

In the Ramsey growth model, households choose a consumption path on which each individual's consumption grows at time t at rate

$$\frac{\dot{C}(t)}{C(t)} = \frac{r(t) - \rho}{\theta} = \frac{f'(k(t)) - \rho}{\theta}.$$

We used this consumption Euler equation along with the assumption of diminishing marginal product of capital to pin down the unique level of k^* in the Ramsey model at which consumption per effective labor unit was stable.

Suppose that instead of diminishing marginal returns we have a production function $Y = BK$, where B is a constant.

1. What is the marginal product of capital with this production function? Is it diminishing?
2. If the consumption Euler equation holds, how fast does consumption per person grow at every moment t ? Does this growth rate depend on the economy's current capital intensity?
3. On a balanced-growth path, the share of output going to consumption must be stable over time. What must be the rate of output growth on a balanced-growth path for this economy?
4. Does this economy experience endogenous growth? (Will it grow if the labor force is stable?)
5. Does the growth rate depend on parameters of the model such as ρ and B ?