Monetary Policy for a Bubbly World

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1. Where this paper fits

1958: Samuelson's OLG model

A pure store-of-value, unbacked 'money' restores efficiency when young-to-old transfers are needed:

- **Decentralized schemes**: bubbles (worthless pieces of paper, shells)
- **Centralized schemes**: money backed by a social contract ("social contrivance"), pay-as-you-go social security, debt rollovers.

1980: *Models of Monetary Economics,* FRB Minneapolis

- Advocacy of the OLG model as the foundation of monetary economics (Wallace, 1980)
- Warning by Cass-Okuno-Zilcha of the fragility of 'monetary' equilibria
- Strong pushback by Tobin against, inter alia, neglecting the role of transactions motive: "**The OLG model is miscast as the hero of the great fiat money mystery**"

1985-1987: More warnings about fragility of unbacked money

- Tirole (1985) on bubbles, confirming the results of Wallace (1980) on multiplicity, and much more
- Weil (1987) about the role of confidence ("market psychology") in the valuation of unbacked assets

1983+2017: Obstfeld & Rogoff on hyperinflations

- Explore of the (plausible) conditions ruling out "speculative hyperinflations" (aka non-monetary or non-bubbly equilibria) in a MIUF Ramsey model
- Demonstrate that the transactions motive can provide an anchor to the real value of money.

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- The value of publicly-issued unbacked assets is presumably more robust (social contrivance, MIUF).
- Private and public unbacked assets are not perfect substitutes.
- There is a role for active monetary policy.

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- Fits neatly in the previous literature by trying to characterize how robustly-valued public unbacked assets should be issued when the valuation of privately-issued unbacked assets is so fickle.
- Justifies the social necessity of unbacked assets by introducing financial frictions that limit the availability of backed assets.
- Creates a robust demand for public money by assuming the money-holders can't consume without money.

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  - I don't like the three-types-of-agents trick.
  - I regret that the framework is so remote from standard macro practice that it falsely suggests the results are idiosyncratic and model-specific.
  - I urge the authors to adopt a more run-of-the mill framework.

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- Illustrate my previous remark about the crucial difference between privately and publicly supplied unbacked assets.
- Use Samuelsonian productive inefficiency as the reason unbacked assets are needed (there are others!).
- Show in a simple (quasi-Solovian) model that the latter can be counted on to improve welfare but not the latter.

2. No unbacked assets

Model

- Work-when-young, consume-when-old model, but take an infinitely-short time period instead of 25 years:

$$\dot{k} = \underbrace{(1-\alpha)k^{\alpha}}_{w} - nk \tag{1}$$

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- Sufficient to have rational bubbles

3. Private unbacked assets

Laws of motion

$$\dot{k} = \underbrace{(1-\alpha)k^{\alpha}}_{w} - nk - b \tag{2}$$

$$\dot{b} = (\underbrace{\alpha k^{\alpha-1}}_{r} + \sigma - n)b \tag{3}$$

- Steady states: $(0,0)$, $(k^*,0)$ and also, if $r^* < n^*$, $(\hat{k},\hat{b})$ with $\hat{r} = n - \sigma$ and $\hat{b} > 0$.

Equilibrium dynamics

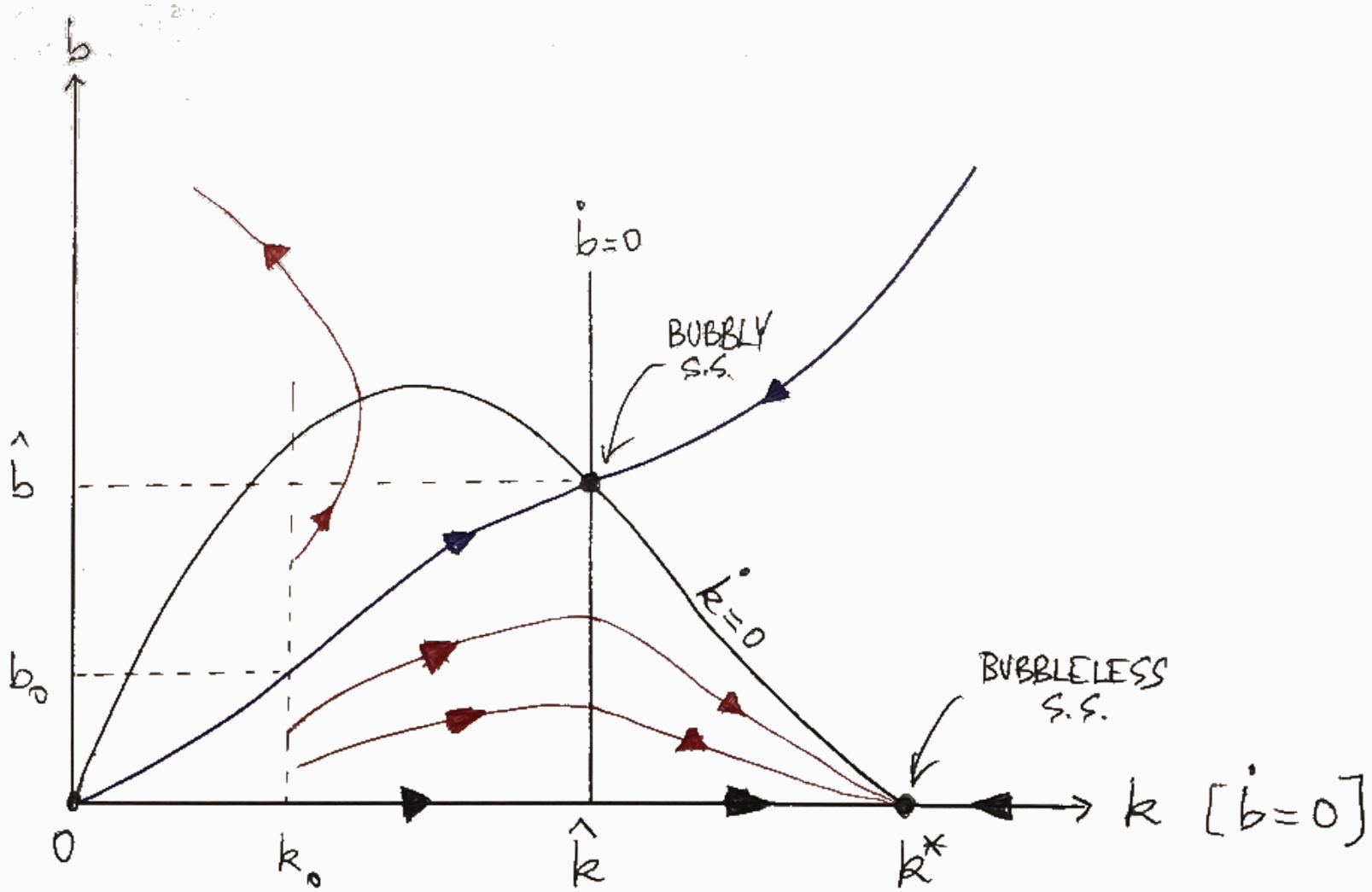

Figure 1: A continuum of equilibria ($\hat{r} = n - \sigma$)

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- Tobin, 1980.

Alternative formulation: financial frictions (with $\sigma = 0$)

$$\dot{k} = (1-\alpha)k^{\alpha} - nk - b$$

$$\dot{b} = \left[\frac{\alpha k^{\alpha-1}}{1+\phi} - n\right] b, \qquad \phi > 0$$

- In bubbly steady state, $\alpha\hat{k}^{\alpha-1} = \hat{r} = (1+\phi)n$.
- Existence condition to ensure $\hat{b} > 0$ is then

$$\hat{r} = (1+\phi)n > r^*$$

- **Therefore we can have bubbles although $r^* > n$ provided ϕ is high enough.**

4. Public unbacked assets

Store of value and transactions motive

- Assume

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- Seignorage is rebated lump-sum to agents.

Monetary steady state

$$0 = \dot{k} = \underbrace{(1-\alpha)k^{\alpha}}_{w} - nk - m \tag{6}$$

$$0 = \dot{m} = [\underbrace{\alpha k^{\alpha-1} - v'(m)}_{-\pi = r - v'(m)} + \mu - n]m \tag{7}$$

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- In a monetary steady state, $r = n - \mu + v'(m)$.
- $r > n$ if v' is large enough.
- Why? Because the transactions motive reduces the real rate of return on money below r (money is a dominated asset!)

Hyperinflation, anyone?

$$\dot{k} = \underbrace{(1-\alpha)k^{\alpha}}_{w} - nk - m \tag{8}$$

$$\dot{m} = (\underbrace{\alpha k^{\alpha-1} - v'(m)}_{-\pi = r - v'(m)} + \mu - n)m \tag{9}$$

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- Example: $v(m) = \log m$. I assume the latter henceforth.

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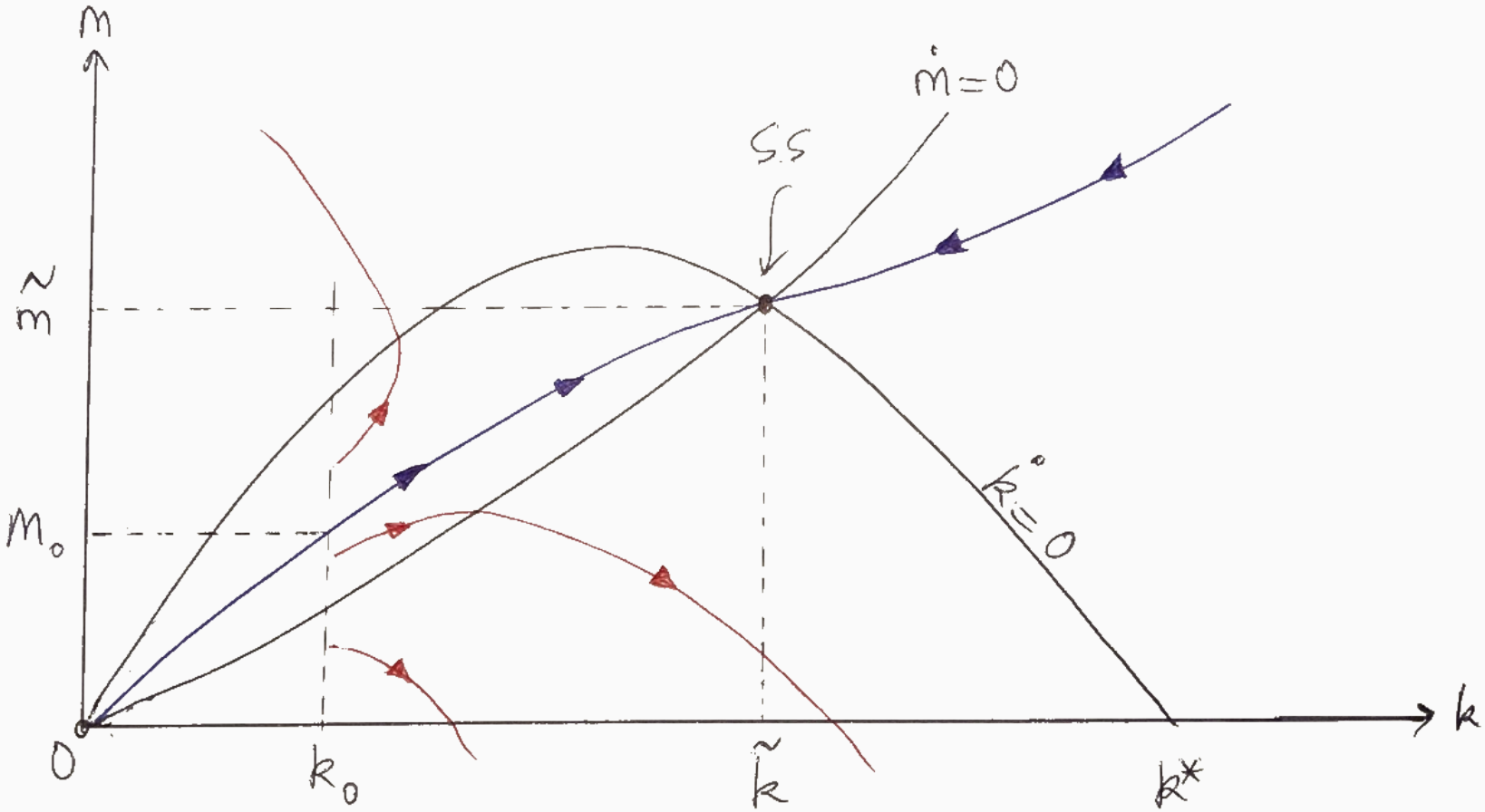

Figure 2: A unique equilibrium when $\lim_{m\to 0} mv'(m) > 0$:
$\tilde{r} = n - \mu + v'(\tilde{m})$

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- Contrast with the case $v' = 0$.

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- The same message carries over to other intergenerational transfer schemes backed by 'social contrivance': pay-as-you-go social security, public debt rollovers. See Tobin, 1980.
- For the interaction between private and public money: read AFMV!

5. Where to go from here

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  - It provides an unfair advantage to public unbacked asset.
  - Are we so sure? Laws/institutions are assets, and these can be destroyed lickety-split, alas.
  - Plus, what about credibility?

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- Think more carefully about what makes public money different from private unbacked assets:
  - the transactions motive?
  - the social contrivance?
  - the "psychological" advantage?
- Not easy but necessary, as the paper draws its raison d'être from the imperfect substitutability between private and public unbacked assets.