

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 $L > M$.