Time-Consistent Fiscal Guarantee for Monetary Stability

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These comments are personal views of the discussant and do not represent the views of the ECB or the Banco de España)

Some fundamental questions

- Under what conditions is **fiat money valued**?
- Must there be a **fiscal guarantee** for the central bank?
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- **Contribution:** Address these questions in an environment where there are **microfoundations for money demand** and policy is the result of **discretionary, optimizing government decisions**.

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- **Main finding:** Even if governments are unable to commit, as long as **governments are benevolent** (even slightly benevolent), then **fiat money is valued** (hyperinflationary spirals ruled out).

Main ingredients

- **Money exists** at time 0
  - Some households hold a costlessly tradeable asset (with no consumption value) at $t = 0$
- **Overlapping generations**
  - Households are heterogeneous by age
  - Households are heterogeneous in money holdings
- **Inefficient storage**
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  - The only *riskless* productive asset has real return $\theta < 1$
- **Government is benevolent**
  - "Government" refers to combined monetary/fiscal authority
  - It cares (at least a little) about all citizens (roughly equally)
  - Might also care about its own spending (selfish/corrupt)
- **Government cannot commit**
  - Focus on most extreme discretionary case: government cares only about payoffs at time t

Main argument

- **Government can choose the price level**
  - *I.e.*, can accept P units of money for each unit of real tax obligations
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- More specifically:
  - Economy without government has multiple equilibria, including hyperinflations
  - Economy with **discretionary government** that has a **tax instrument** has a **unique equilibrium with stable prices**
  - Economy with discretionary government that cannot choose the level of taxes has multiple equilibria, including hyperinflations

Model

- **Households** (assume perfect foresight about government policies)

$$\max_{C_t^y, C_{t+1}^o, S_t, M_t} \log(C_t^y) + \log(C_{t+1}^o)$$

$$\text{s.t.} \quad C_t^y + \frac{M_t}{P_t} + S_t = W - \tau_t^y$$

$$C_{t+1}^o = \frac{M_t}{P_{t+1}} + \theta S_t + T_t^o$$

- **Government budget constraint**

$$G_t + T_t^o + \frac{M_t^g}{P_t} = \tau_t^y + \frac{M_t^g}{P_{t-1}}$$

- **Market clearing:**

$$M_t + M_t^g = \overline{M}$$

$$C_t^y + C_t^o + S_t + G_t = W + \theta S_{t-1}$$

Household optimization (without government)

- **If $\frac{P_t}{P_{t+1}} > \theta$, no storage:**

$$C_t^y = \frac{M_t}{P_t} = \frac{W}{2} \quad \text{and} \quad C_{t+1}^o = \frac{W}{2\pi_{t+1}}$$

- **If $\frac{P_t}{P_{t+1}} = \theta$:**

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- **If $\frac{P_t}{P_{t+1}} < \theta$, no money:**

$$C_t^y = S_t = \frac{W}{2} \quad \text{and} \quad C_{t+1}^o = \frac{W\theta}{2}$$

- Plug consumer decisions into the goods market clearing equation to construct general equilibrium...

General equilibrium (without government)

- There is a **first-best** eq'm with **constant prices** and **no storage:**

$$C_t^y = \frac{\overline{M}}{P_t} = C_t^o = \frac{W}{2}$$

- There are **inflationary** eq'a ($\pi_{t+1} = \theta^{-1}$) with **money and storage:**

$$C_t^y = \frac{W}{2} > C_{t+1}^o = \frac{W\theta}{2}$$

$$S_t = \theta S_{t-1} + \frac{(1-\theta)W}{2} \quad \text{and} \quad \frac{\overline{M}}{P_t} = \frac{W}{2} - S_t$$

- There is an **autarkic** eq'm ($P_t = \infty$) with **no money:**

$$C_t^y = S_t = \frac{W}{2} > C_{t+1}^o = \frac{W\theta}{2}$$

Household optimization (with government)

- **If** $\frac{P_t}{P_{t+1}} > \theta$**, no storage:**

$$C_t^y = \frac{W - \tau_t^y + \pi_{t+1} T_{t+1}^o}{2} \text{ and } C_{t+1}^o = \frac{W - \tau_t^y}{2\pi_{t+1}} + \frac{T_{t+1}^o}{2}$$

- **If** $\frac{P_t}{P_{t+1}} = \theta$**:**

$$C_t^y = \frac{W - \tau_t^y}{2} + \frac{T_{t+1}^o}{2\theta} \text{ and } C_{t+1}^o = \theta\left(\frac{W - \tau_t^y}{2}\right) + \frac{T_{t+1}^o}{2}$$

- **If** $\frac{P_t}{P_{t+1}} < \theta$**, no money:**

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- Depending on government policy, equilibria of one or more of the forms discussed earlier may exist...

Government behavior: Discretionary optimization

- Gov't values **current generations' utility**, and maybe other stuff:

$$\max_{\tau_t^y, T_t^o, M_t^g, G_t} \log(C_t^y) + \log(C_t^o) + \lambda \log(G_t)$$

- s.t. **prices consistent with money supply and government budget**:

$$\tau_t^y - T_t^o - G_t = \frac{M_t - M_{t-1}}{P_t}$$

- And subject to **household decisions** (assume $S_0 = 0$):

$$C_t^y = \frac{W - \tau_t^y + \max(\pi_{t+1}, \theta^{-1}) T_{t+1}^o}{2}$$

$$\frac{M_t}{P_t} + S_t = \frac{W - \tau_t^y + \max(\pi_{t+1}, \theta^{-1}) T_{t+1}^o}{2}$$

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Simplify: Transfers to the old are not needed

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Main results

- **Government can choose the price level** by choosing M_t^g
  - Setting **lower** P_t raises consumption of the old
  - Setting $P_t = P_{t+1}\ \forall t$ implies **households prefer money** to storage
- Hence we can choose a **constant price** P **and tax** τ^y so that:
  - Storage is never used
  - Households hold money
  - Old and young consumption is equalized: $C_t^y = C_t^o = \frac{W}{2} - G_t$
  - Government trades off public and private consumption: $C_t^y = \lambda G_t$
- **This equilibrium implements the first best**.
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- Second proposition shows **sufficient fiscal backing is essential**.
  - If taxes τ^y are **exogenously fixed at a low level**, there may be **multiple equilibria** with inflation or autarky.

Comment: Is the result too strong?

- Note that $\overline{M}$ **could be anything**.
- If source of money is government concern about generational equity, it could value **anything** held disproportionally by the old
  - Model suggests government will provide fiscal backing for LPs and floppy disks

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  - Suppose $\overline{M}$ represents entries in Madoff ledgers... model suggests government will provide fiscal backing the value of those entries
- Paper seems to imply that **private currencies are not viable** because they don't have fiscal backing
  - But actually model suggests government will provide **fiscal backing for cryptocurrencies** if push comes to shove

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- Consider **alternative policy instruments**
  - Suppose government holds no money, so $P = \infty$
  - Suppose government chooses τ_t^y, T_t^o, and G_t
- Conjecture: there is a unique equilibrium of this form, in which **taxes and transfers** implement the same allocation as before:
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  - Issue coupons to pay for public expenditures; accept those same coupons as payment for taxes

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  - Suppose 1% of the old hold 90% of the money
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- Conjecture: there is a unique equilibrium with **taxes and transfers** that implement the first-best allocation:
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  - λ large– government may value its own spending a lot
- Consider **political incentives**
  - Suppose government maximizes welfare of median voter
  - Suppose population is growing (median voter is young)
- Conjecture: gov't will **not support the old** and **not value money**
  - Storage is never used
  - Money is never used
  - No taxes on the young: $C_t^y = W - G_t$
  - No consumption for the old
  - Government trades off public and private consumption: $C_t^y = \lambda G_t$

Conclusions

- Model points to **necessity of fiscal backing** to eliminate multiplicity and ensure value of money
  - This is convincing.
- Model points to **egalitarian benevolence** to explain why **discretionary government** will provide fiscal backing
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- Model also helps understand:
  - **Sources of hyperinflations**: Partisan, discretionary governments may expropriate money stock to finance transfers to their supporters
  - **Existences**: Discretionary governments may choose to back any asset widely held by their supporters
- Thinking about **politics and heterogeneity** is useful way forward

THANKS FOR YOUR ATTENTION!