Exercise 4

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1) 1.1 $5 = \frac{\Delta Y}{\Delta G \rightarrow 5} \quad : 5 = \frac{\Delta Y}{5} \quad = \Delta Y = 25$

1.2 $-3 = \frac{\Delta Y}{\Delta T} \rightarrow -9 \quad : -3 = \frac{-9}{\Delta G} \quad \Delta G = 3$

1.3 Investment multiplier $= \frac{\Delta Y}{\Delta I} = \frac{10}{2} = 5$

2) 2.1 $Y = C_0 + C_1 (Y - T) + I + G$

$Y = C_0 + C_1 Y - C_1 T + I + G$

$Y - C_1 Y = C_0 - C_1 T + I + G$

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

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

2.2 $\frac{\Delta Y}{\Delta I} = \frac{1}{1 - C_1}$ 2.5 BBM → เอา Multiplier ของ G กับ T มาบวกกัน

2.3 $\frac{\Delta Y}{\Delta I} = \frac{1}{1 - C_1}$

$\frac{\Delta Y}{\Delta T} + \frac{\Delta Y}{\Delta G} = \frac{1 - C_1}{1 - C_1}$

2.4 $\frac{\Delta Y}{\Delta T} = \frac{-C_1}{1 - C_1}$

3.1 $Y = AE = C + I + G$

$Y = C + I + G$

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

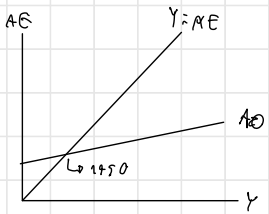
$Y = 300 + 0.75Y - 37.5 + 100$

$Y = 0.75Y + 362.5$

$0.25Y = 362.5$

$Y = 1450$

3.2 $AE = 0.75Y + 362.5$



3.3 $C = 300 + 0.75(Yd)$

$S = -300 + 0.25(Yd)$

$-300 + 0.25(Y - T) - T = I + G$

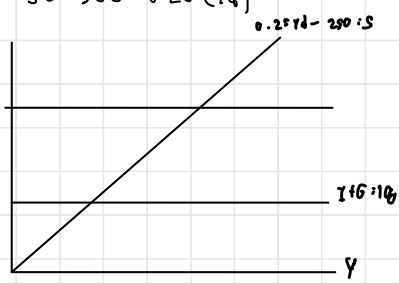
$-300 + 0.25(Y - 50) - 50 = 50 + 50$

$-300 + 0.25Y - 12.5 = 150$

$0.25Y = 462.5$

$Y = 1850$

3.4



3.5

$Y = AE \qquad Y = C + I + G \qquad Yd = Y - T$

$Y = 300 + 0.75(Yd) + 50 + 100$

$Y = 300 + 0.75(Y - 100) + 150$

$Y = 450 + 0.75Y - 75$

$Y = 375 + 0.75Y$

$0.25Y = 375$

$Y = 1500$

-3

$\frac{\Delta Y}{\Delta T} + \frac{\Delta Y}{\Delta G}$

3.6

$\frac{\Delta Y}{\Delta T} = \frac{-c_1}{1-c_1} = \frac{-0.75}{1-0.75} = -3$

$\frac{\Delta Y}{\Delta G} = \frac{1}{1-c_1} = \frac{1}{0.25} = 4$

75

$\therefore$ BBM; $\frac{\Delta Y}{\Delta G} + \frac{\Delta Y}{\Delta T} = 4 - 3 = 1$

When government and tax increase equally by 1 the output will increase by 1. When T and G are increase equally by 50 the output will increase by 50

(4) $C = C_0 + C_1(Y-T) \qquad M = M_0 + M_1(Y)$

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

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

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

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

$$Y = \left(\frac{1}{1 - C_1 + M_1}\right)(C_0 - C_1 T + I + G + X - M_0)$$

4.1 $\dfrac{\Delta Y}{\Delta I} = \dfrac{1}{1 - C_1 + M_1}$

4.2 $\dfrac{\Delta Y}{\Delta G} = \dfrac{1}{1 - C_1 + M_1}$

4.3 $\dfrac{\Delta Y}{\Delta T} = \dfrac{-C_1}{1 - C_1 + M_1}$

4.4 $\dfrac{\Delta Y}{\Delta T} + \dfrac{\Delta Y}{\Delta G} = \dfrac{-C_1}{1 - C_1 + M_1} + \dfrac{1}{1 - C_1 + M_1} = \dfrac{1 - C_1}{1 - C_1 + M_1}$

(5) $Y = AE \qquad Y = C + I + G + X - M \qquad Yd = Y - T$

$Y = 200 + 0.7(Y - T) + 75 + 75 + 50 - 50 - 0.1Y$

$Y = 200 + 0.7(Y - 50) + 75 + 75 + \cancel{50} - \cancel{50} - 0.1Y$

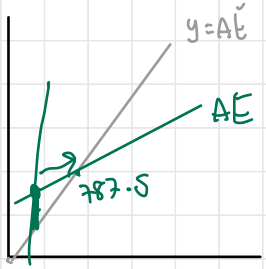
$Y = 200 + 0.7Y - 35 + 150 - 0.1Y$

$Y = 315 + 0.7Y - 0.1Y$

$Y - 0.6Y = 315$

$Y(1 - 0.6) = 315$

$Y = \frac{315}{0.4} = 787.5$



(5.1) Increase the production

(5.2) $\frac{\Delta Y}{\Delta I} = \frac{1}{1 - c_1 + m_1} = \frac{1}{1 - 0.7 + 0.1} = \frac{1}{0.4} = 2.5$

$\frac{\Delta Y}{\Delta G} = \frac{1}{1 - c_1 + m_1} = \frac{1}{1 - 0.7 + 0.1} = 2.5$

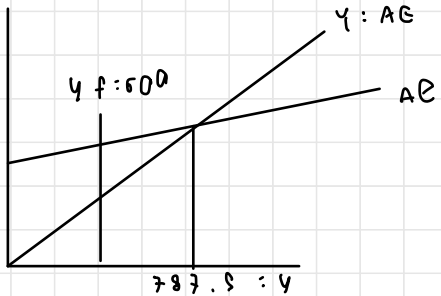
$\frac{\Delta Y}{\Delta t} = \frac{-c_1}{1 - c_1 + m_1} = \frac{-0.7}{1 - 0.7 + 0.1} = \frac{-0.7}{0.4} = -1.75$

$BBM = \frac{1 - c_1}{1 - c_1 + m_1} = \frac{1 - 0.7}{1 - 0.7 + 0.1} = \frac{0.3}{0.4} = 0.75$

(5.3) Our employment rate is more that full employment rate, so government need to increase tax and decrease government spending to make it reach the equilibrium.

(5.4) Inflationary gap

(5.5)



5.6 $\frac{\Delta Y}{\Delta G} : 2.5 \rightarrow \frac{-187.5}{\Delta T} = 2.5 \rightarrow \Delta G : -75$

5.7 $\frac{\Delta Y}{\Delta T} : -1.75 \rightarrow \frac{-187.5}{\Delta T} = 1.75 \rightarrow \Delta T \approx 107.14$

5.8 $\frac{\Delta Y}{\Delta I} : 2.5 \rightarrow \frac{-187.5}{\Delta I} : 2.5 \rightarrow \Delta I : -75$

5.9 $\frac{\Delta Y}{\Delta G} : 2.5 \quad \frac{\Delta Y}{\Delta T} : -1.75$

$\therefore BOM : \frac{\Delta Y}{\Delta G} + \frac{\Delta Y}{\Delta T} : 2.5 - 1.75 : 0.75$

6 when economic is bad, aggregate expenditure is low then tax and import is low. Mean that people will spend money domestically to boost the economic. when economic is good, aggregate expenditure is high. then import and tax will be large. Mean that people will spend money outside country to slow down economic.

7 7.1 $S = I$

$-200 + 0.5Y = 50$

$0.5Y = 250$

$Y = 500$

7.2 $S = -100 + 0.5Y$

$S = -100 + 0.5(500) = -100 + 250 = 150$

7.3 $S = -100 + 0.5Y$

$S = I$

$50 = -100 + 0.5Y$

$Y = 300$

7.4 $S = -100 + 0.5(300) = -100 + 150 = 50$

7.5 when we save more, our consumption will decrease. From one expenditure is other's income. You tend to have less income, so at the end you will save less.