Homework 5

1. Consider a small open economy characterized by the following equilibrium condition and specifications:

$$Y = C(Y - T) + I(r) + G + X(\varepsilon),$$
$$Y = 8000, G = 1000, T = 800,$$
$$C(Y - T) = 1000 + \frac{3}{4}(Y - T),$$
$$I(r) = 1200 - 100r,$$
$$X(\varepsilon) = 500 - 200\varepsilon,$$
$$r = r^* = 5.$$

   (1) Calculate the national savings, excess savings, and net capital outflow.
   (2) Calculate the equilibrium real exchange rate.
   (3) Suppose that the government increases its expenditure by 200 and leave tax unchanged (in effect, the budget deficit increases by 200.). Calculate the private savings, the national savings, the excess savings, and the net capital outflow. And calculate the new equilibrium real exchange rate.

2. Consider a modified small open economy model,

$$\mathrm{Y} = \mathrm{C}(\mathrm{Y} - \mathrm{T}) + \mathrm{I}(\mathrm{r}) + \mathrm{G} + \mathrm{X}(\varepsilon, \tau),$$

Where τ is tariff rate on imported goods. We assume that $X_2 \equiv \frac{\partial X}{\partial \tau} > 0$.

   (1) Use the implicit function theorem to obtain $\frac{\partial \varepsilon}{\partial \tau}$. Is it positive or negative?
   (2) Use a graph to illustrate your result in (1).

3. Consider the following model of a large open economy,

$$Y = C(Y - T, \varepsilon) + I(r) + G + F(r),$$
$$X(\varepsilon) = F(r),$$

   where the usual classical assumptions apply and $\frac{\partial \mathrm{C}}{\partial \varepsilon} > 0$.

   (1) Draw a graph to illustrate the equilibrium of the economy.
   (2) If the government increases its expenditure, what would happen to the equilibrium interest rate and exchange rate?