Exercise 8: Economic Fluctuations

Problem 1: (*General Equilibrium*)

Consider a closed economy in the short run, where Y denotes output, and r denotes the interest rate. In the goods market, demand Z comprises private consumption $C(Y-T) = 200 + 0.75(Y-T)$ with taxes $T \geq 0$, planned investment $I(r) = 50 - 5r$, and government consumption $G \geq 0$. In the financial market, liquidity demand is $L(Y,r) = Y - 80r$, while money supply is $M \geq 0$.

(a) Calculate the interest rate r^* in general equilibrium as a function of taxes T, government consumption G, and money supply M.

(b) Assume that taxes are $T = 100$. Calculate the change in money supply M necessary to offset the effect of a marginal increase in government consumption G on the general-equilibrium interest rate r^*.

Problems 2-7: (*General Equilibrium*)

Consider a closed economy in the short run, where Y denotes output, and r denotes the interest rate. In the goods market, demand Z comprises private consumption $C(Y-T) = 100 + 0.8(Y-T)$ with taxes $T \geq 0$, planned investment $I(r) = 100 - 8r$, and government consumption $G \geq 0$. In the financial market, liquidity demand is $L(Y,r) = Y - 60r$, while money supply is $M \geq 0$.

Problem 2

In the goods market, the government-consumption multiplier is

(A) $\frac{\partial Y}{\partial G} = -1$.

(B) $\frac{\partial Y}{\partial G} = 2$.

(C) $\frac{\partial Y}{\partial G} = 5$.

(D) $\frac{\partial Y}{\partial G} = 8$.

Problem 3

In the goods market, the tax multiplier is

(A) $\frac{\partial Y}{\partial T} = -4$.

(B) $\frac{\partial Y}{\partial T} = -2$.

(C) $\frac{\partial Y}{\partial T} = 2$.

(D) $\frac{\partial Y}{\partial T} = 4$.

Problem 4

Assume that taxes are $T = 200$, government consumption is $G = 200$, and money supply is $M = 700$. Then, general-equilibrium output is

(A) $Y^* = 1{,}000$.

(B) $Y^* = 1{,}100$.

(C) $Y^* = 1{,}200$.

(D) $Y^* = 1{,}300$.

Problem 5

Assume that taxes are $T = 200$ and government consumption is $G = 300$. Then, general-equilibrium total savings are $S^* = 60$ if and only if money supply is

(A) $M = 1{,}000$.

(B) $M = 1{,}100$.

(C) $M = 1{,}200$.

(D) $M = 1{,}300$.

Problem 6

Ceteris paribus,

(A) an increase in taxes T combined with an increase in money supply M decreases general-equilibrium savings S^*.

(B) an increase in government consumption G combined with a decrease in money supply M increases general-equilibrium savings S^*.

(C) a decrease in taxes T combined with an increase in money supply M decreases general-equilibrium private consumption C^*.

(D) a decrease in government consumption G combined with a decrease in money supply M decreases general-equilibrium private consumption C^*.

Problem 7

Consider a diagram with output Y on the horizontal axis and the interest rate r on the vertical axis. Any combination (Y, r) located

(A) to the left of the IS-curve and below the LM-curve satisfies $I > S$ and $L > M$.

(B) on the IS-curve and above the LM-curve satisfies $I = S$ and $L > M$.

(C) to the right of the IS-curve and on the LM-curve satisfies $I > S$ and $L = M$.

(D) to the right of the IS-curve and above the LM-curve satisfies $I < S$ and $L > M$.