

Homework 3

1. Apply the classical theory of income distribution to predict the effect on the real wage and the real rental price of capital if the following events happen:
 - (1) An earthquake damages part of the capital stock.
 - (2) The government raises the retirement age.
 - (3) Inflation raises all prices (output price and factor-input prices) by 10%.
 - (4) A technological breakthrough improves the production function (suppose the production function is labor-augmenting). (hint: on labor-augmenting and capital augmenting technologies, read page 5 of macro03.pdf.)

2. Consider a closed economy characterized by the following equilibrium condition and specifications:

$$\begin{aligned} Y &= C(Y - T) + I(r) + G, \\ Y &= 8000, G = 1000, T = 800, \\ C(Y - T) &= 1000 + \frac{3}{4}(Y - T), \\ I(r) &= 1200 - 100r. \end{aligned}$$

- (1) Calculate private saving, public saving, and national saving.
 - (2) Calculate the equilibrium real interest rate.
 - (3) Suppose that the government reduces its expenditure to achieve a balanced budget. Calculate private saving, public saving, and national saving. And calculate the new equilibrium real interest rate.
3. Consider the following equilibrium condition in the financial market:

$$\begin{aligned} Y - C(Y - T, r) - G &= I(r), \\ C_1 \equiv \frac{\partial C}{\partial Y} > 0, C_2 \equiv \frac{\partial C}{\partial r} < 0, I'(r) < 0. \end{aligned}$$

- (1) Apply the implicit function theorem and obtain $\frac{\partial r}{\partial G}$. Is it positive or negative?
 - (2) If the government increases spending, what would happen to the real interest rate? What would happen to national saving, government saving, and private saving?