MACRO GRAD

26. Feb. 2009

Mankiw Romer Weil model

$$Y = K^{\alpha} H^{\beta} (AL)^{1-\alpha} \Rightarrow y = k^{\alpha} h^{\beta}$$

no need to assume (as book does) that $\dot{K}$ and $\dot{H}$ unaffected by depreciation, but do have to assume that δ_K & δ_H are equal

$$\dot{K} = s_K Y - \delta K$$

$$\dot{H} = s_H Y - \delta H$$

$$\frac{\dot{k}}{k} = \frac{\dot{K}}{K} - \frac{\dot{A}}{A} - \frac{\dot{L}}{L} \qquad \frac{\dot{h}}{h} = \frac{\dot{H}}{H} - \frac{\dot{A}}{A} - \frac{\dot{L}}{L}$$

$$= \frac{\dot{K}}{K} - g - n \qquad = \frac{\dot{H}}{H} - g - n$$

$$\frac{Y/AL}{K/AL} = \frac{y}{k} = k^{\alpha-1} h^{\beta}$$

$$\frac{Y/AL}{H/AL} = \frac{y}{h} = k^{\alpha} h^{\beta-1}$$

$$\dot{k} = s_K k^{\alpha} h^{\beta} - (\delta + n + g) k$$

$$\dot{h} = s_H k^{\alpha} h^{\beta} - (\delta + n + g) h$$

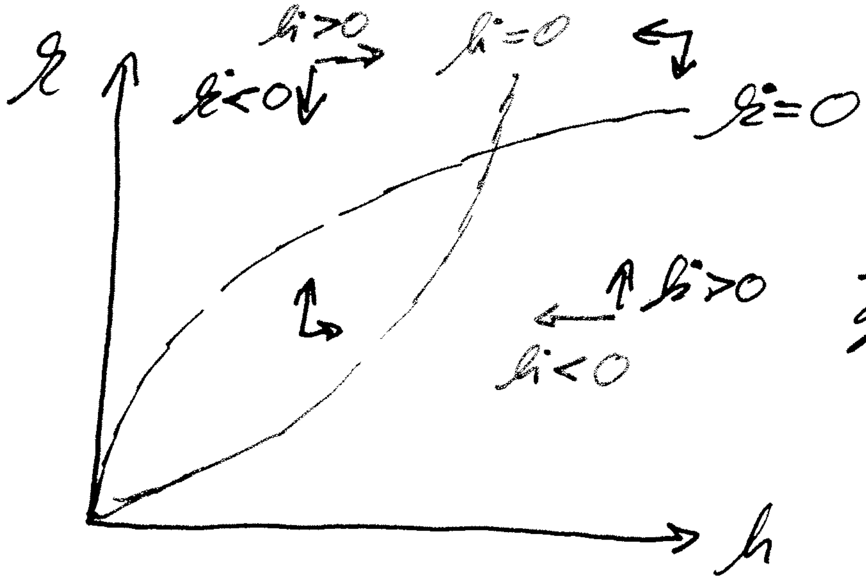
when $\dot{k} = \dot{h} = 0$

~~and define~~ $\cancel{x_K =}$

$$k_{ss} = \left(\frac{s_K^{1-\beta} \; s_H^{\beta}}{\delta + n + g} \right)^{\frac{1}{1-\alpha-\beta}}$$

$$h_{ss} = \left(\frac{s_K^{\alpha} \; s_H^{1-\alpha}}{\delta + n + g} \right)^{\frac{1}{1-\alpha-\beta}}$$

$$y_{ss} = \left(\frac{s_K^{\alpha} \; s_H^{\beta}}{(\delta + n + g)^{\alpha+\beta}} \right)^{\frac{1}{1-\alpha-\beta}}$$



~~both~~

$\dot{k}=0$ combinations of k + h for which $\dot{k}=0$

$\dot{h}=0$ combinations of k + h for which $\dot{h}=0$

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increase in s_K