Homework 2

Intermediate Macroeconomics · Fall 2026 · Chapters 3 and 4

Name: _____

1. Setting up the goods market

A closed economy is described by:

$$C = 250 + 0.8\,(Y - T), \qquad T = 150, \qquad \bar{I} = 300, \qquad G = 350$$

(a) Write demand Z as a function of Y. Simplify.

(b) State the equilibrium condition. In one sentence, why is it a *condition* rather than an identity?

(c) Solve for equilibrium output Y^*.

(d) Verify your answer: compute C at Y^* and check that $C + \bar{I} + G = Y^*$.

(e) Identify autonomous spending and the multiplier separately, and state their values.

2. Interpreting the consumption function

(a) What is the value of the marginal propensity to consume here, and what does it mean in words?

(b) $c_0 = 250$. What does it mean to say a household consumes 250 when disposable income is zero? Give one real-world thing that would cause c_0 to fall.

(c) Explain in two or three sentences why the multiplier would be infinite if c_1 were equal to 1. What does that tell you about why the assumption $c_1 < 1$ matters?

3. Fiscal policy

Return to the economy in Question 1 for each part.

(a) Government spending rises from 350 to 400. Compute the new Y^* and ΔY.

(b) Instead, taxes rise from 150 to 200. Compute the new Y^* and ΔY.

(c) Both changes are 50 in size. Explain in two or three sentences why the effects on output differ. Your answer must refer to what happens in the **first round**.

(d) Now suppose G rises to 400 **and** T rises to 200, so the budget balance is unchanged. Compute the new Y^* and ΔY. Comment in one sentence on the result.

4. The Keynesian cross

Using the original economy from Question 1:

(a) Draw the diagram. Label both axes show the equilibrium. State the intercept and slope of two lines.

(b) On the same diagram, show the effect of the increase in G from part 3(a). Label the new line ZZ'.

5. Adjustment

The economy from Question 1 is currently producing $Y = 3400$.

(a) Compute demand Z at $Y = 3400$. Is demand greater or less than production?

(b) What is happening to firms' inventories?

(c) Number the steps by which output moves toward equilibrium.

(d) In one or two sentences, why does this process converge rather than run away?

6. Saving and investment

(a) Starting from $S \equiv Y - T - C$ and the equilibrium condition, derive the relation between private saving, public saving, and investment.

(b) Compute private saving at the equilibrium from Question 1, and verify your relation from (a) holds numerically.

(c) Households become thriftier: c_0 falls from 250 to 150. Compute the new Y^*, the new level of consumption, and the new level of private saving.

(d) Everyone tried to save more. What happened to total private saving? Explain the result in two or three sentences using your relation from part (a).

(e) This result depends on one assumption in particular. Which one, and what would have to change for the result to weaken?

7. Money and bonds

(a) In this model, wealth must be held as money or as bonds. State one advantage of each.

(b) Complete and explain in one sentence: the interest rate is the _____ of holding money.

(c) A bond pays \$500 in one year. Compute its price today if the interest rate is 4%, and if the interest rate is 8%.

(d) The same bond currently sells for \$490. What is the interest rate?

(e) Explain in two or three sentences why a higher bond price means a lower interest rate. Do not simply restate the formula.

8. The money market

An economy has nominal income $\$Y = 12{,}000$ and money demand

$$M^d = \$Y\,(0.30 - 3i)$$

The central bank sets $M^s = 2{,}160$.

(a) Solve for the equilibrium interest rate.

(b) Nominal income rises to 15,000, with M^s unchanged. Compute the new equilibrium interest rate. Which curve shifted, and in which direction?

(c) Return to the original values. The central bank raises M^s to 2,520. Compute the new equilibrium interest rate. Which curve shifted, and in which direction?

(d) Draw the money market. Label both axes and both curves, and mark the original equilibrium. Then show the shift from part (b) and the shift from part (c), labelling each clearly.

(e) Explain the economics of part (b) in two or three sentences: why does higher income raise the interest rate when the central bank does nothing?

9. Open market operations

(a) The central bank buys bonds. State in order what happens to the demand for bonds, to bond prices, to the interest rate, and to the money supply.

(b) Is this expansionary or contractionary?

(c) In two or three sentences: can the central bank choose the money supply and the interest rate independently? Why or why not?