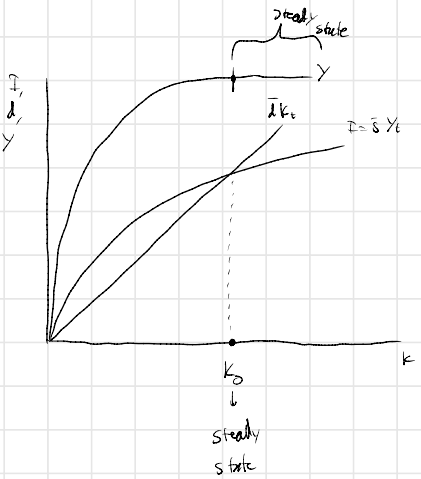
Feb 6

- Recap: Solow Model focused on capital accumulation's effect on growth
- Production: $Y_t = \bar{A} K_t^{1/3} L_t^{2/3}$
- Resource constraint: $Y_t = C_t + I_t$
- Capital accumulation: $K_{t+1} = K_t + I_t - \bar{d} K_t$
- Labor force: $L_t = \bar{L}$
- allocation of resources: $I_t = \bar{s} Y_t$



Solow Steady State:

- key condition: steady state reached at point where depreciation = investment

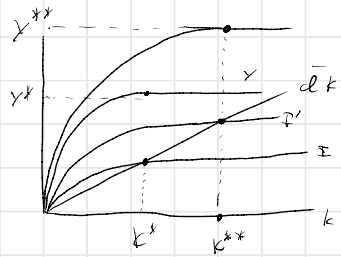
$$y^* = A^{3/2} \left(\frac{s}{d}\right)^{1/2}$$

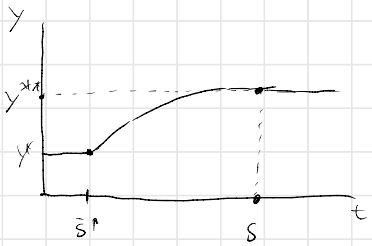
- can physical capital accumulation explain sustained LR GDP growth?
  - No!
    - in LR we should reach steady state
    - Diminishing returns to capital!

Solow Model can explain growth up to steady state

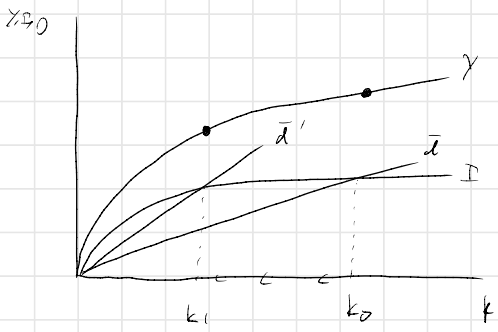
Ex 1: Sudden increase in investment rate

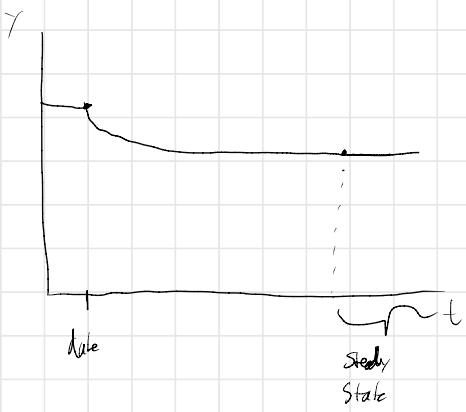
$\bar{s} \rightarrow \bar{s}'$



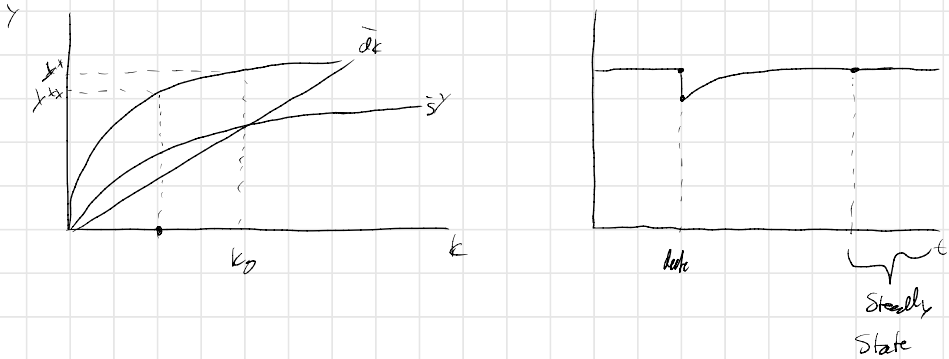


$\bar{d} \uparrow \rightarrow \bar{d}'$





Earthquake destroys half the economy's capital stock



Principle of transition dynamics:

- farther from steady state → faster growth (absolute terms)

Helps explain variation in growth rates, partly
- but many poor countries are poor not b/c they're lower than steady state, but steady state for them is much lower
- poor b/c determinants (investment, TFP) are low

$$y^{*} = \bar{A}\, k^{1/3}$$

$$\frac{g_{rich}}{g_{poor}} = \frac{\bar{A}_{rich}}{\bar{A}_{poor}} \left(\frac{k_{rich}}{k_{poor}}\right)^{1/3}$$

$$g_k = (13) \times s$$

↳ TFP determines more