Homework 4

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

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

   (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.

2. Consider the following close-economy model of real interest rate,

$$Y = C(Y - T) + I(r) + G,$$

where $Y = \bar{Y}$, the output potential. Prove that the real interest rate declines as the economy develops. State all your assumptions and make your arguments using a graph and the implicit function theorem.