6404691034 Savita Chanoknamchai

Exercise 4 –

1. 1) $\Delta Y = 5 \times \Delta G = \underline{25}$

   2) $\Delta T = \Delta Y / -3 = \underline{3}$

   3) $\Delta Y / \Delta I = \underline{5}$

2. 1) $Y = C_0 + C_1(Y-T) + I + G = C_0 + C_1 Y - C_1 T + I + G$

   $Y(1-C_1) = C_0 - C_1 T + I + G$

   $Y^* = \frac{1}{1-C_1} \cdot (C_0 - C_1 T + I + G)$ //

   2) $\Delta Y / \Delta I$: let $\frac{1}{1-C_1}$ be k, $Y^* = k(C_0 - C_1 T + G) + kI$

   $dY/dI = k \Rightarrow \frac{1}{1-C_1}$ //

   3) $\Delta Y / \Delta G$: $Y^* = k(C_0 - C_1 T + I) + kG$, $dY/dG = k \Rightarrow \frac{1}{1-C_1}$ //

   4) $\Delta Y / \Delta T$: $Y^* = k(C_0 + I + G) - kC_1 T$, $dY/dT = -kC_1 \Rightarrow \frac{-C_1}{1-C_1}$ //

   5) BBM = $\frac{1-C_1}{1-C_1}$ //

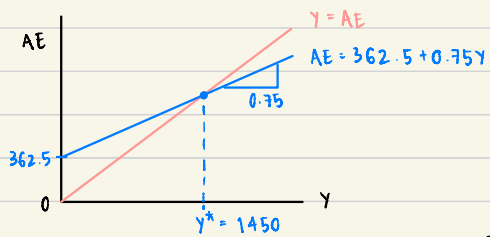
   6) ΔY^* when G and T change by the same amount :

   when both G and T increase by 1 unit, Y will increase by BBM unit

3. 1) $Y = C + I + G = 300 + 0.75(Y-50) + 50 + 50$

   $0.25Y = 362.5 \Rightarrow Y^* = \underline{1450}$

   2)



   3) $S = Y - T - C$

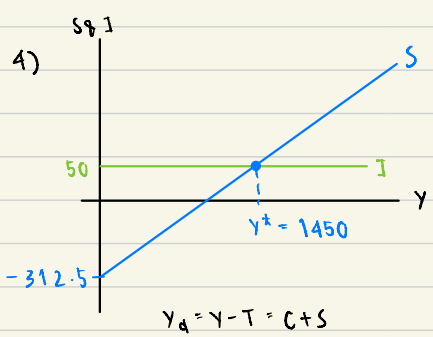
   $\Rightarrow Y - T - C + I = I + G$

   $Y - 300 - 0.75(Y-50) = 50 + 50$

   $0.25Y - 262.5 = 100$

   $Y^* = 362.5 / 0.25 = \underline{1450}$

   4)



   $Y_d = Y - T = C + S$

   $S = Y - 50 - 300 - 0.75(Y-50)$

   $= -312.5 + 0.25Y$

5) G ↑ 50 T ↑ 50

$Y = C + I + G = 300 + 0.75(Y - 100) + 50 + 100 = 375 + 0.75Y$

$Y^* = 375 / 0.25 = 1500$

6) $BBM = \frac{1 - C_1}{1 - C_1} = \frac{1 - 0.75}{1 - 0.75} = 1$ $\Delta Y^* = 1 \times 50 = 50 \Rightarrow Y^* = 1450 + 50 = 1500$

4. 1) $Y = C_0 + C_1(Y - T) + I + G + X - M_0 - M_1 Y$

$Y - C_1 Y + M_1 Y = C_0 - C_1 T + I + G + X - M_0$

$Y^* = \frac{C_0 - C_1 T + I + G + X - M_1}{1 - C_1 + M_1}$ //

2) $\Delta Y / \Delta I = \frac{1}{1 - C_1 + M_1}$ // ← slope

3) $\Delta Y / \Delta G = \frac{1}{1 - C_1 + M_1}$ //

4) $\Delta AE = -C_1 \Delta T$, $\Delta Y / -C_1 \Delta T = \frac{1}{1 - C_1 + M_1} \Rightarrow \Delta Y / \Delta T = \frac{-C_1}{1 - C_1 + M_1}$ //

5) $BBM = \frac{1}{1 - C_1 + M_1} + \frac{-C_1}{1 - C_1 + M_1} = \frac{1 - C_1}{1 - C_1 + M_1}$ //

5. 1) $AE = 200 + 0.7(Y - 50) + 75 + 75 + 50 - 50 - 0.1Y = 315 + 0.6Y$

$Y = AE$: $Y^* = 315 / 0.4 = 787.5$

Y is not an equilibrium, firm has to increase production to raise output towards equilibrium

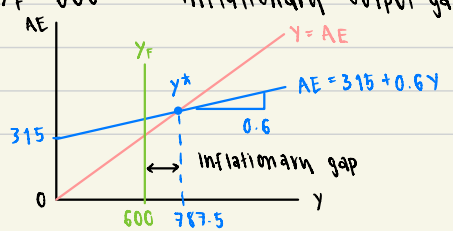
2) • $\Delta Y / \Delta G$ & $\Delta Y / \Delta I = \frac{1}{1 - 0.7 + 0.1} = 2.5$ • $\Delta Y / \Delta T = \frac{-0.7}{1 - 0.7 + 0.1} = -1.75$

• $BBM = 2.5 + (-1.75) = 0.75$

3) • when G increases by 1 unit, Y will increase by 2.5 units
• when I increases by 1 unit, Y will increase by 2.5 units
• when T increases by 1 unit, Y will decrease by 1.75 units
• when both G and T increase by 1 unit, Y will increase by 0.75 units

4) $Y_F = 600$: inflationary output gap

5)



6) $\Delta Y = 787.5 - 600 = 187.5$ $\Delta G = 187.5 / 2.5$, reduce G by 75 //

7) $\Delta T = 187.5 / -1.75$, raise tax by 107.14 //

8) reduce investment by 75 //

9) reduce G and T by $187.5 / 0.75 = 250$ //

6. $M = M_0 + M_1 Y$, import changes according to aggregate income

for instance, during expansion with high income, import would increase causing AE and Y to drop automatically. This automatic change reduces fluctuations in the business cycle and stabilizes the economy.

further stabilization:
- impose income tax to discourage spending during high income period - slowdown the economy automatically
- raise marginal propensity to tax to lower the slope of AE and reduce the size of the multiplier - reduce fluctuations

7. 1) $S = I$, $-200 + 0.5Y = 50 \Rightarrow Y^* = 250 / 0.5 = \underline{500}$

2) $S^* = -200 + 0.5(500) = \underline{50}$

3) $S_0 \uparrow 100$: $-100 + 0.5Y = 50 \Rightarrow Y^* = 150 / 0.5 = \underline{300}$

4) $S^* = -100 + 0.5(300) = \underline{50}$

5) This portrays the Paradox of Thrift: when people attempt to save more at all income level, equilibrium output and income drop due to less consumption, hence no overall change in equilibrium saving.