

Practice MIDTERM II

Question 1: True-False. Please explain your choice.

a) The discount rate is the rate the Fed charges commercial banks for any loans it extends to them. T F

true

b) Money must have inherent value to function as a medium of exchange. T F

false

c) M1 is the component of the money supply that consists of M2 plus other relatively liquid assets. T F

false

d) If the economy is not in a long-run equilibrium and other things are equal, then prices will eventually adjust to bring the economy to a long-run equilibrium.

T F

true

e) The aggregate production curve has a slope of less than one. T F

false

f) The smaller the *mpe*, the more repercussions there are from a change in expenditures or production and hence the greater is the multiplier. T F

false

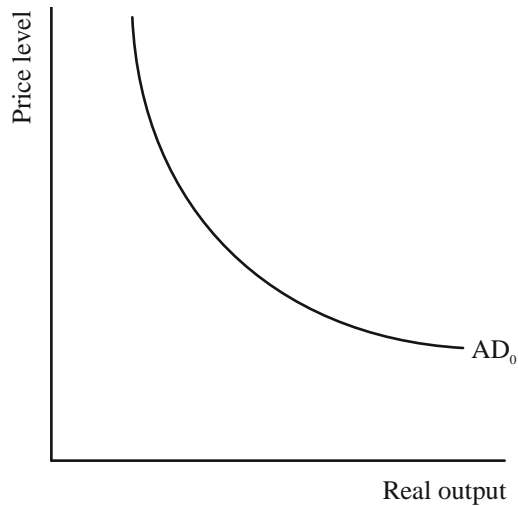
g) By law, the Fed cannot act as a lender of last resort to commercial banks in need. T F

false

h) An increase in the discount rate is a signal that the Fed wants an easier monetary policy. T F

false

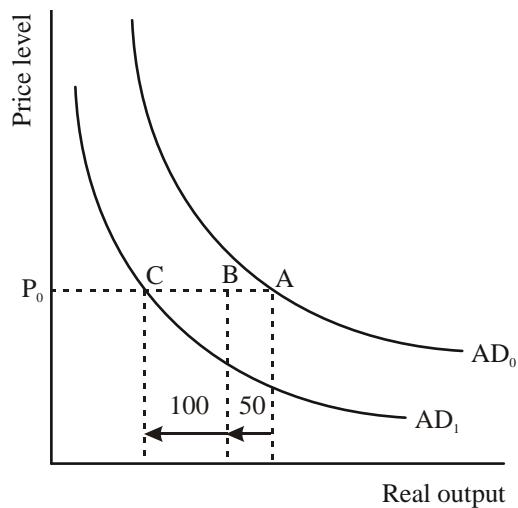
Question 2: Consider the following diagram



Demonstrate graphically and explain verbally the impact of a decrease of 50 in government spending on the AD curve in the diagram when the multiplier is 3. What assumptions are you making?

Answer:

The diagram:



The explanation:

The total impact of the decrease of 50 of government spending is a leftward shift of the AD curve from AD_0 to AD_1 . This shift occurs as a result of two things. The initial effect is the decrease in government spending of 50. This can be viewed as the movement along the P_0 line from point A to point B. As a result of the initial decrease

in spending, the multiplier process takes over. The multiplier effect is illustrated by the movement along the P_0 price line from point B to point C. Using a multiplier of 3 this results in a total drop in real output (A to C) of 150.

Question 3:

Answer parts (a) - (e) below on the basis of the following table.

Income (Y)	Change in Income (ΔY)	Aggregate Expenditures (AE)	Change in Aggregate Expenditures (ΔAE)
0		500	
500		950	
1000		1400	
1500		1850	
2000		2300	
2500		2750	
3000		3200	

- (a) Fill in columns (2) and (4).
- (b) What is the value of autonomous expenditures?
- (c) What is the mpe?
- (d) What is the AE equation?
- (e) Draw a picture of the AE curve.

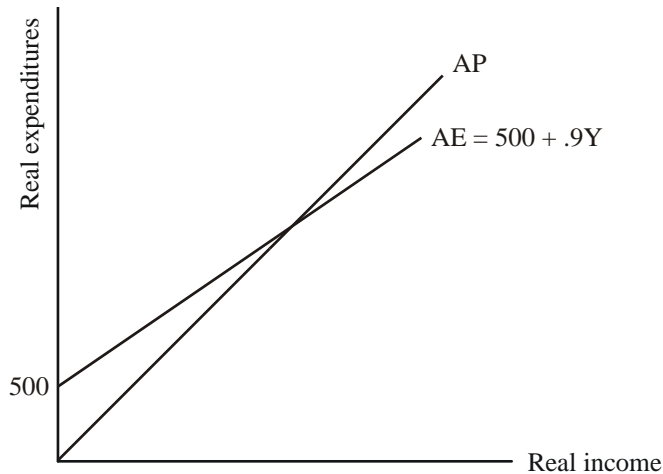
Answer:

(a) The completed table:

Income (Y)	Change in Income (ΔY)	Aggregate Expenditures (AE)	Change in Aggregate Expenditures (ΔAE)
0		500	
500	500	950	450
1000	500	1400	450
1500	500	1850	450
2000	500	2300	450
2500	500	2750	450
3000	500	3200	450

- (b) Autonomous expenditures are 500.
- (c) The mpe = $450/500 = 0.9$.

- (d) The AE equation is $AE = 500 + .9Y$
 (e) The diagram:



Question 4:

Consider the following multiplier model:

$AE = 5,000 + 0.75Y$, and potential output equals 45,000.

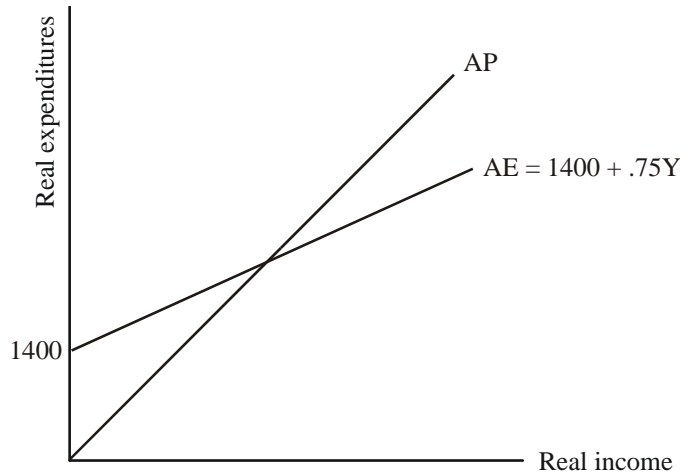
- (1) Calculate equilibrium output.
- (2) What tools of fiscal policy could you use to eliminate the inflationary or recessionary gap.
- (3) Calculate the amount of change in government purchases to eliminate the gap.
- (4) Calculate the amount of change in taxes to eliminate the gap.
 (Assume $mpc = mpe = .75$. Remember, people actually need to spend the money they receive in tax rebates for this to have an effect on the economy, same with tax increases...)

Answer:

- (1) In equilibrium, $Y = AE$. Thus, $Y = 5,000 + 0.75Y$, $0.25Y = 5,000$, and equilibrium output = $5,000/0.25 = 20,000$.
- (2) Since potential output (45,000) is higher than equilibrium output (20,000), there is a recessionary gap. The government should implement expansionary fiscal policy to eliminate the recessionary gap.
- (3) The gap is 25,000 (45,000-20,000). The multiplier = $1/(1-0.75) = 4$. Thus:
 $25,000 = 4 * \Delta G$
 $\Delta G = 25,000/4 = 6,250$. The government should increase purchases by 6250.
- (4) $\Delta T = 6250/.75 = 8333$ The government should decrease tax revenues by 8333.

Question 5:

Consider the following multiplier model diagram:



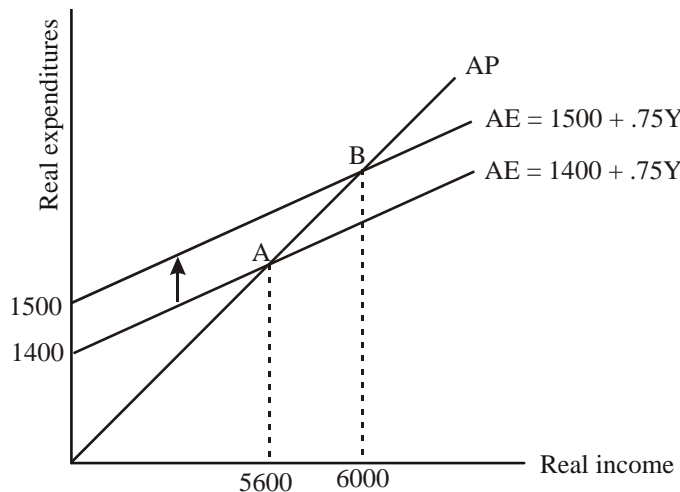
- (a) What is the value of equilibrium income?
- (b) Demonstrate graphically and explain verbally the impact on equilibrium income of an increase in government spending of 100.
- (c) Explain why the change in equilibrium income exceeds the change in government expenditures in your answer for part (b).

Answer:

(a) Find equilibrium income using the multiplier equation:

$$\begin{aligned}
 Y &= \text{Multiplier} * \text{Autonomous Expenditures} \\
 &= 1/(1-mpe) * AE \\
 &= 1/(1-.75) * 1400 \\
 &= 5600.
 \end{aligned}$$

(b) The diagram:



The explanation:

The increase in government spending will shift the AE up to $AE = 1500 + .75Y$. This results in a change in equilibrium from point A to point B. At point B the new equilibrium is $Y = 6000$. This is calculated via the multiplier equation as $Y = 4 * 1500$.

(c) The reason that the change in income is greater than the change in government expenditures is due to the impact of the multiplier; this is the multiplier effect in action.

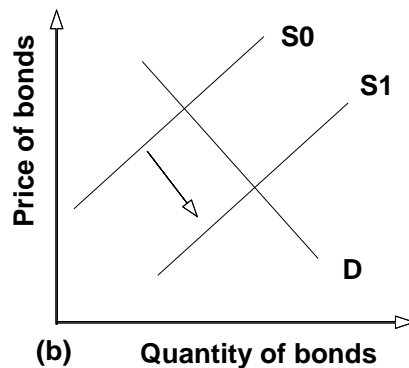
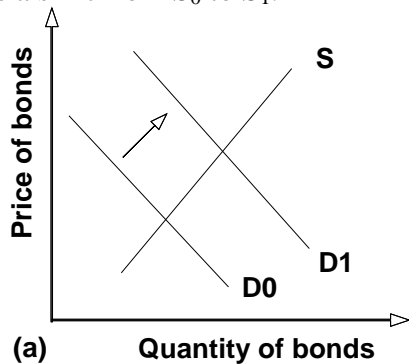
Question 6:

(a) Show the effects of expansionary and contractionary open market operations on the interest rate, using demand and supply curves and the market for government bonds.

(b) What should the Fed do if the interest rate is below its target rate? Above?

Answer:

(a) An open market purchase (expansionary) will shift the demand for government bonds to the right, increasing their price and decreasing their yield (interest rate). This is shown in graph (a) below as a shift from D_0 to D_1 . An open market sale (contractionary) will shift the supply of government bonds to the right, decreasing their price and increasing their yield (interest rate). This is shown in graph (b) below as a shift from S_0 to S_1 .



(b) If the interest rate is below (above) its target, it should sell (buy) bonds to raise (lower) the interest rate.

Question 7:

Suppose the monetary base is \$100 billion and banks hold 10% reserves.

(a) What is the money multiplier?

(b) Suppose the Fed wants to increase the money supply so it undertakes a \$10 billion open market purchase. Will the Fed be successful in its attempt to increase the money supply? By how much? Explain.

Answer:

a) Calculate the simple money multiplier:

$$1 / .1 = 10$$

Multiply the monetary base with the money multiplier to get the money supply: $10 \times \$100$ billion = \$1 trillion

b) With a simple money multiplier of 10, a \$ 10 billion open market purchase would increase the money supply by \$ 100 billion. This assumes that people hold no cash and that the banks only hold the minimum of reserves.

Question 8:

Throughout much of the early 1990s, the Japanese economy was in a recession. To help the situation, the Japanese government announced a fiscal policy package of increased government purchases as a response to the continued recession. Suppose the package caused Japan to raise government purchases by 200.

- (a) If the Japanese marginal propensity to consume equals 0.75 and the Japanese marginal propensity to import equals 0.15, what will happen to GDP^J as a result of the fiscal expansion? Show your work and sketch a graph.
- (b) Assume the United States and Japan are the only countries in the world. What will happen to U.S. exports as a result of the Japanese fiscal expansion? Show your work.
- (c) Assume that the U.S. marginal propensity to consume equals 0.75 and the marginal propensity to import equals 0.15. What will happen to GDP^{US} as a result of the fiscal expansion in Japan? Show your work.
- (d) What is the *net* effect on the U.S. current account (X-IM), based on your answers to parts (b) and (c)?

Answer:

a) Calculate the Japanese expenditure multiplier; remember $mpe = mpc - mpi = 0.75 - 0.15 = 0.6$

Multiplier: $1 / (1 - mpe) = 1 / (1 - 0.6) = 1 / 0.4 = 2.5$

Therefore, if Japan raises government spending by 200, this will increase Japanese GDP by 500.

The corresponding graph shows an upward shift in the expenditure schedule by 200.

b) If Japanese GDP increases by 500, Japanese imports, and thus US exports will increase by $500 \times 0.15 = 75$.

c) This leads to an expansion of US GDP by $75 \times 2.5 = 187.5$

d) If US GDP increases by 187.5, then US imports will increase by $187.5 \times 0.15 = 28.125$.

Now compute the difference between the US export increase and the US import increase: $75 - 28.125 = 46.875$. This is the net effect on the US current account.