Homework 7

1. Suppose that the aggregate output (Y) is a linear function of the employed people (N), $Y = \gamma N$, with $\gamma > 0$. Calculate the multiplier effect of the government expenditure on the level of employment (i.e., $\frac{\partial N}{\partial G}$) in the Keynesian Cross model.

2. Suppose that the IS equation is given by

$$Y = C(Y - T, r) + I(r) + G$$
$$C(Y - T, r) = a + b \cdot (Y - T) - c \cdot r$$
$$I(r) = d - e \cdot r$$

where $a > 0$, $0 < b < 1$, $c > 0$, $d > 0$, and $e > 0$ are all constants.

   a) Given an increase in G, say ΔG, how and how much does the IS curve shift?
   b) If there is an improvement in investor sentiment, say, $I(r)$ becomes
$$I(r) = 2d - e \cdot r.$$
   Then how and how much does the IS curve shift?

3. Suppose that the IS and LM equations are as follows,

$$\textbf{IS}: \; Y = C(Y - T, r) + I(r) + G,$$
$$C(Y - T, r) = a + b \cdot (Y - T) - c \cdot r,$$
$$I(r) = d - e \cdot r,$$
$$\textbf{LM}: \; \frac{h \cdot M}{P} = L(r, Y) = M_0 + f \cdot Y - g \cdot r,$$

where a, b, c, d, e, f, g, h, and M_0 are all positive constants and $b < 1$.

   a) Given an increase in G, say ΔG, calculate the government multiplier effect. Compare your result with (i) the Keynesian Cross case, $c = e = 0$; (ii) the case where $c = 0$.
   b) If $f = h = 0$, does a monetary stimulus raise output? Does a fiscal stimulus work?
   c) If $g = 0$, does a monetary stimulus raise output? What about a fiscal stimulus?