# 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

- $$\max(\text{or }\ \min)\ \bar{\theta} U(G_1(\bar{\theta})) + U(G_2(\bar{\theta})) - L(\bar{\theta})$$

  s.t.

  $$G_1(\theta) + G_2(\theta) \leq T$$

- $$\theta U(G_1(\theta)) + \beta U(G_2(\theta)) - L(\theta) \geq \theta U(G_1(\hat{\theta})) + \beta U(G_2(\hat{\theta})) - L(\hat{\theta})$$

- $$\theta U(G_1(\theta)) + \beta U(G_2(\theta)) - L(\theta) \geq \theta U(G_1^*(\theta)) + \beta U(G_2^*(\theta)) - \bar{L}$$

- $L \in [0, \bar{L}]$
- Zero variance + assumption 2 $\Longrightarrow$ 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

| | $\theta_t$ i.i.d. | $\theta_t$ persistent |
|---|---|---|
| Commitment | Athey et al. (2005)<br>Amador et al. (2006) | Halac-Yared (2014) |
| Self-Enforcing Contract | This paper | Next Halac-Yared? |

- Halac-Yared (2014): overspending today $\Longrightarrow$ overspending tomorrow