Fiscal Rules and Discretion under Self-Enforcement

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Main Punchline of Discussion

- Great technical paper, furthers understanding of class of problems
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- Great technical paper, furthers understanding of class of problems
- Surprising (or counterfactual?) results
  - Perhaps because some assumptions do not quite match the application
Plan

- Supersimplified version of the problem
- Present main results
- Discuss alternative scenarios
My Simplifications

- Two periods, exogenous punishment limit (as in Amador, Angeletos, Werning, 2006)
- Drive variance of shock to zero, maintaining critical assumption
The problem

- Ex ante preferences:
  \[ E[\theta U(G_1(\theta)) + U(G_2(\theta)) - L(\theta)] \]

- Ex post preferences:
  \[ \theta U(G_1(\theta)) + \beta U(G_2(\theta)) - L(\theta) \]

- Technology (normalize interest rate to zero):
  \[ G_1(\theta) + G_2(\theta) \leq T \]

  - No insurance across states

- Fiscal rules cannot condition on \( \theta \) directly:
  \[ \theta U(G_1(\theta)) + \beta U(G_2(\theta)) - L(\theta) \geq \theta U(G_1(\hat{\theta})) + \beta U(G_2(\hat{\theta})) - L(\hat{\theta}) \]

- Ex post participation constraint:
  \[ \theta U(G_1(\theta)) + \beta U(G_2(\theta)) - L(\theta) \geq \theta U(G_1^*(\theta)) + \beta U(G_2^*(\theta)) - \bar{L} \]

- Admissible punishments: \( L(\theta) \in [0, \bar{L}] \)
With Almost-Zero Variance

\[
\begin{align*}
\max \text{(or min)} & \quad \bar{\theta} U(G_1(\bar{\theta})) + U(G_2(\bar{\theta})) - L(\bar{\theta}) \\
\text{s.t.} & \quad G_1(\theta) + G_2(\theta) \leq T \\
\end{align*}
\]

\[
\begin{align*}
\theta U(G_1(\theta)) + \beta U(G_2(\theta)) - L(\theta) \geq \theta U(G_1(\hat{\theta})) + \beta U(G_2(\hat{\theta})) - L(\hat{\theta}) \\
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\begin{align*}
\theta U(G_1(\theta)) + \beta U(G_2(\theta)) - L(\theta) \geq \theta U(G_1^*(\theta)) + \beta U(G_2^*(\theta)) - \bar{L} \\
\end{align*}
\]

\[
L \in [0, \bar{L}] 
\]

Zero variance + assumption 2 \implies \text{Lexicographic preferences in favor of outcomes closest to } \bar{\theta}
Solution to max problem

- Can solve for $\bar{\theta}$ forgetting ICC
- No wasteful loss at $\bar{\theta}$:
  \[ L(\bar{\theta}) = 0 \]
- Either ex ante optimal solution, or minimum departure that ensures ex post participation:
  \[ \bar{\theta}U(G_1(\bar{\theta})) + \beta U(G_2(\bar{\theta})) = \bar{\theta}U(G_1^*(\bar{\theta})) + \beta U(G_2^*(\bar{\theta})) - \bar{L} \]
- Types lower than $\bar{\theta}$:
  - Cannot offer rewards for better behavior, because $L(\bar{\theta}) = 0$
  - Choose either $(G_1(\bar{\theta}), G_2(\bar{\theta}))$ or $(G_1^*(\theta), G_2^*(\theta))$
- Types higher than $\bar{\theta}$:
  - Must not interfere with $\bar{\theta}$ solution
  - If $(G_1(\bar{\theta}), G_2(\bar{\theta}))$ satisfies participation constraint, go with it
  - Otherwise, $(G_1^*(\theta), G_2^*(\theta))$ and $\bar{L}$
Solution to min problem

- Again, can solve for $\bar{\theta}$ forgetting ICC
- Participation constraint at $\bar{\theta}$ must be binding: drive $\bar{\theta}$ type to

$$\bar{\theta}U(G_1(\bar{\theta})) + \beta U(G_2(\bar{\theta})) - L(\bar{\theta}) = \bar{\theta}U(G^*_1(\bar{\theta})) + \beta U(G^*_2) - \bar{L}$$

- Should I use $L(\bar{\theta})$? No! Distort $G_1$ in the direction of overspending, compensate reducing $L$
- $L$ has same effect ex ante and ex post, distortion hurts ex ante more than ex post!
- Types lower than $\bar{\theta}$:
  - Must not interfere with incentives for $\bar{\theta}$
  - Choose $(G^*_1(\theta), G^*_2(\theta))$ and punish with $\bar{L}$
- Types higher than $\bar{\theta}$:
  - Cannot offer rewards for overspending more
  - Choose either $(G_1(\bar{\theta}), G_2(\bar{\theta}))$ or $(G^*_1(\theta), G^*_2(\theta))$ and no punishment
- Worst equilibrium rewards overspending
What if debt is defaultable?

- Worst equilibrium happens after default
- What if punishment includes exclusion from borrowing?
- Minimum fiscal discipline imposed:
  \[ G_1(\theta) < T_1 \]
- If \( T_1 \) less than ex ante optimum, cannot have overspending
- Wasteful loss \( L \) only available instrument
## Persistent Types

<table>
<thead>
<tr>
<th></th>
<th>( \theta_t ) i.i.d.</th>
<th>( \theta_t ) persistent</th>
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</thead>
<tbody>
<tr>
<td>Commitment</td>
<td>Athey et al. (2005)</td>
<td>Halac-Yared (2014)</td>
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<td>Amador et al. (2006)</td>
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<td>Self-Enforcing Contract</td>
<td>This paper</td>
<td>Next Halac-Yared?</td>
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- Halac-Yared (2014): overspending today \( \implies \) overspending tomorrow