

Monetary Economics

Seigniorage

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Seigniorage

- What if the government has persistent deficit?

$$D_t = G_t - T_t > 0$$

- Pay attention to the economic growth.
- then

$$B_t = (1 + r) B_{t-1} + D_t$$

- so B_t grows faster than the rate r . By no Ponzi game, the economy would stop lending (buying bonds) or would increase the real interest rates.
- Thus, governments fall into printing money.

Seigniorage

- Seigniorage: One possible source of gov't financing
- Government Budget Constraint

$$G_t + (1 + r_t) B_{t-1} = T_t + B_t + M_t - M_{t-1}$$

- It represents the real revenues a gov't acquires by using newly issued money to buy goods and nonmonetary assets.
- The gov't's seigniorage in period t is:

$$S_t = \frac{M_t - M_{t-1}}{P_t}$$

Seigniorage

- Historical fact: most hyperinflations stem from the gov'ts excessive reliance on seignorage revenue. Austria, Germany, Hungary, Poland and Russia after WWI. Greece and Hungary (19,800% per month) after WWII. Bolivia 1984.
- Brazil, Turkey, Russia. More recently Zimbabwe and Venezuela, i.e. not a thing of the past.

Seigniorage

$$\frac{M_t - M_{t-1}}{M_t} = 1 - \frac{1}{1 + \mu} = \frac{\mu}{1 + \mu} \text{ increasing in } \mu$$

- $\frac{M_t}{P_t}$ is decreasing in μ .

Seigniorage

- So we have

$$S_t = \underbrace{\frac{M_t - M_{t-1}}{M_t}}_{\uparrow \text{ as } \mu \uparrow} \cdot \underbrace{\frac{M_t}{P_t}}_{\downarrow \text{ as } \mu \uparrow}$$

- A rise in μ does not necessarily augment seigniorage.
- There might be a μ that maximizes seigniorage!
- Therefore, a laffer curve exists.

Seigniorage

- Optimum Seigniorage
- We had: $m_t^d - p_t = -\eta E_t [p_{t+1} - p_t] \Rightarrow$

$$\frac{M_t}{P_t} = \left(\frac{P_{t+1}}{P_t} \right)^{-\eta}$$

- As we proved: $P_{t+1} = (1 + \mu) P_t \Rightarrow$

$$\frac{M_t}{P_t} = (1 + \mu)^{-\eta}$$

- Seigniorage:

$$S_t = \mu (1 + \mu)^{-1-\eta}$$

Seigniorage

- FOC:

$$\mu^* = \frac{1}{\eta}$$

- The seigniorage maximizing rate of money growth depends inversely on the elasticity of real money demand wrt inflation (as $\eta \uparrow$ (the more elastic), $\mu^* \downarrow$ (so does S^*)).

Seigniorage

