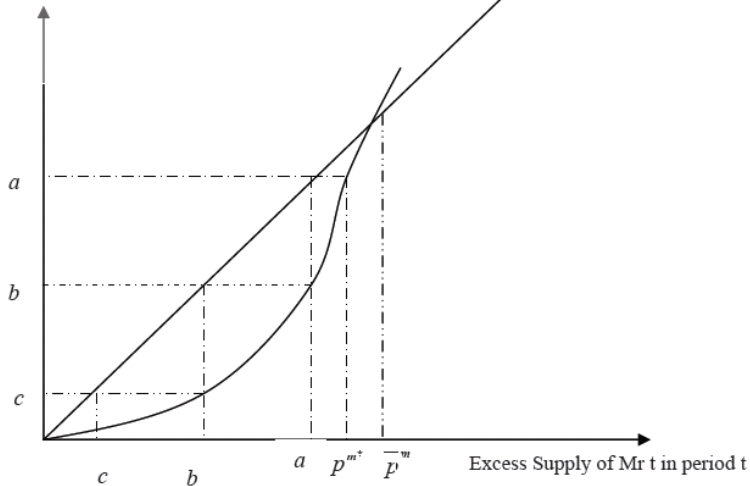


Lecture Notes #7

- D. Gale, "Pure Exchange Equilibrium of Dynamic Economic Models", Journal of Economic Theory, February 1973, 6(1): 12-36.
- D. Cass, M. Okuno and I. Zilcha, "The Role of Money in Supporting the Pareto Optimality of Competitive Equilibrium in Consumption-Loan Type Models", Journal of Economic Theory, February 1979, 20(1): 41-80. Reprinted in Models of Monetary Economics, J.H. Kareken and N. Wallace, eds., Federal Reserve Bank of Minneapolis, 1980.

Samuelson Case

Excess Demand of $M_r t$ in Period $t+1$ = Excess Supply of $M_r t+1$ in Period $t+1$



Mr 0 consumes $\omega_0^1 + p^{m*}$

Mr 1 supplies p^{m*} in chocolate to Mr 0 in exchange for 1 unit of money

Mr 1 consumes $\omega_0^2 + a$ in period 2

Mr 2 supplies a units of chocolate to Mr 1 in period 2 in exchange
for 1 unit of money

\bar{p}^m is PO steady state

0 is WPO (not PO) steady state

In Samuelson case, p^t is increasing with t.

Hence interest rate $r^t < 0$.

Over-saving as in Phelps-Koopmans and Cass Criterion

For $0 < p^m < \bar{p}^m$, hyper-inflation. Final value of money is zero

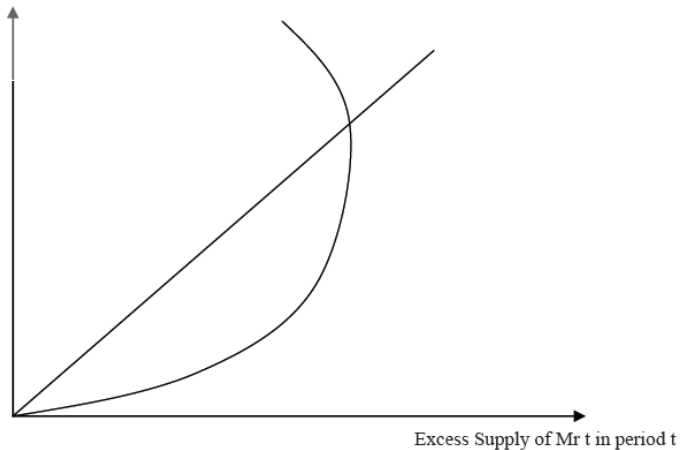
For $\bar{p}^m < p^m$, not CE since demand grows beyond resource.

See "Capital Gains, Income, and Saving"

(Shell, Sidrauski and Stiglitz), The Review of Economic Studies,
Vol. 36(1) No. 105, January 1969, 15-26.

Samuelson Case #2

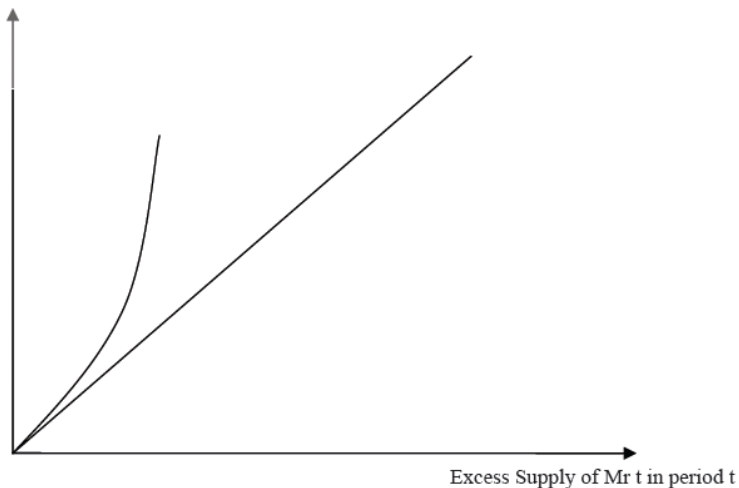
Excess Demand of $M_r t$ in Period $t+1$ = Excess Supply of $M_r t+1$ in Period $t+1$



- Allows for limit cycles and sunspot cycles
- See Azariadis, "[Self-Fulfilling Prophecies](#)," Journal of Economic Theory, December 1981, 25(3): 380-396.
- Backward bending supply curve (usually in labor supply)

Classical Case

Excess Demand of M_r^t in Period $t+1$ = Excess Supply of M_r^{t+1} in Period $t+1$



$\bar{p}^m = 0$ Money is worthless

Autarky is PO CE

$p^t \rightarrow 0$, as $t \rightarrow \infty$

Hence interest rate are positive.

No over-saving