Solow Growth Model

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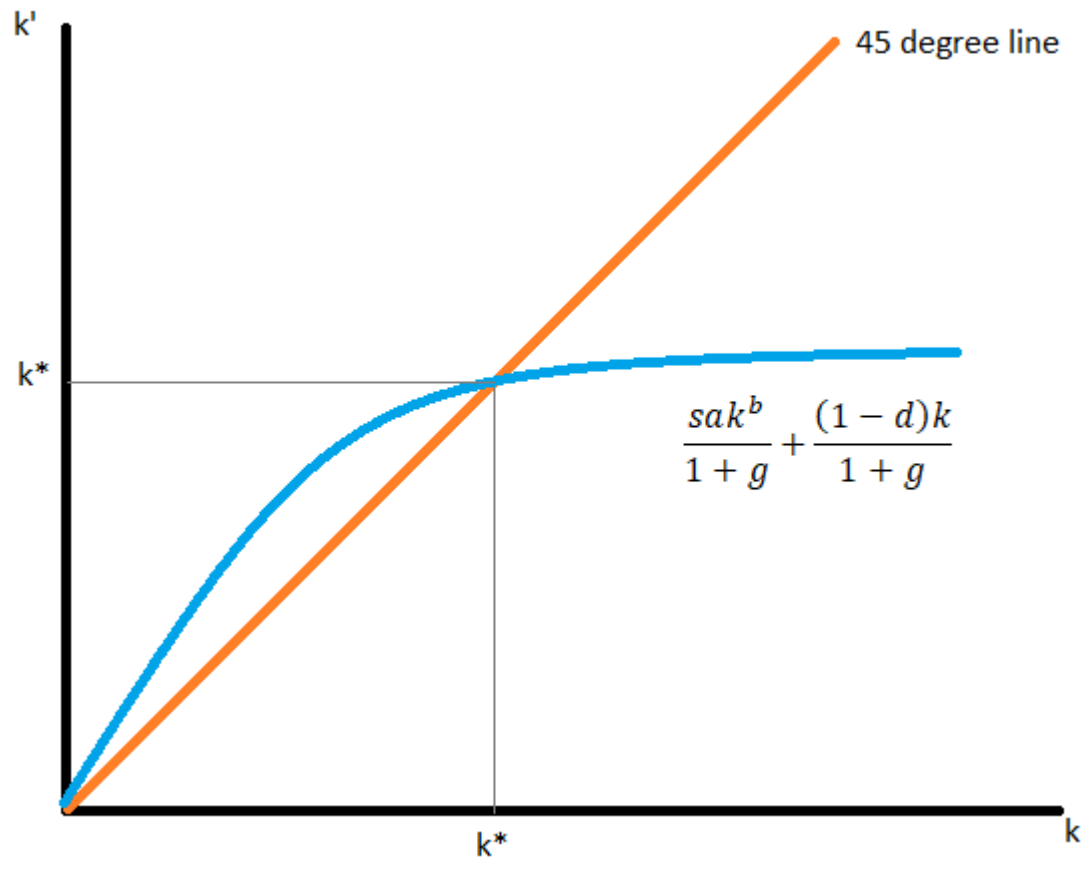
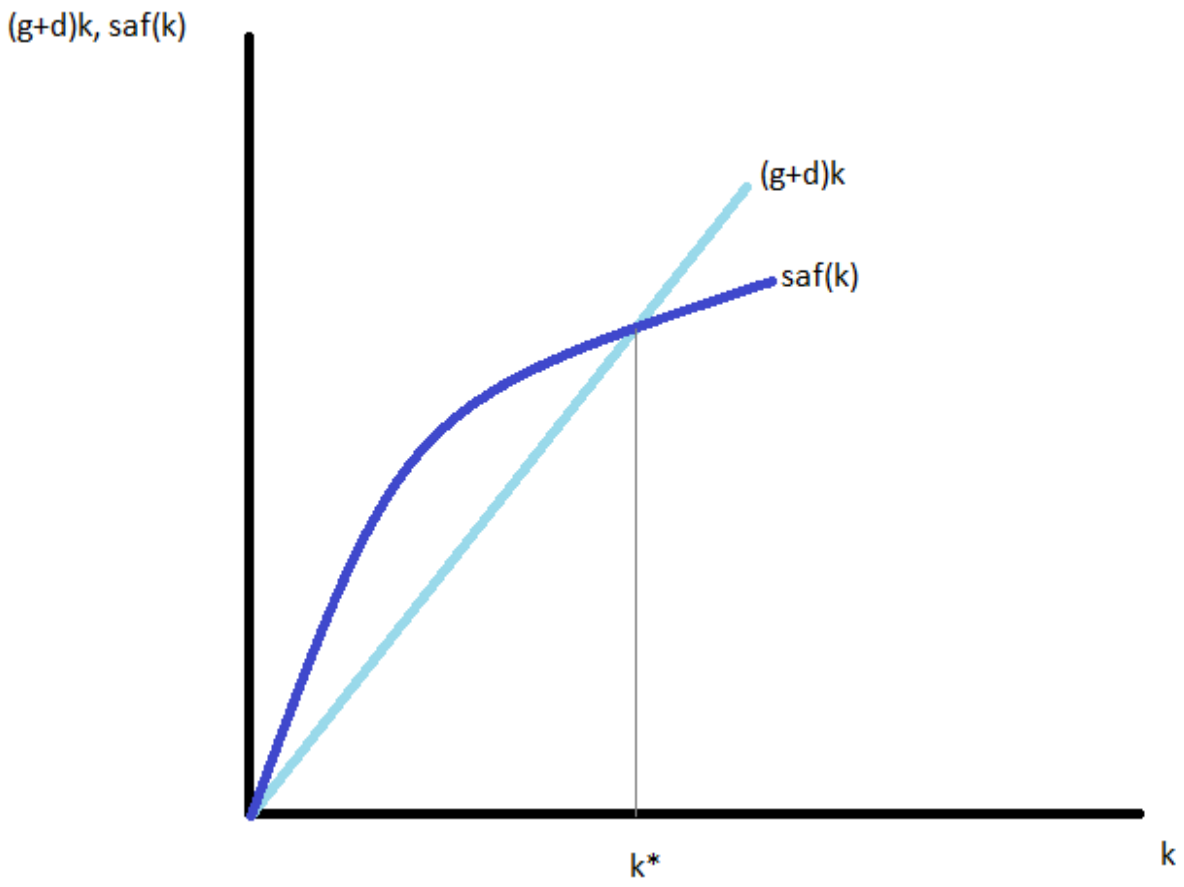
Class -M.A.Sem-IV

4. The capital accumulation equation in per worker times is given through the following equation: $(1 + g)k' = (1 - d)k + sy = (1 - d)k + saf(k) = (1 - d)k + sak^b$
5. The solution concept used is that of a steady state. The steady state is a state where the level of capital per worker does not change. Consider the graph below:



6. The steady state is found by solving the following equation: $k' = k \Rightarrow (1 + g)k = (1 - d)k + sak^b$
7. Therefore, the steady state value of capital per worker and the steady state value of output per worker are the following:

$$k^* = \left(\frac{sa}{g+d}\right)^{\frac{1}{1-b}}$$



Implications of the Solow Growth Model

There is no growth in the long term. If countries have the same g (population growth rate), s (savings rate), and d (capital depreciation rate), then they have the same steady state, so they will converge, i.e., the Solow Growth Model

predicts conditional convergence. Along this convergence path, a poorer country grows faster.

Countries with different saving rates have different steady states, and they will not converge, i.e. the Solow Growth Model does not predict absolute convergence. When saving rates are different, growth is not always higher in a country with lower initial capital stock.