Economics 102: Problem Set 4

Due date: March 27 (Monday), 2006.

Note: you can either submit your homework right after class or put it in the box outside my office (Heady 469) before 5:00pm.

Problem 1
Suppose an economy is described by \( Y = 5,000 \), \( G = 1,000 \), \( T = 1,000 \). \( C = 250 + 0.75(Y - T) \), \( I(r) = 1,000 - 50r \).

(1) Compute private saving, public saving, and national saving.

(2) Find the equilibrium interest rate and the equilibrium investment.

(3) Suppose now \( G \) rises to 1,250. Compute private saving, public saving, and national saving.

(4) Find the new equilibrium interest rate and the equilibrium investment.

(5) Suppose now the government also increases \( T \) to 1,250 to balance its budget. What happens to the equilibrium interest rate and the equilibrium investment?

Problem 2
Suppose an economy is described by \( Y = 5,000 \), \( G = 1,000 \), \( T = 1,000 \). \( C = 250 + 0.75(Y - T) - 10r \), \( I(r) = 1,000 - 50r \).

(1) Find the equilibrium interest rate and the equilibrium investment.

(2) Suppose now the economy’s investment function is \( I(r) = I_0 - 50r \), where \( I_0 > 0 \) is an unknown constant. Find the new equilibrium interest rate and the equilibrium investment. How do the equilibrium interest rate and investment change with \( I_0 \)?

(3) Now treat \( Y, G, T \) as unknown constants as well and solve for the equilibrium interest rate and equilibrium investment as a function of \( Y, G, T, \) and \( I_0 \). What happens to the equilibrium interest rate when \( T \) increases?