Active/Passive Policies

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Genesis

- (Sometimes wrong) intuition: FP and MP control macroeconomy. One gets to be active/first mover/free and the other must be passive/second mover/constrained
- (Leeper, 1991) formalized this idea theoretically in an *extremely narrow* policy space
- Leeper identifies 4 policy regions: "standard" AM/PF, "FTPL" PM/AF, underdetermined PM/PF, overdetermined AM/AF
- Can we identify regimes (test/reject FTPL!)?
- Can we study policy regime-switching?

Towards Formalization

- Consider policies $(M_1, F_1), (M_2, F_1), (M_3, F_1) \in \mathcal{P}$, where $\mathcal{P}$ is a policy space, such that
  - $(M_1, F_1) \Rightarrow$ underdetermined eq.
  - $(M_2, F_1) \Rightarrow$ uniquely determined eq.
  - $(M_3, F_1) \Rightarrow$ overdetermined eq.
- Is FP F_1 active or passive?
- (This hypothetical $\mathcal{P}$ exists.)
- Can *only* make active/passive statements if we restrict policy space $\mathcal{P}$
- Statements such as "Policy X by authority Y is active" must nest assumptions about what policies are allowed

General System

- System (Ben's continuous NK + debt valuation)

$$
\begin{aligned}
\dot{\pi} &= \rho\pi - \kappa x \\
\dot{x} &= i - \pi - \rho \\
\dot{b} &= (i - \pi)b - s \\
b(0) &= \lim_{T\to\infty} b(T) = \bar{b} \\
\lim_{T\to\infty} x(T) &= \bar{x}
\end{aligned}
$$

- Policies

$$
\begin{aligned}
i &= M(\pi, x, b) \\
s &= F(\pi, x, b)
\end{aligned}
$$

Dual Taylor

- Restrict

$$
\begin{aligned}
\mathcal{P} = \{(M, F) \mid M(\pi, x, b) &= \bar{\rho} + \phi\pi, \\
F(\pi, x, b) &= \bar{s} + \gamma b, \phi, \gamma \in \mathbb{R}, \bar{s} = (\bar{\rho} - \gamma)\bar{b}\}
\end{aligned}
$$

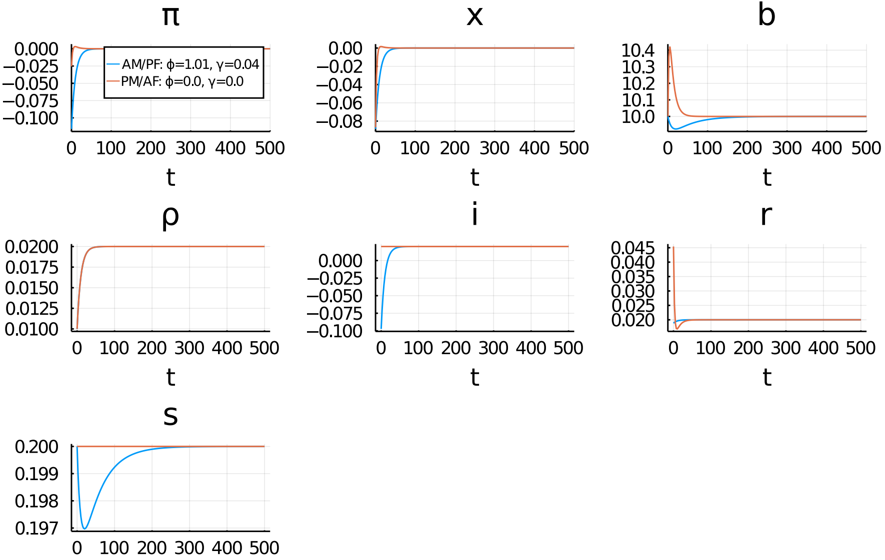
- System is then

$$
\begin{aligned}
\dot{\pi} &= \rho\pi - \kappa x \\
\dot{x} &= (\phi - 1)\pi + \bar{\rho} - \rho \\
\dot{b} &= (\bar{\rho} - \gamma)(b - \bar{b}) + (\phi - 1)\pi b \\
b(0) &= \lim_{T\to\infty} b(T) = \bar{b} \\
\lim_{T\to\infty} x(T) &= \bar{x}
\end{aligned}
$$

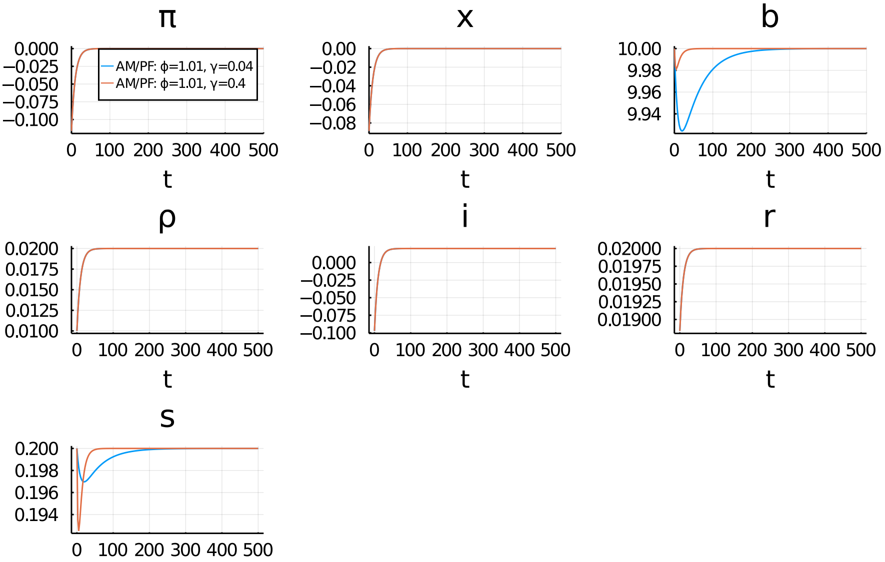
Dual Taylor Results

- Can make active/passive statements in dual Taylor policy space, in particular
  - FP is active when $\phi > 1$
  - MP is active when $\gamma < \rho$
- For a given $\phi > 1$, *any* $\gamma > \rho$ generates the same IRFs for π, x, i, r
  - Proof idea: Check that paths remain consistent
  - Contrapositive: Proof breaks down in PM/AF

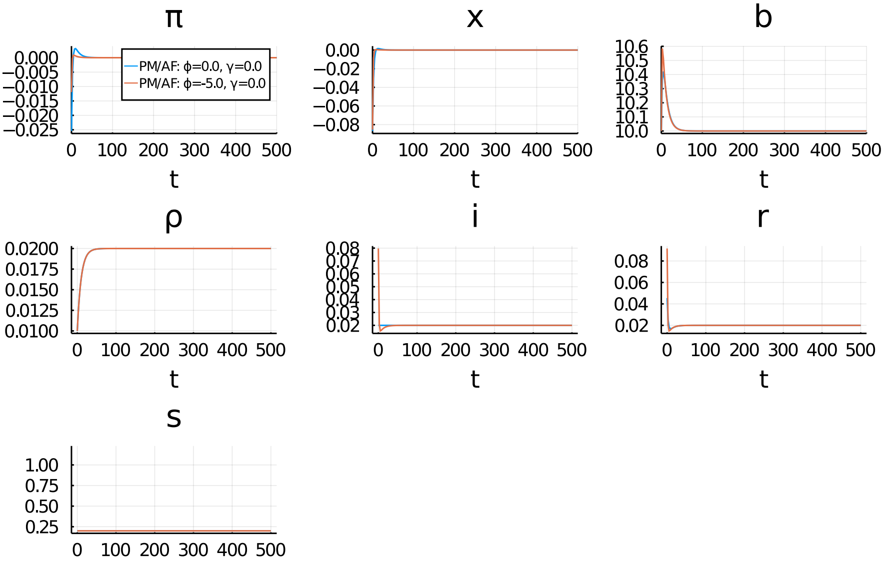
Two Determinate Regimes



Invariance Result



Non-Invariance Result



Observational Equivalence Banished?

- No, we cheated
- Identification in this world:
  - Restrictive policy space (2D)
  - Static policies
  - No stochastics (probably less relevant)
- Consider opening up the policy space with $*$ notation: different coefficients for "off-equilibrium threats"...
- ...Good luck identifying, even in this bananas-simple framework (see Chapter 22)
- Choice: identification with strong assumptions or no identification, no FTPL test

Leeper, Eric (1991). "Equilibria under 'active' and 'passive' monetary and fiscal policies". In: *Journal of Monetary Economics* 27.1, pp. 129–147.