6404641042
SARIYA J.

1. Answer the following questions.
   - 1.1 Suppose Govt Multiplier is 5 and $\Delta G = 5$. Find ΔY.
   - 1.2 Suppose Tax Multiplier is -3 and $\Delta Y = -9$. Find ΔT.
   - 1.3 Suppose $\Delta Y = 10$ and $\Delta I = 2$. Find Investment Multiplier.

1.1 Government Multiplier $= \frac{\Delta Y}{\Delta G} = 5$

- $\Delta G = 5$; $\frac{\Delta Y}{5} = 5$

$\therefore \Delta Y = 25$ #

1.2 Tax Multiplier $= \frac{\Delta Y}{\Delta T} = -3$

- $\Delta Y = -9$; $\frac{-9}{\Delta T} = -3$

$\therefore \Delta T = 3$ #

1.3 $\Delta Y = 10$, $\Delta I = 2$, find $\frac{\Delta Y}{\Delta I} = ?$

$\frac{\Delta Y}{\Delta I} = \frac{10}{2} = 5$ $\therefore$ Investment multiplier is 5 #

2. From $Y = C + I + G$ where $C = C_0 + C_1(Y - T)$, find
   - 2.1 Equilibrium Output Y*
   - 2.2 $\Delta Y/\Delta I$
   - 2.3 $\Delta Y/\Delta G$
   - 2.4 $\Delta Y/\Delta T$
   - 2.5 Balanced-Budget Multiplier (BBM)
   - 2.6 Explain what the BBM is.

2.1 $AE = C+I+G$

$Y = AE$ → equilibrium condition

$Y^* = C+I+G$

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

$Y^* = C_0+C_1Y-C_1T+I+G$

$Y - C_1Y = C_0 - C_1T + I + G$

$Y(1-C_1) = C_0 - C_1T + I + G$

$Y = \frac{C_0 - C_1T + I + G}{1 - C_1}$

2.2 $\frac{\Delta Y}{\Delta I} = \frac{1}{1 - \text{slope AE}}$

$AE = C+I+G$

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

$= C_0+C_1Y-C_1T+I+G$

$= (C_0 - C_1T + I + G) + C_1Y$ ↳ slope of AE

2.3 $\frac{\Delta Y}{\Delta G} = \frac{1}{1 - \text{slope AE}}$

$AE = C+I+G$

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

$= C_0+C_1Y-C_1T+I+G$

$= (C_0 - C_1T + I + G) + C_1Y$ ↳ slope of AE

2.4 $\frac{\Delta Y}{\Delta T} = \frac{-MPC}{1 - \text{slope AE}}$; T is leakage.

$AE = C+I+G$

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

$= C_0+C_1Y-C_1T+I+G$

$= (C_0 - C_1T + I + G) + C_1Y$ ↳ slope of AE

$\therefore \frac{\Delta Y}{\Delta T} = \frac{-MPC}{1 - \text{slope AE}}$

2.5 BBM

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

2.6 What is BBM ?

BBM is a Balance Budget Multiplier. Which is a change aggregate output when both G & T increase by 1 unit.

AE = C + I + G

3. Assume a closed economy with government. The country has the following components of aggregate expenditure.

C = 300 + 0.75(Yd) I = 50

G = 50 T = 50 (lump-sum tax)

↕ - vertical

↔ - horizontal

3.1 Use the Y = AE (standard) approach to find the equilibrium output.

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

$Y = C + I + G$

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

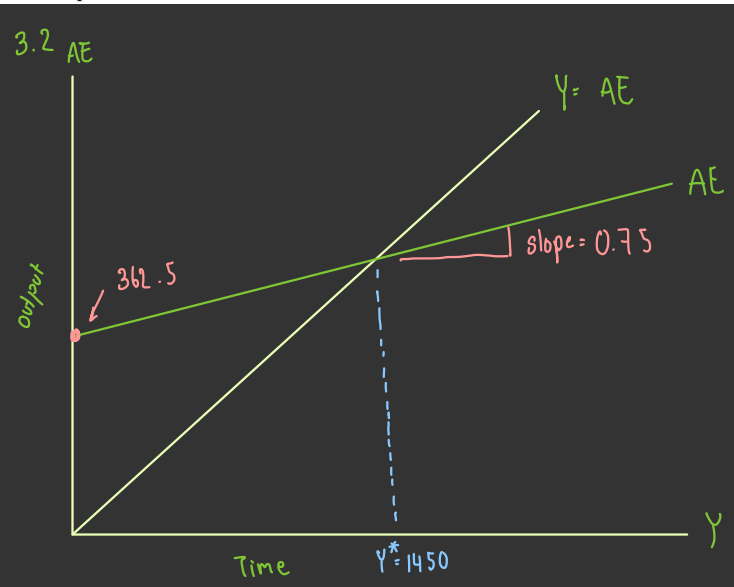
$Y = 300 + 0.75Y - 37.5 + 50 + 50$

$Y = 362.5 + 0.75Y$

$0.25Y = 362.5$

$\therefore Y^* = 1450$; $Y = 362.5 + 0.75Y$ (slope AE)

3.2 Draw the Keynesian Cross, and find the intercept on the vertical axis and the slope of the AE schedule.



3.3 Use the Leakage = Injection (or saving/investment) approach to find the equilibrium level of output.
(Hint: the equilibrium condition is S + T = I + G, with Yd = Y – T = C + S)

$S + T = I + G$ — ① (leakage = injection)

$Y - T = C + S$ — ② (Saving function)

$\rightarrow Y - C = S + T$

$Y - C = I + G$

$Y - C = 50 + 50$

$Y - C = 100$

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

$Y - [300 + 0.75(Y - 50)] = 100$

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

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

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

$0.25Y = 362.5$

$\therefore Y^* = 1450$ #

3.4 Draw the saving/investment curve to show the equilibrium.

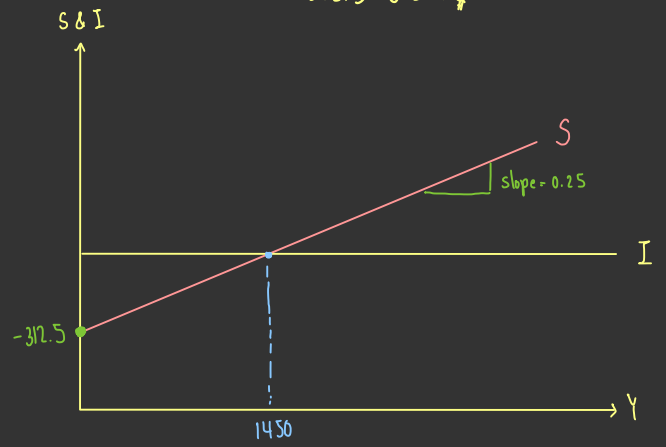
saving function = $Yd = C + S$ to find Intercept

$Y - T = C + S$

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

$S = -300 - 0.75Y + 37.5 + Y - 50$

$S = -312.5 + 0.25Y$ #



3.5 Suppose that the government decides to build more roads, raising government spending by 50 units, but this project is to be financed by the increase in net taxes of 50 units. Use the Y = AE (standard) approach to find the new equilibrium output.

↑G 50 → ↑T = 50

→ G = 50 + 50 = 100 , T = 50 + 50 = 100

$Y = AE$

$Y = C + I + G$

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

$Y = 300 + 0.75Y - 75 + 150$

$Y = 325 + 0.75Y$

$\therefore Y = 1500$ #

3.6 Use the Balanced-Budget Multiplier (BBM) derived from Question 2.5 to find the new equilibrium output.

$BBM = \frac{\Delta Y^*}{\Delta G_0}_{=50} + \frac{\Delta Y^*}{\Delta T_0}_{=50} = \frac{1 - C_1}{1 - C_1} = 1$ (when sum $\frac{\Delta Y}{\Delta G}$ with $\frac{\Delta Y}{\Delta T}$, will know how Y change).

∴ If G spending and lum-sum tax increase by 1, then income will increase 1.

∴ Therefore, in order to build more road, G increase their spending by 50, and lum-sum tax increase by 50. So the Equilibrium output will increase 50. ∴ old $Y^* + 50 = 1450 + 50 = 1500$ #

4. From Y = C + I + G + (X – M)
where C = $C_0 + C_1(Y - T)$ and M = $M_0 + M_1(Y)$, find

4.1 Equilibrium Output Y*

4.2 ΔY/ΔI

4.3 ΔY/ΔG

4.4 ΔY/ΔT

4.5 Balanced-Budget Multiplier (BBM)

4.1 $Y = C_0 + C_1(Y-T) + I + G + (X - M_0 - M_1(Y))$

$Y = C_0 + C_1Y - C_1T + I + G + X - M_0 - M_1Y$

$Y - C_1Y + M_1Y = C_0 - C_1T + I + G + X - M_0$

$Y(1 - C_1 + M_1) = C_0 - C_1T + I + G + X - M_0$

$Y = \frac{C_0 - C_1T + I + G + X - M_0}{(1 - C_1 + M_1)}$

4.2: $\frac{\Delta Y}{\Delta I} = \frac{1}{1 - \text{Slope AE}}$

Slope AE = $C_1 - M_1$

4.3 $\frac{\Delta Y}{\Delta G} = \frac{1}{1 - \text{Slope AE}}$ ← $C_1 - M_1$

4.4 $\frac{\Delta Y}{\Delta T} = \frac{-MPC}{1 - \text{Slope AE}}$ ← $C_1 - M_1$

4.5 Balanced-Budget Multiplier (BBM) = $\frac{\Delta Y^*}{\Delta G} + \frac{\Delta Y^*}{\Delta T} = \frac{1 - C_1}{1 - C_1}$

5. Assume an open economy with government. The country has the following components of aggregate expenditure.

C = 200 + 0.7(Yd) (MPC) I = 75 G = 75

T = 50 X = 50 M = 50 + 0.1Y (MPM)

5.1 Use the Y = AE approach to find the equilibrium. Is Y = 300 an equilibrium? If it is not, explain the adjustment process towards equilibrium.

5.2 Based on what you have derived in Question 4, calculate the investment, government spending, tax, and balanced-budget multipliers.

5.3 Interpret the value of each of the multipliers.

Suppose that the full-employment output (Y_F) is 600;

5.4 What type of output gap is the economy currently experiencing?

5.5 Draw the Keynesian Cross. Identify its slope and intercept. Also, illustrate the output gap.

Now, government wants to correct the output gap by moving the economy to the full-employment level, and is considering different policies. reduce output. $\Delta Y^* = -137.5$

(Hint: use the multipliers from Question 5.2 to answer the following questions)

$\frac{\Delta Y^*}{\Delta I} = 2.5$

$\frac{\Delta Y^*}{\Delta G} = 2.5$

$\frac{\Delta Y^*}{\Delta T} = -1.75$

BBM = 0.75

5.6 If the government wants to adjust **only its spending (G)**, how much G should be changed? $\frac{\Delta Y^*}{\Delta G} = 2.5$, $\Delta G = \frac{\Delta Y^*}{2.5} = \frac{-137.5}{2.5} = -75$ — Ans in (-) bc. We want to reduce output

5.7 If the government wants to adjust **only its net taxes (T)**, how much T should be changed? $\frac{\Delta Y^*}{\Delta T} = -1.75$, $\Delta T = \frac{-137.5}{-1.75} = 107.142$

5.8 If the government wants to boost **only investment (I)**, how much I should be changed? $\frac{\Delta Y^*}{\Delta I} = 2.5$, $\Delta I = \frac{-137.5}{2.5} = -75$

5.9 If the government wants to implement a balanced-budget policy, what should the government do with G and T?

BBM

$\frac{\Delta Y^*}{\Delta G} + \frac{\Delta Y^*}{\Delta T} = 2.5 - 1.75 = 0.75$; $\Delta G + \Delta T = \frac{\Delta Y^*}{0.75} = \frac{-137.5}{0.75} = -250$ (Both G & T decrease 250)

6. Explain the role of Import as an automatic stabilizer. If the government wants to further stabilize the economy, is there anything that the government can do with its tax system? Explain.

7. Let S = -200 + 0.5Y and I = 50, be the saving function and investment.

7.1 Use the saving/investment approach to find the equilibrium output.

7.2 Find the equilibrium saving. (Hint: substitute Y* into S)

Suppose people decide to save more, increasing autonomous saving by 100.

7.3 Use the saving/investment approach to find the new equilibrium output.

7.4 Find the new equilibrium saving. (Hint: substitute new Y* into S)

7.5 Comment on your result.

7.1 leakage : injection

saving = investment

$-200+0.5Y = 50$

$0.5Y = 250$

$Y^* = 500$

7.2 Equilibrium of saving

Saving = $-200+0.5Y$

$= -200+250$

$S^* = 50$ #

7.3 find new Equilibrium output

↑S 100 = new saving

new saving = $-200+0.5Y+100$

$= -100+0.5Y$

∴ S = I

$100+0.5Y = 50$

$0.5Y = 150$

$Y^* = 300$

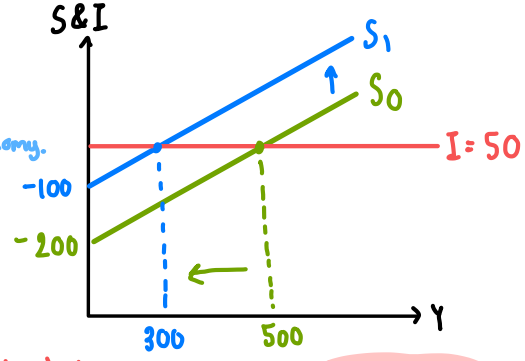
7.4 Find new equilibrium saving.

Saving = $-100+0.5Y$

$= -100+150$

$S^* = 50$ #

7.5



due to less money change hand in economy.

less income to people

Paradox of Thrift

: People save more → Economy slow down

People save more by 100 ($S_0 \rightarrow S_1$) → Output decrease by 200 (500 → 300)