Discussion:
Gold Rush Fever in Business Cycles
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1 Gold Rush Fever in Business Cycles

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Punchline:

A large part of business cycle fluctuations in output and hours can be explained by ‘gold rush fever’

Contributions:

1. (Re)document facts about business cycles
   - Large part of output volatility driven by transitory shocks that do not affect consumption

2. Model of market rushes
   - A new candidate shock that satisfies the above facts

3. Empirical support for market rush shocks:
   (a) Model fits the data well
   (b) Market rush shocks explain a large part of output variability
   (c) Contribution market rush shocks robust to including other shocks in the model
2 The model

- A standard RBC economy
  - Homogeneous consumption good
  - Production requires capital and labor
  - Consumers are infinitely lived and can smooth consumption by borrowing and lending capital
  - All markets are perfectly competitive
  - Balanced growth preferences

- A pie club
  - Each period a pie (of fixed size) drops out of the sky
  - The pie is distributed equally to members of the pie club
  - Membership of the pie club is restricted
3 The model: A ‘pie rush’

- Pie rush shock: unusually large number of memberships being issued
- Pie club membership
- Increase in aggregate output, consumption does not respond
- Rent seeking
4 The model: A ‘pie rush’

- Pie rush shock: unusually large number of memberships being issued

- Pie club membership
  - Each period, $\eta_t N_t$ new memberships are issued, where $\eta_t$ is stochastic
  - A member is expelled with probability $\mu = E\eta_t$
  - To apply for a new membership, candidates must burn one unit of pie (which was produced in the RBC economy)
  - Lottery among applicants determines new members
  - Free entry into the lottery

$$1 = \rho_t V_t = \frac{\eta_t N_t}{S_t} V_t, \quad \text{where} \quad V_t = \beta E_t \sum_{\tau=0}^{\infty} \frac{\beta^\tau (1 - \mu)^\tau u'(c_{t+\tau+1})}{u'(c_t)} \frac{\tilde{\pi}_0}{N_{t+\tau+1}}$$

- Increase in aggregate output, consumption does not respond

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- Increase in aggregate output, consumption does not respond

(a) Non-members: \( y =, c = 

(b) Unsuccessful applicants: \( y \uparrow, c = 

(c) Successful applicants: \( y \uparrow\uparrow, c \uparrow 

(d) Old club members: \( y \downarrow, c \downarrow 

- Rent seeking
6 The model: A ‘pie rush’

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\[
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\]

- Increase in aggregate output, consumption does not respond

- Rent seeking
  - High private benefits from applying to the club (restricted membership)
  - Socially wasteful: increased output is burned
7 Pie rush versus market rush

- BCP market rush = pie rush
  - Intermediate goods producers make positive profits
    \[ \Pi_t(j) = [P_t(j) - 1] X_t(j) = \frac{1 - \chi}{\chi} X_t \]
  - Exogenous restriction on free entry in intermediate goods market
  - No effect on value added of more varieties ⇒ investments in new startups are wasteful
  - High private benefits are transfer from existing to new intermediate goods producers
    \[ \Pi_t(j) = \pi_0 \Theta_t N_t^{\frac{\xi - 1 + (1 - \alpha)}{\alpha}} \frac{h_t}{N_t} = \frac{\pi_0 \Theta_t h_t}{N_t} \]
  - No meaningful interaction between market rush and RBC economy

- Plausible?

- Consistent with the data?
8 Quantitative assessment

- Calibrate & estimate

- Evaluate credibility and quantitative importance market rush shocks
  - Test model fit
  - Evaluate contribution market rush shocks to volatility output
  - Compare to alternative shocks/models
9 Quantitative assessment

• Calibrate & estimate
  – Minimum distance estimator matches VAR impulse responses
  – Estimate: variances shocks and persistence shocks and model
  – Calibration likely to affect the (limited information) estimates
  – (Relative) size of the ‘pie’ seems crucial

\[ \Pi_t(j) = \frac{\pi_0 \Theta_t h_t}{N_t}, \text{ where } \pi_0 = \left( \frac{1 - \chi}{\chi} \right) (\chi (1 - \alpha))^{1/\alpha} \]

  – “We assume markups of 20%, so that \( \chi = 0.833 \).”

• Evaluate credibility and quantitative importance market rush shocks
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10 Quantitative assessment

- Calibrate & estimate

- Evaluate credibility and quantitative importance market rush shocks
  - Test model fit
    - Three sets of overidentifying restrictions (Hansen J-test or by hand)
      - (a) IRFs from VAR with SR restriction (versus LR restriction)
      - (b) IRFs consumption (versus output)
      - (c) Business cycle moments for investment, hours and labor productivity
  - Evaluate contribution market rush shocks to volatility output
  - Compare to alternative shocks/models
11 The data

- There are (components of) shocks that
  - do not affect consumption or long run output
  - introduce strong short run fluctuations in output (and hours)
12 Quantitative assessment

- Calibrate & estimate
- Evaluate credibility and quantitative importance of market rush shocks
  - Test model fit
  - Evaluate contribution of market rush shocks to volatility output
    * Variance decomposition structural shocks
    * Not all (candidate) shocks are included
    * Reduced form estimates with identified shocks?
    * How can (wasteful) market rush shocks explain 57% of the volatility of hours in the LR? (LR restriction as in Gali would attribute to negative productivity shocks)
  - Compare to alternative shocks/models
13 Quantitative assessment

- Calibrate & estimate

- Evaluate credibility and quantitative importance market rush shocks
  - Test model fit
  - Evaluate contribution market rush shocks to volatility output
  - Compare to alternative shocks/models
    - What does identification come from? Consumption!
    - Can combination of other shocks replicate consumption response? (transitory productivity shock + preference shock)
    - Government expenditure shocks?
    - Need additional testable predictions (overidentifying restrictions) “a set of properties that any good model of fluctuations should explain”
14 Concluding

- Very interesting and relevant research agenda
  - What type of shocks drive business cycle fluctuations?

- Plausible story with interesting implications
  - Output volatility may be partly driven by rent seeking
  - Implications for e.g. costs of the business cycle

- Empirical assessment careful but ultimately not completely convincing
  - Wider set of moments would help distinguish between competing explanations
  - Unexplored testable predictions for e.g. inequality

- Quantitative importance open question