Economics 102: Problem Set 5

Due date: December 2 (Wednesday) 2009.

Problem 1 Suppose you are in charge of an artificial economy which is described by the following consumption and investment functions: $C(Y-T) = 25 + 0.9(Y-T)$, $I(r) = 100 - 8r$, and the following money demand function: $L(r, Y) = 0.5Y - 10r$. Let $P = 1$. Take M^s, G and T as policy instruments over which you have control. The model's endogenous variable is Y and r.

(1) Suppose initially $M^s = 100$, $G = 10$ and $T = 10$.

(1a) Solve for the equilibrium Y and r.

(1b) Suppose now someone proposes an expansionary fiscal policy which involves cutting taxes by 10 percent. How would this policy affect r^* and Y^* and by how much?

(1c) Suppose someone proposes to increase both T and G by 10 percent. Note this will keep the government's budget balanced. Will this increase or decrease Y^*? by how much?

(2) Now treat M^s, G and T as unknown constants.

(2a) Solve for the equilibrium Y and r as a function of the exogenous variables M^s, G, T.

(2b) Compute the government-purchases multiplier for this economy.

(2c) Can you think of a fiscal-monetary policy combination which allows you to increase Y^* while holding r^* constant? (This one requires some thoughts.)

(2d) Can you think of a policy change that allows you to increase both Y^* and r^*?

(2f) Think of at least four different ways in which a recession can happen in your artificial economy. (This one requires some thoughts.)

(2g) Suppose $T = tY$, where $t > 0$ is a constant, the tax rate. How does the equilibrium Y depend on t? (You must show mathematically.)