

Economics 614: Macroeconomics

Spring, 2010

Cornell University

Problem Set #6

Due: Friday, March 19, 2010

1. Ideas:

Let $\lambda = 1$ and $\phi = 0$, so

$$(1) \dot{A}/A = \theta s_R L/A$$

$$(2) \dot{A}/A = g_A = \dot{L}/L = n$$

Analyze the dynamics of Equation System (1) and (2). Construct the phase diagram by first plotting separately (1) and (2) in the same space with \dot{A}/A on the vertical and L_A/A

(1) What are the short-run and long-run effects of increasing s_R from 10% to 20% while keeping n at 1%

(2) How does this compare to the analysis in the Solow Model?

2. Money Taxes:

Static one-good ($\ell = 1$) pure-exchange economy with money taxes and transfers. Four ($n = 4$) consumers.

$$\omega = (\omega_1, \omega_2, \omega_3, \omega_4) = (4, 3, 2, 1),$$

where $\omega_i > 0$ is the endowment of consumer i ($i = 1, 2, 3, 4$).

For each of the following: Is $\tau = (\tau_1, \tau_2, \tau_3, \tau_4)$ balanced? Is τ bonafide? Describe the set of equilibrium money prices for:

(a) $\tau = (1, -1, 1, -1)$,

(b) $\tau = (1, 1, -1, -1)$,

(c) $\tau = (-2, -1, 1, 2)$,

(d) $\tau = (0, 0, 0, 0)$,

(e) $\tau = (1, -2, 1, 1)$.

3. Money Taxes with 2 currencies:

Static one-good ($\ell = 1$) pure-exchange economy. Three consumers ($n = 3$).

Endowments are given by

$$\omega = (\omega_1, \omega_2, \omega_3) = (1, 2, 3).$$

Two currencies, R (for Red) and B (for Blue). Let $p^{mR} \geq 0$ and $p^{mB} \geq 0$ be the goods-price (resp.) of red and blue money.

(a) $\tau_R = (-1, -1, 2), \tau_B = (2, -1, -1)$;

(b) $\tau_R = (1, 2, 1), \tau_B = (0, 0, -1)$;

(c) $\tau_R = (1, 0, 0), \tau_B = (0, 1, 1)$;

(d) $\tau_R = (-1, 0, 4), \tau_B = (-1, -1, -1)$.

For each case (a) through (d), calculate the set of equilibrium prices of red money, blue money, and the equilibrium exchange rate between the two currencies.

What are the economics behind your answers? Interpret your answers as if $R =$ dollars and $B =$ euros. How are the budget deficits and the trade deficits related in this model?

What do you make of the fact that money prices and exchange rates are not always uniquely determined?