

"Rational Sunspots and Drifting Parameters" by Guido Ascari and Paolo Bonomolo

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This paper's contribution: Theory

- ▶ Process & solution

$$y_t = \frac{1}{\lambda} E_t y_{t+1} + w_t$$

$$y_t = \lambda y_{t-1} - \lambda w_{t-1} + \mathbf{b} w_t$$

- ▶ **b** - how to choose it?
- ▶ *G&P. Time-varying randomization!*

$$b_t = b_{t-1} + \zeta_t$$

$$y_t = \alpha_t(b_t) y_{t-1} - \alpha_t(b_t) w_{t-1} + b_t w_t$$

- ▶ Implication - **instability's back!**
- ▶ b_t "behind" variations in policy f's - Lucas' critique revisited

This paper's contribution: Empirics

- ▶ Estimate AD/AS model, U.S. data, pre- vs. post-Volcker
- ▶ Inflation in the post-WWII U.S. economy due to **instability** of the system (as opposed to stable indeterminacy/uniqueness, CGG 2000, LS 2004, BS 2009)

Comments

- ▶ Sophisticated idea, pragmatical execution
 - ▶ Comments
1. **Theoretical. Reduced-form, randomization, learning**
 2. **Empirical. Model at work, horse race**

Key-issue

- ▶ G&P: *"Our approach naturally yields drifting parameters and stochastic volatility"*
- ▶ As "natural" as an assumption can be! **Not structural**
- ▶ **Benefit:** Get unstable paths back in the game
- ▶ **Cost:** If no sunspots, $b_t = b_0$, no way of getting instability back anymore
- ▶ Arbitrarily chosen? If $b_0 = 0$,

$$y_t = \lambda y_{t-1} - \lambda w_{t-1}$$

i.e., no role for w_t (vs. LS 2004, still a role there)

- ▶ **What is this process, really?** Microfoundations? Endogenous?

Randomization & simulated moments

- ▶ Randomization: Not arbitrary choice of the equilibrium
- ▶ Not quite an "educated" choice, either!
- ▶ Alternative: LS (2004): "Continuity" - b such to get a world similar to uniqueness. Sensible reactions "guaranteed"
- ▶ **Simulated moments?** How many times "price puzzle"? Any "output puzzle"? (Castelnuovo, 2011)

Learning?

- ▶ G&P: *"So the **learning** of the agents modify the way they are forming expectations, yielding drifting parameters. Here, **we propose a framework in which the same result arise in a rational expectation equilibrium, if there are infinitely many stable paths.***"
- ▶ **Overselling?** Learning active even under uniqueness!

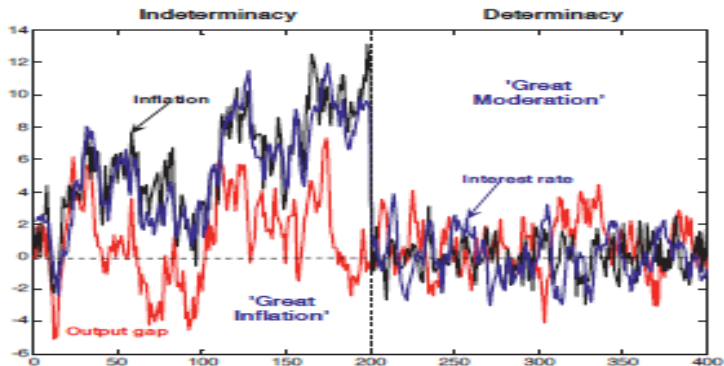
Empirical exercise

- ▶ The more "credible" the model, the more palatable the results
- ▶ **Small-scale AD/AS model, purely forward-looking - issues?**
- ▶ **Small-scale model.** Not necessarily so - Herbst and Schorfheide (2011), predictive-density analysis: Small-scale framework no worse than Smets-Wouters, after all!
- ▶ **Purely-forward looking fmk.** Endogenous persistence neglected, role of b_t possibly magnified
- ▶ **How robust to price indexation/habits?**

Empirical exercise, cont'd

- ▶ G&P's comment: *" ... but, after all, is it surprising that a stable model (a sink) is unable to pick up the surge in inflation?"*
- ▶ Instability perhaps not surprising
- ▶ **Not the only possible interpretation, either!**
- ▶ Benati and Surico's (2008 ECB WP) evidence

Realizations in a stable world



Horserace

- ▶ Great inflation in the U.S.?
- ▶ # 1. Bad policy (indet., stable world, CGG 2000, LS 2004)
- ▶ # 2. Bad luck (determinacy, stable world, SZ 2006, JP 2008)
- ▶ # 3. Instability (this paper)
- ▶ **Call for a horse race** (with a better empirical model)

Unstable instability?

- ▶ Conquest of U.S. inflation in the 1980s-2000s (great moderation)
- ▶ Your evidence: **Instability during the great moderation, as well!**
- ▶ **A case of stable instability?**

Misc.

- ▶ **Unstable inflation: What about "observed" expectations?** Empirical fit?
- ▶ Castelnovo and Surico (2010): **Indeterminacy as a device to interpret the VAR price puzzle.** Instability?
- ▶ **Role of sunspot forced to be there** in the empirical exercise
- go for a \mathcal{G} distribution
- ▶ **Calibration.** $IES = 1 \gg$ usual estimates ≈ 0.1 .
Consequences for \hat{b}_t ?
- ▶ **TVC and nominal explosions** (Cochrane, 2011).
Full-system concept
- ▶ **Motivation.** Optimal monetary policy under instability?

Wrap up

▶ **Sophisticated idea, pragmatical execution ... in progress**

1. Convince us of the "shortcut" b_t
2. Check simulated moments under instability
3. Avoid overselling
4. Use a more credible empirical model
5. Horse race against "status quo"

▶ **Happy to read such a stimulating paper!**