higher-order beliefs matter.
- Takes more time to learn. Uncertainty is more persistent.



3 problems to solve

1. Produce a positive correlation between consumption and labor.
2. Make cycles persistent.
3. **Generate enough output volatility.**

Solution:
Higher-order beliefs (Morris Shin 2002)

- Public signals over-weighted when higher-order beliefs matter.
- Over-reaction to public signal amplifies output volatility.

Slowing down learning

- Problem: Matching output volatility requires high island volatility. (25 times higher)
  - Prices reveal too much information.
- How to solve this problem?
  - Computational / processing constraints (Sims 2003)
  - Firms' prices are volatile. This creates noise. (Bils Klenow 2004)
  - Distributions with fat tails.

Are islands relevant?

- We have centralized markets: Financial markets
- Why don’t they aggregate information well?
- Are island information frictions the relevant ones to model?

An alternative story

Jaimovich-Rebelo (2005)

- Information on future productivity produces realistic cycles
  - Key: Capital adjustment costs
  - No asymmetric information
- Explains 50-70% of output volatility. Matches recession episodes well.

Is this the right theory?

- Beaudry and Portier (2005): Stock price shocks that are orthogonal to current productivity but forecast long-run explain 50% of business cycles.
- Other features to investigate:
  - magnitude of covariances
  - GDP revisions, forecast erros
  - decline in volatility over time
  - asymmetry.

Conclusions

- A plausible component of business cycles. Potentially quite important.

- Future work to be done:
  - Where do such noisy signals come from?
  - Can this model fit a body of business cycle facts?