

Homework 6

1. Suppose that the production function of the economy is Cobb-Douglas, $Y = K^\alpha (EL)^{1-\alpha}$ and that there is a constant rate technological progress, g .
 - (a) Find the expressions for k^* , y^* , and c^* as functions of α, s, n, δ, g .
 - (b) What is the golden-rule level for k^* ?
 - (c) What is the golden-rule saving rate?
2. Consider the Solow model with technological progress.
 - (a) Show that, at the steady state, $MPK = f'(k^*)$.
 - (b) Suppose that all capital income is saved and all labor income is consumed. Thus, $\dot{K}_t = MPK_t \cdot K_t - \delta K_t$. Derive the equation characterizing the steady-state.
 - (c) Is the steady-state capital per capita larger than, less than, or equal to the golden-rule level?