Exercise 3
Keynesian Cross and the Multiplier

1. The Keynesian consumption function assumes that 0 < MPC < 1; what is the basis for such assumption?

MPC

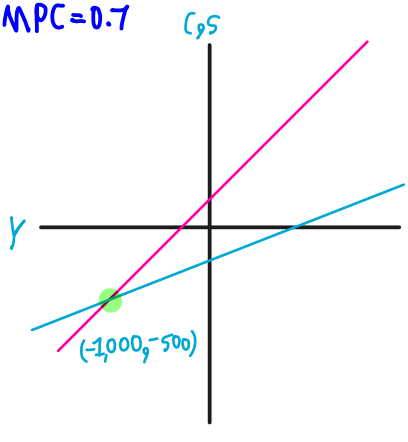
Consumption function → $C = C_0 + C_1Y$

MPC = proportion of income that we use to consume

2. Assume a CLOSED economy with NO government. Let the autonomous consumption (C_0) be 200 and MPS be 0.3. Draw and write equations for both saving and consumption functions.

From income = saving + consumption

(50) MPS + MPC = 1 → 0.3 + MPC = 1 ∴ MPC = 0.7



Consumption

$C = C_0 + C_1Y$

$C = 200 + C_1Y$

$C = 200 + 0.7Y$

saving

$Y = S + C \rightarrow S = Y - C$

$S = Y - (200 + 0.7Y)$

$S = -200 + 0.3Y$

3. Let the saving function be S = -150 + 0.35Y. Find and draw the consumption function.

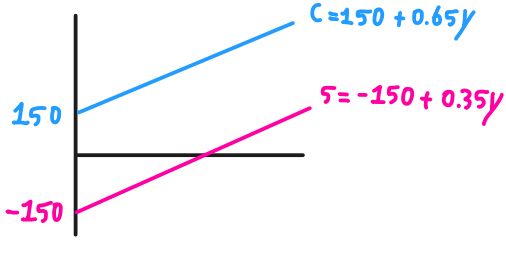
$S = -150 + 0.35Y$

$S = S - C$

$C = Y - S$

$C = Y + 150 - 0.35Y$

$C = 150 + 0.65Y$

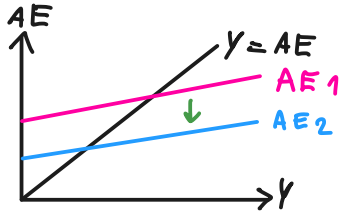


4. How do the followings affect the AE graph (i.e. explain how the graph changes) and the equilibrium output?

- All firm managers decide to buy fewer machines.
- The government decides to build more roads.
- The citizens decide to save more at all income levels.
- The citizens decide to save larger proportion of income.
- The government decides to raise tax.

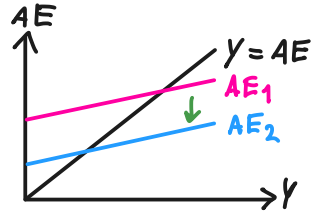
-FEWER MACHINES

I↓ AE↓



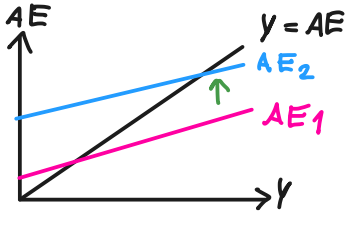
- SAVE MORE @ ALL INCOME LEVEL

C=A+BY AE↓



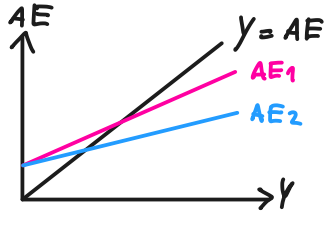
- BUILD MORE ROADS

Y↑ AE↑



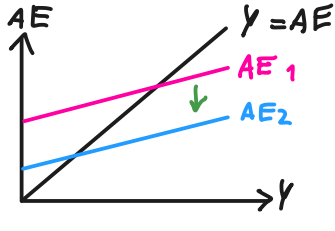
- SAVE LARGER PRO. OF INCOME

C=A+BY AE SLOPE↓

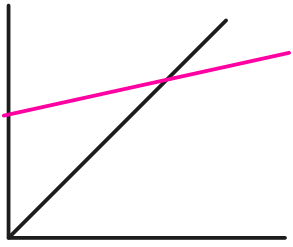


-RAISE TAX

T↑ C↓ AE↓



5. In the Keynesian Cross Model, suppose that aggregate output is greater than aggregate expenditure. Explain the adjustment process towards the equilibrium.



When aggregate output is higher than aggregate expenditure, it means that firm produces more than ppl want. So, firm has to cut their production.

6. Let C = 60 + 0.6Y and I = 20. Find the equilibrium output with the saving/investment approach.

$S = I$; leakage = injection

$S = Y - C$

$= Y - (60 + 0.6Y)$

$= 0.4Y - 60$

$S = I$

$0.4Y - 60 = 20$

$0.4Y = 80$

$Y^* = 200$

7. Let S = -60 + 0.4Y and I = 20. Find the equilibrium output with the standard approach. Now, suppose I increases by 20. Find the new equilibrium and the investment multiplier.

$Y = AE = C + I$

$C = Y - S$

$C = Y + 60 - 0.4Y$

$C = 0.6Y + 60$

$I \uparrow 20$; $Y = 0.6Y + 60 + 40$

$0.4Y = 100$

$Y^* = 250$

$\Delta Y = 50$

$\Delta I = 20$

$\frac{\Delta Y}{\Delta I} = \frac{50}{20} = 2.5$

8. With the multiplier effect, an injection of money (for example, investment) can lead to a greater proportional increase in output. Explain how this can happen.

$I \uparrow$, $AE \uparrow$, $Y \uparrow$

MPC = 0.8

100 (C) 5

80 20

64 12

$I = MPC + MPS$

Trickle down effect

"income pass on one person to another"

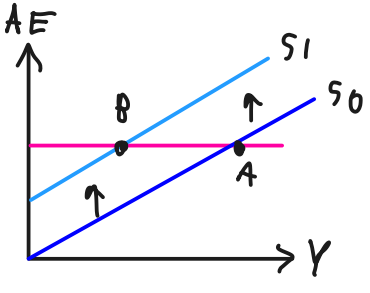
9. How is the investment multiplier related to MPC? Explain the intuition behind such relationship. (Hint: Question 9)

investment $M = \frac{1}{1 - MPC}$

$MPC = 0.5$; $M = \frac{1}{1 - 0.5} = 2$

$MPC = 0.8$; $M = \frac{1}{1 - 0.8} = 5$

10. What is the Paradox of Thrift? Explain it with diagram.



S↑ → AE↓ Y↓ → S↓