UNIT 8

DETERMINATIONS OF INCOME & EMPLOYMENT

POINTS TO REMEMBER

- Aggregate demand refers to total demand for goods and services in the economy. AD represents the total expenditure on goods and services in an economy.
- Main components of Aggregate demand are :
  - (i) Household consumption expenditure (C).
  - (ii) Investment expenditure (I).
  - (iii) Govt. consumption expenditure (G).
  - (iv) Net export (X – M).

  In two sector economy AD = C + I.
- Aggregate supply is the total supply of goods and services in the economy. It is also the value of total output available is an economy during a given period of time.

  AS = C + S
- Aggregate supply represents the national income of the country.

  AS = Y (National Income)
- Consumption function shows functional relationship between consumption and Income.

  C = F(Y)

  where C = Consumption

  Y = National Income

  F = Functional relationship.

- Consumption function (propensity to consume) is of two types.
  - (a) Average propensity to consume (APC)
  - (b) Marginal propensity to consume (MPC)
- Average propensity to Consume (APC) : Average propensity to consume refers to the ratio of consumption expenditure to the corresponding level of income.

$$APC = \frac{\text{Consumption(C)}}{\text{Income(Y)}}$$

Important Points about APC

(i) **APC is more than 1 :** as long as consumption is more than national income before the break-even point, APC > 1.

(ii) **APC = 1,** at the break-even point, consumption is equal to national income.

(iii) **APC is less than 1 :** beyond the break-even point. Consumption is less than national income.

(iv) APC falls with increase in income.

(v) **APC can never be zero :** because even at zero level of national income, there is autonomous consumption.

- **Marginal Propensity to Consume (MPC) :** Marginal propensity to consume refers to the ratio of change in consumption expenditure to change in total income.

$$MPC = \frac{\text{Change in consumption } \Delta C}{\text{Change in Income } \Delta Y}$$

Important Points about MPC

(1) Value of MPC varies between O and 1 : If the entire additional income is consumed, then $\Delta C = \Delta Y$, making MPC = 1. However, if entire additional income is saved, then $\Delta C = 0$, making MPC = 0

- Saving function refers to the functional relationship between saving and national income.

$$S = f(y)$$

where S = saving

Y = National Income

F = Functional relationship

- Saving function (Propensity to Save) is of two types.
  - (i) Average Propensity to Save (APS)
  - (ii) Marginal propensity to Save (MPS)
- Average Propensity to Save (APS) : Average propensity to save refers to the ratio of savings to the corresponding level of income.

$$APS = \frac{Savings(S)}{Income(Y)}$$

- **Important Point about APS**
  - (1) **APS can never be 1 or more than 1 :** As saving can never be equal to or more than income.
  - (2) APS can be zero : At break even point C = Y, hence S = 0
  - (3) **APS can be negative or less than 1 :** At income levels which are lower than the break-even point, APS can be negative as there will be dissavings in the economy.
  - (4) APS rises with increase in income.
- **Marginal Propensity to Save (MPS) :** Marginal propensity to save refers to the ratio of change in savings to change in total income.

$$MPS = \frac{\text{Change in Savings } \Delta C}{\text{Change in Income } \Delta Y}$$

- **MPS varies between 0 and 1**
  - (i) MPS = 1 if the entire additional income is saved. In such a case, $\Delta S = \Delta Y$.
  - (ii) MPS = 0 If the entire additional income is consumed. In such a case, $\Delta S = 0$
- **Relationship between APC and APS**

The sum of APC and APS is equal to one. It can be proved as under we know :

$$Y = C + S$$

Dividing both sides by Y, we get

APC + APS = 1

because income is either used for consumption or for saving.

- **Relationship between MPC and MPS**

The sum of MPC and MPS is equal to one. It can be proved as under :

We know

$$\Delta Y = \Delta C + \Delta S$$

Dividing both sides by ΔY, we get

$$\frac{\Delta Y}{\Delta Y} = \frac{\Delta C}{\Delta Y} + \frac{\Delta S}{\Delta Y}$$

$$1 = MPC + MPS$$

MPC + MPS = 1 because total increment in income is either used for consumption or for saving.

$\because \frac{\Delta C}{\Delta Y}$ = MPC, $\frac{\Delta S}{\Delta Y}$ = MPS

$1 = APC + APS$

$APC = \frac{C}{Y}$

$APS = \frac{S}{Y}$

- Investment refers to the expenditure incurred on creation of new capital assets.
- The investment expenditure is classified under two heads :

  (i) Induced investment (ii) Autonomous investment.

- **Induced Investment :** Induced investment refers to the investment which depends on the profit expectations and is directly influenced by income level.
- **Autonomous Investment :** Autonomous investment refers to the investment which is not affected by changes in the Level of income and is not induced solely by profit motive.
- **Marginal Efficiency of Investment (MEI) :** MEI refers to the expected rate of return from an additional investment.
- **Ex-Ante Savings :** Ex-ante saving refers to amount of savings which household intended to save at different levels of income in the economy.

- **Ex-Ante Investment :** Ex-ante investments refers to amount of investment which firm plan to invest at different level of income in the economy.
- **Ex-Post Saving :** Ex-post savings refer to the actual or realised savings in an economy during a financial year.
- **Ex-Post Investment :** Ex-post investment refers to the actual or realised investment in an economy during a financial year.
- Equilibrium level of income is determined only at the point where AD = AS or S = I. But it cannot always be at full employment level also as it can be at less than full employment.
- Full employment is a situation when all those who are able and willing to work at prevailing wage rate, get the opportunity to work.
- Voluntary unemployment is a situation where person is able to work but not willing to work at prevailing wage rate.
- Involuntary unemployment is a situation where worker is able to willing to work at current wage rate but does not get work.
- Under employment is a situation where AD is less than required AS at full employment level.
- Investment multiplier (K) is the ratio of increase in income (ΔY) due to change in investment ΔI.

$$K = \frac{\Delta Y}{\Delta I}$$

$$K = \frac{1}{1-MPC} \text{ or } K = \frac{1}{MPS}$$

- Excess demand refers to the situations when aggregate demand is in excess of aggregate supply corresponding to full employment.
- Deficient demand refers to a situation when aggregate demand is short of aggregate supply corresponding to full employment.
- Inflationary gap is the gap by which actual aggregate demand exceeds the level of aggregate demand required to establish full employment. It measures the amount of excess of aggregate demand.
- Deflationary gap is the gap by which actual aggregate demand is less than the level of aggregate demand required to establish full employment. It measures the amount of deficiency of aggregate demand.

1 MARK QUESTIONS

1. Define aggregate demand.
2. Define aggregate supply.
3. What is meant by Ex-Post investment?
4. What is meant by average propensity to consume?
5. Define marginal propensity to consume.
6. What is autonomous consumption?
7. What is Ex-ante aggregate demand?
8. Can the value of APC be greater than one?
9. Can APC be ever zero?
10. What is the relationship between APC and APS?
11. If APS is 0.6, how much will be the APC?
12. What is meant by Ex-ante saving?
13. If MPC and MPS are equal, what is the value of the multiplier?
14. What can be the minimum value of investment multiplier?
15. What can be the maximum value of multiplier?
16. Can average propensity to consume be negative?
17. What do you mean by investment multiplier?
18. What will be the impact of increase in cash reserve ratio on the aggregate demand?
19. What is investment?
20. Why can the value of marginal propensity to consume not be greater than one?

H.O.T.S.

21. What is the impact of deficient demand on production and employment?
22. Define inflationary gap.
23. Under which situation is consumption function represented by a straight line.

24. What is the impact of continuous increase in income on average propensity to consume?

25. How much additional income will be generated in an economy with additional investment of Rs. 100 crore, when MPC = 1/2?

SHORT ANSWER TYPE QUESTIONS (3-4 MARKS)

1. Define aggregate demand. State its components.

2. Distinguish between average propensity to consume and marginal propensity to consume with the help of numerical examples.

3. Savings and investment are always equal discuss.

4. What is meant by investment multiplier? Explain the relationship between MPC and K?

5. State briefly the effect of excess demand on output, employment and price.

6. Explain the concept of inflationary gap with the help of a diagram?

7. Explain the situation of deficient demand in an economy with the help of a diagram.

8. State briefly any three measures to control excess demand in an economy.

❑ Find consumption expenditure if – autonomous consumption = Rs. 100 marginal propensity to consume = 0.70 national income = Rs. 1000

9. What is monetary policy? Explain the role of (i) Bank rate and (ii) Margin requirements in influencing the availability of credit in an economy.

10. Give the meaning of excess demand? Explain any two fiscal measures to current excess demand.

11. What is fiscal policy? What possible fiscal measures can be taken with respect to deficient demand in an economy?

12. What do you mean by full employment equilibrium? Explain with the help of diagram.

13. Explain with the help of diagram the concept of under-employment equilibrium.

14. Distinguish between induced investment and autonomous investment?

15. Explain the concept of consumption function.

16. Briefly explain the relationship between MPC and MPS.

17. Giving reasons, state whether the following statements are true or false :

    (i) When marginal propensity to consume is zero, the value of investment multiplier will also be zero.

    (ii) Value of average propensity to save can never be less than zero.

18. If national income is 50 crore and saving Rs. 5 crore, find out APC. When income rises to Rs. 60 crore and saving to Rs. 9 crore. What will be the APC and MPS.

19. An economy is in equilibrium. Its national income is Rs. 5000 and autonomous consumption expenditure is Rs. 500. What is the total consumption expenditure if MPC is 0.7?

20. Complete the following table :

Level of Income	*Savings*	*MPC*	*APC*	*APS*
0	– (80)	–	–	–
100	–	0.7	–	–
200	–	0.7	–	–
300	–	0.7	–	–
400	–	0.7	–	–

21. Given marginal propensity to save equal to 0.25, what will be the increase in national income if investment increases by Rs. 125 crore. Calculate multiplier.

22. Find out equilibrium level of income, when S = –40 + 0.25 Y and investment is Rs. 60.

23. Can an economy be is equilibrium when there is unemployment in the economy? Explain.

24. How does change in bank rate controls the situations of excess and deficient demand?

25. Briefly explain with the help of diagram the relationship between savings and income?

H.O.T.S.

26. Does an excess of AD over AS always imply a situation of inflationary gap? Explain.

27. What happens if AD > AS prior to the full employment level of output?

28. Find saving function when consumption function is given as :

    $C = 100 + 0.6Y$.

29. In a two sector economy, the saving function is given as :

    $S = -10 + 0.2Y$

    and investment function is expressed as

    $I = -3 + 0.1Y$.

    Calculate the equilibrium level of income?

30. State whether the following statement are true or false. Give reasons for your answer

    (a) When investment multiplier is 1, the value of MPC is zero.

    (b) The value of average propensity to save can never be greater than 1.

31. Giving reasons, state whether the following statements are true or false :

    (i) When marginal propensity to consume is zero, the value of investment multiplier will also be zero.

    (ii) Value of average propensity to save can never be less than zero.

32. Find national income from the following : autonomous consumption = Rs. 100 marginal propensity to consume = 0.80 investment = Rs. 50

LONG ANSWER TYPE QUESTIONS (6 MARKS)

1. Why must aggregate demand be equal to aggregate supply at the equilibrium level of income and output? Explain with the help of a diagram?

2. Explain the equilibrium level of income with the help of saving and investment curves. If saving exceed planned investment, what changes will bring about the equality between them?

3. Explain the working of multiplier with the help of a numerical example.

4. When planned investment is more than planned savings, what will be its impact on income and employment. Explain with the help of diagram.

5. What do you mean by Fiscal Policy? How it helps in controlling excess demand?

6. Can there be equilibrium in case of underemployment. Explain with the help of a diagram?

7. How quantitative and qualitative instruments of Govt. monetary policy controls deficient demand?

8. Distinguish between inflationary gap and deflationary gap. Show deflationary gap on a diagram. Can this gap exist at equilibrium level of income? Explain.

9. In an economy S = –50 + 0.5Y is the saving function (where S = saving and Y = national income) and investment expenditure is 7000. Calculate.

   (i) Equilibrium level of national income

   (ii) Consumption expenditure at equilibrium level of national income.

10. C = 100 + 0.75y is a consumption function where C = consumption expenditure and Y = national income and investment expenditure is 800. On the basis of this information calculate.

    (i) Equilibrium level of national income.

    (ii) Saving at equilibrium level of national income.

11. Given below is the consumption function in an economy.

    C = 100 + 0.5Y

    with the help of a numerical example show that in this economy, as income increase APC will decrease.

HOTS (6 MARKS QUESTIONS)

12. Draw on a diagram a straight line saving line curve for an economy. From it derive the consumption curve, explaining the method of derivation. Show a point on the consumption curve at which APC is equal to 1.

13. How increase in investment will effect income level of an economy? Explain with the help of an example and diagram.

14. Briefly explain the concept of under employment equilibrium with the help of diagram. How increase in investment helps in achieving, full employment equilibrium?

15. What is 'deficient demand' in macroeconomics? Explain the role of open market operations in correcting it.

16. Explain the step taken in derivation of the saving curve from the consumption curve use. Use diagram.

ANSWERS

1 MARK QUESTIONS

1. Aggregate demand refers to total demand for goods & services in an economy, measured in terms of total expenditure.
2. Aggregate supply is the money value of the final goods and services or national product produced in an economy during one year.
3. Ex-post investment refers to the actual or realised investment in an economy during a financial year.
4. Average propensity to consume is the ratios of consumption expenditure to income.

$$APC = \frac{C}{Y}$$

5. Marginal propensity to consume is the ratio of change in consumption to change in income. $\frac{\Delta C}{\Delta Y}$

MPS =

6. Autonomous consumption refers to minimum level of consumption, even when income is zero.
7. Estimated demand of goods and service in an economy during a financial year.
8. Yes, the value of APC > 1 before the break-even point is attained.
9. APC can never be equal to zero as consumption can never be zero at any level of income.
10. The sum of APC and APS is equal to one.

$$APC + APS = 1$$

11. $APC = 1 - APS = 1 - 0.6 = 0.4$
12. Exante-saving refers to amount of saving which household intended to save at different level of income in an economy.

13. We know that

MPS + MPC = 1

MPS + MPC = 1 Give that MPS = MPC

MPS = $\frac{1}{2}$

$K = \frac{1}{MPS} = \frac{1}{1/2} = \frac{1}{1-\frac{1}{2}} = \frac{1}{0.5} = 2$

K = 2

14. The minimum value of K = 1, when MPC = O

15. The maximum value of k = ∞ when MPC = 1

16. No, because consumption can never be zero even at zero level of income.

17. Investment multiplier measures the ratio of change in investment and change in income.

18. Aggregate demand will fall.

19. Investment is an addition to capital stock. It is also called capital formation.

20. It is because change in consumption cannot be greater than change in income.

21. Production and employment will decrease due to shortage of aggregate demand.

22. Inflationary gap refers the situation under which AD is excess than required AS at full employment equilibrium.

23. When marginal propensity to consume remains constant.

24. APC falls with continuous increase in income.

25.

and $\Delta Y = K \cdot \Delta I$

= 2 x 100

= 200 Crore.

HINTS

3-4 MARKS QUESTIONS

18. (i) 200 Crore (ii) 400 Crore

19. (i) ΔI = 7000 Crore. (ii) ΔC = 6300 Crore.

20. APC = –, 1.5, 1.1, 0.96, 0.9
    APS = –, (–), .5, (–) 0.1, .033, .1
    S = –80, –50, –20, 10, 40

21. K = 4
    ΔY = 4 x 125
    = 500 Crore.

22. Rs. 400

29. Rs. 70

6 MARKS QUESTIONS

9. (i) National income (Y) = 14100
   (ii) Consumption expenditure (C) = 7100

10. (i) Equilibrium National Income (Y) = 3600
    (ii) Saving = 800