

Exercise 4: Endogenous Growth

Consider an economy with the production function given by (omitting time indexes)

$$Y = K^\alpha (AL)^{1-\alpha}$$

Assume L is constant and equal to 1, the savings rate is constant and there is no depreciation, $\dot{K} = sY$. Knowledge is created as a by-product of the production process, $\dot{A} = BY$, where $B > 0$ is a constant.

1. Find expressions for g_A and g_K as functions of A , K , and the various parameters, and depict these in a diagram.
2. Does the economy converge to a steady state? If so, what are the growth rates of A , K and Y in the steady state?
3. How does an increase in s affect the steady-state growth rate?