Exercise 3

Keynesian Cross and the Multiplier

1. The Keynesian consumption function assumes that 0 < MPC < 1; what is the basis for such assumption?
2. Assume a CLOSED economy with NO government. Let the autonomous consumption be 200 and MPS be 0.3. Draw and write equations for both saving and consumption functions.
3. Let the saving function be S = -150 + 0.35Y. Find and draw the consumption function.
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.

5. In the Keynesian Cross Model, suppose that aggregate output is greater than aggregate expenditure. Explain the adjustment process towards the equilibrium.
6. Let C = 60 + 0.6Y and I = 20. Find the equilibrium output with the saving/investment approach.
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.
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.
9. How is the investment multiplier related to MPC? Explain the intuition behind such relationship. (Hint: Question 9)
10. What is the Paradox of Thrift? Explain it with diagram.

Ans

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

The Keynesian theory of consumption has a theory that men are disposed, as a rule on average, to increase their consumption as their income increase, but not by as much as the increase in their income.

as a reflection → $0 < MPC\ (Slope) < 1$

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

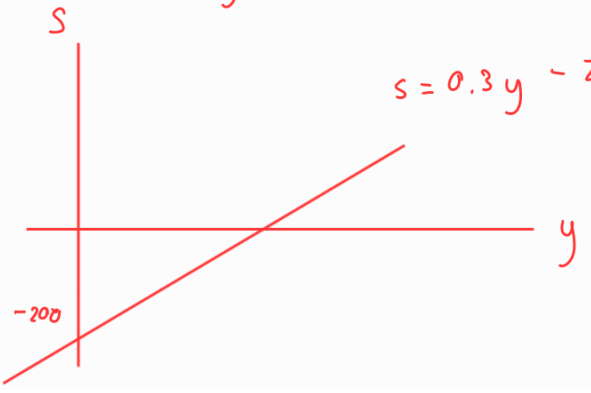
$a = 200$ $MPS = 0.3$ → $MPS + MPC = 1$

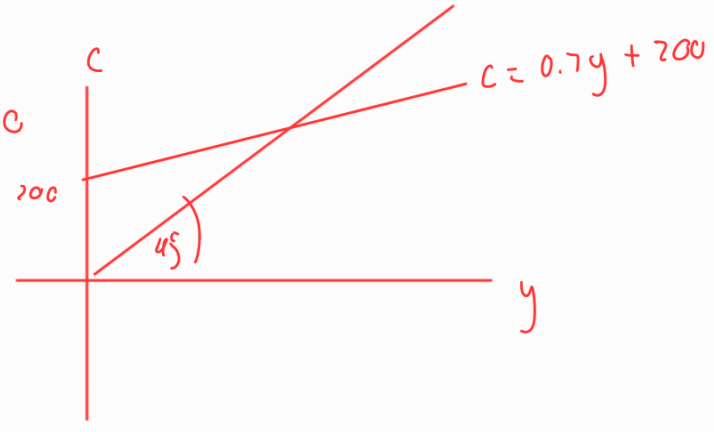
$MPC = 0.7$

$S \equiv Y - C$

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

$S = 0.3y - 200$





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

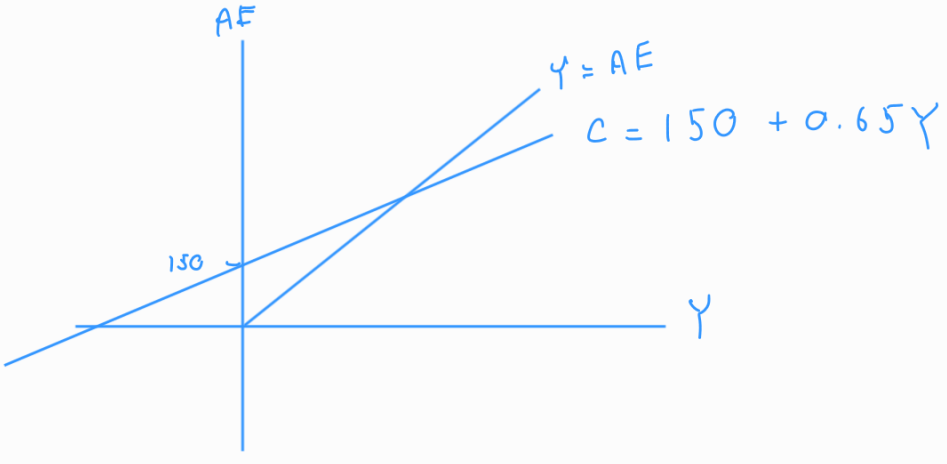
$MPS = 0.35$

$MPC = 1 - 0.35 = 0.65$

$S \equiv Y - C$

$C \equiv Y - S$

$AE = Y - (-150 + 0.35Y) = 0.65Y + 150$



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

1 - All firm managers decide to buy fewer machines.

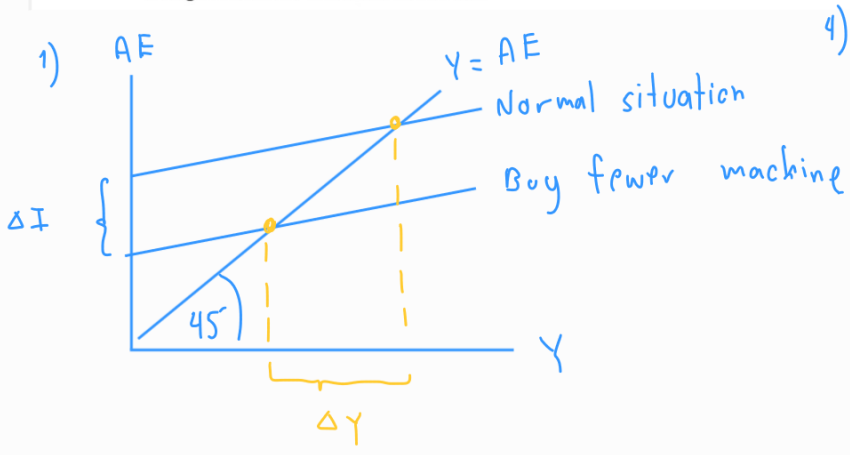
2 - The government decides to build more roads.

3 - The citizens decide to save more at all income levels. → Save more from income → consum less from income change in aff to con.

4 - The citizens decide to save larger proportion of income. MPS↑ MPC ↓ → AE ↓ → Y^* ↓

5 - The government decides to raise tax.

1)



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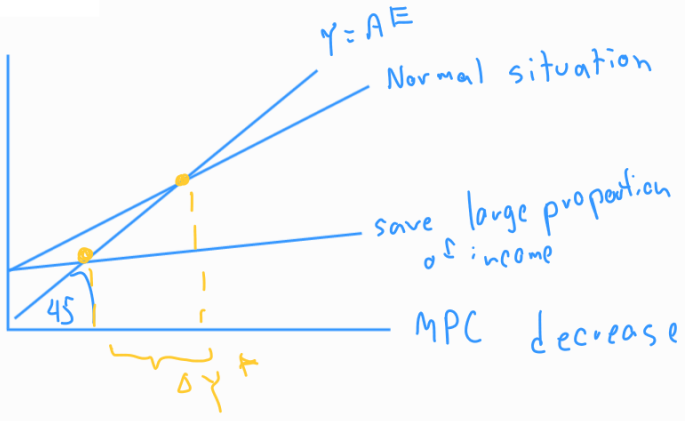

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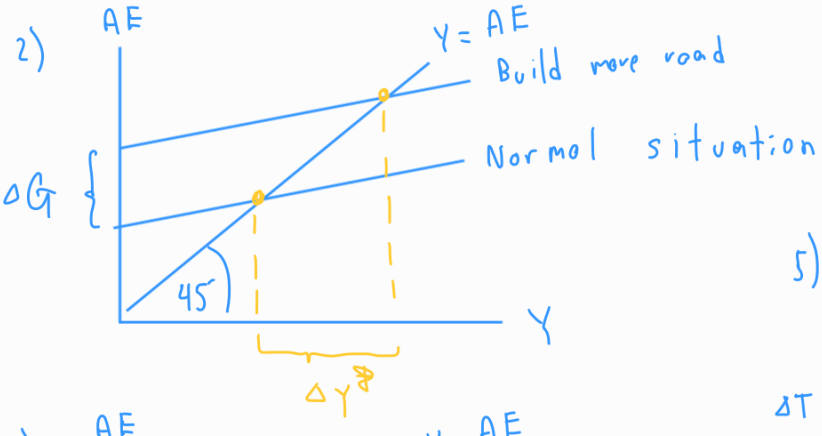

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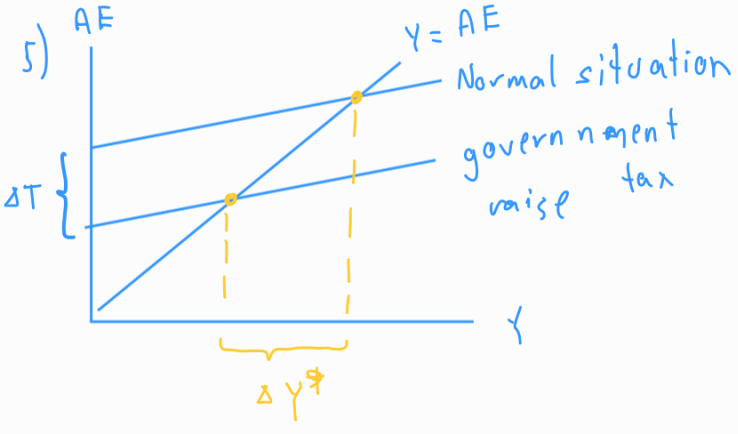

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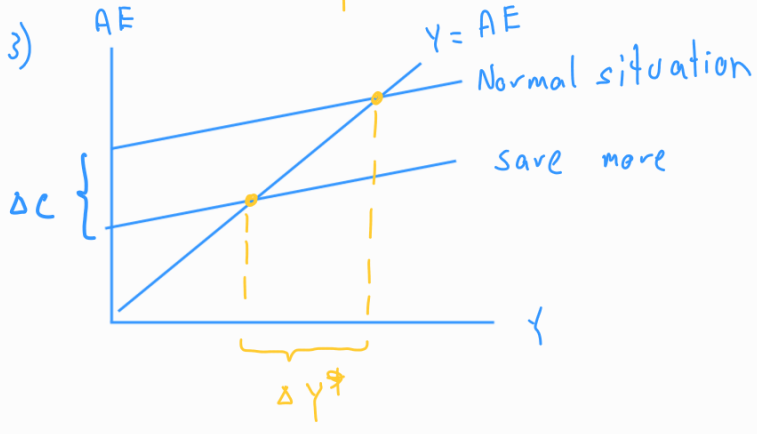


5. In the Keynesian Cross Model, suppose that aggregate output is greater than aggregate expenditure. Explain the adjustment process towards the equilibrium.

$Y > AE$

If current output exceeds the equilibrium, inventories (unsold output) accumulatate, encouraging businesses to cut back on production, moving the economy towards equilibrium.

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

$S = -60 + 0.4Y$

$AE = C + I$

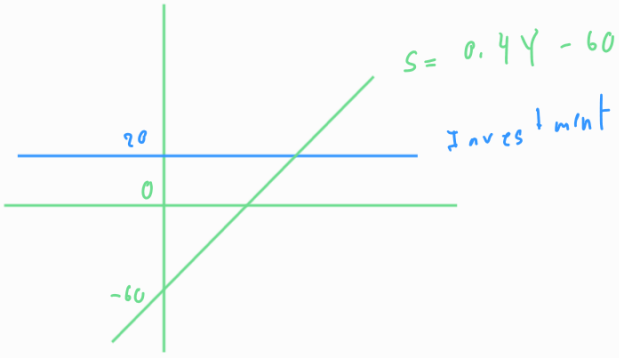
$AE = 60 + 0.6Y + 20$

$AE = 80 + 0.6Y$

$Y^* = 80 + 0.6Y^*$

$0.4Y^* = 80$

$Y^* = 80 \cdot \frac{1}{0.4} = 200$



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.

$S = -60 + 0.4Y$

$20 = -60 + 0.4Y^*$

$80 = 0.4Y^*$

$Y^* = 200$

If $I + 20 = 40$

$40 = -60 + 0.4Y^*$

$100 = 0.4Y^*$

$Y^* = 250$

$S = I$

$\text{multiplier} = \frac{\Delta Y^*}{\Delta I}$

$= \frac{250 - 200}{40 - 20}$

$= \frac{50}{20} = 2.5$

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.

$\frac{\Delta Y^*}{\Delta I} = \frac{\Delta Y^*}{1 - MPC}$

MPC is large, the multiplier is large, the multiplier is large

This means when investment increase, the out put will increase a lot.

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

Investment multiplier related to MPC by this equation

$\frac{\Delta Y^*}{\Delta I} = \frac{\Delta Y^*}{1 - MPC}$

The intuition behind this relationship is that

1) When people spend alot of money (high MPC), others will receive a lot of money as their incomes.
2) They will spend a lot too, and many will receive a lot too.
3) The economy will grow a lot.

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

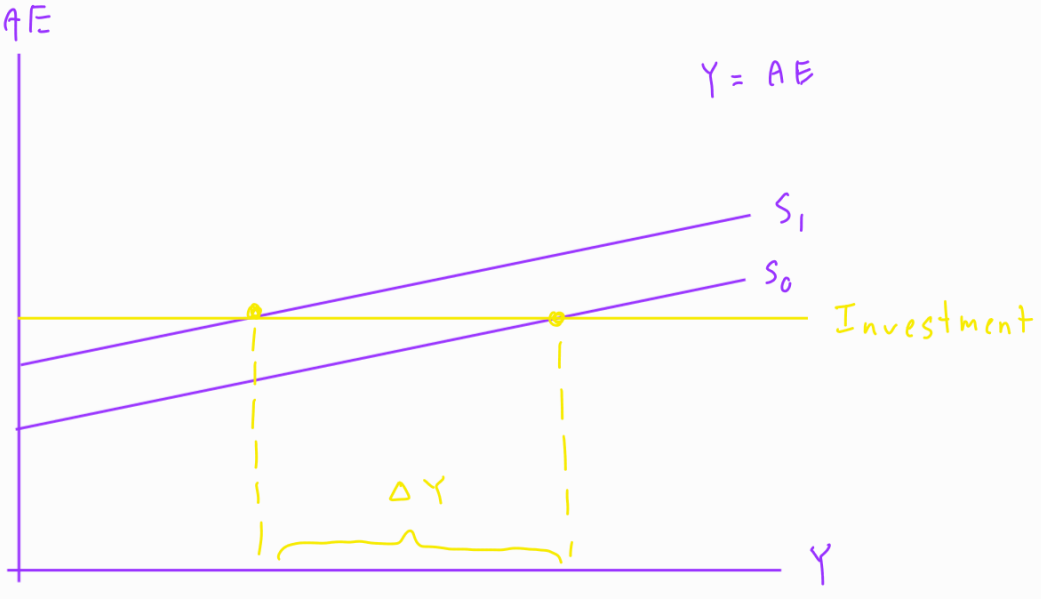
The is the process how the paradox of Thrift begin.

paradox

Suppose people save more → there will be leakages → less Gands produced in economy → you can save less
→ people will spend less → incomes in the economy fall

∴ increase in autonomous saving leading to decreasing in aggregate expenditure, and thus a decrease in aggregate output.

∵ People have less income (= output), the saving their making become smaller



Paradox thrift