

Unit 8

Consumption, Saving and Investment

8.1 CONSUMPTION

- *Consumption may be defined as the expenditure by households on final goods and services.*
- The main elements of household consumption are expenditures on food, housing, clothing, transportation, medical care, etc.
- consumption is a part of income and directly depends upon income itself. However, we must note that consumption is necessary for survival and thus takes place even if income is zero.

- There are two categories of consumption:
- **Consumption when income is zero – i.e.,** when a minimum level of consumption must be maintained for survival. This is called autonomous consumption, and it is independent of income level.
- **Consumption when income rises:** With an increase in income, consumption also increases, but usually less than the income increased. This part of consumption, which varies with income, is called induced consumption.
- **Table 8.1: Relationship between income and consumption**

Determinants of Consumption Expenditure

- *Money Income*
- *Distribution of Income*
- *Level of Direct Taxes*
- *Expectation of the Future*
- *Rate of Interest*
- *Level of Wealth*

consumption function

- *It shows the relationship between level of consumption and level of income. The consumption function is also known as **propensity to consume**.*
- The consumption function indicates how consumption responds to different levels of income.

$$C = f(Y_d) \quad (8.1)$$

- Where C = consumption expenditure, and

Y_d = personal disposable income

$$C = a + bY_d,$$

- where a is autonomous consumption, b is percentage of income for consumption, and bY_d is induced consumption

- Example: Consider a consumer with a consumption function given by
- $C = 110 + 0.75Y_d$, and disposable income of Birr 4,800. Calculate the consumer's:
 - a. autonomous consumption
 - b. induced consumption
 - c. total consumption
 - d. saving

Solution: Given: Consumption function $C = 110 + 0.75Y_d$

Disposable income = 4,800

- a. Autonomous consumption is the level of consumption when income is zero.
Thus,

$$\text{Autonomous consumption} = 110 + 0.75 \times 0 = 110$$

- b. Induced consumption is = Total consumption – Autonomous consumption

$$\text{Induced consumption} = 0.75 \times 4,800 = 3,600$$

- c. Total consumption = Autonomous consumption + Induced consumption

$$= 110 + 3,600 = 3,710$$

- d. Saving = $Y_d - C = 4,800 - 3,600 = 1,200$ $S = Y_d - bY_d$

- Note that propensity to consume does not mean desire to consume. It means the actual consumption that takes place, or is expected to take place, out of varying levels of income.
- A distinction may be made here between consumption and consumption function. *Consumption refers to the amount of income which is spent upon the purchase of goods and services at a given level of income, but consumption function refers to the whole of a schedule that shows consumption expenditure at various levels of income.*
- An important fact about the behavior of the consumption function is that it is stable in the short run. Further, even when income is zero, consumption is always positive (i.e., there is always some minimum level of consumption even when income is zero).

- Consider the preceding Table 8.2 and Figure 8.1 for the hypothetical situation, and note the following facts:
- *Consumption increases with increase in income*
- *Consumption (i.e., autonomous consumption) can never be zero, even income is zero, because a minimum level of consumption must be maintained for survival.*
- *The 45° line $Y_d = C + S$ is called the expenditure equals income line. Its significance is that each point on this line shows expenditure equal to income.*
- *Line CC represents the consumption function curve, which is also simply called the consumption curve.*

- The point at which the consumption function curve intersects the 45° line is known as the break-even point. It indicates equality between consumption and income.
- Above the 45° line, consumption spending is more than income (indicating dissaving), whereas below this line consumption expenditure is less than income (indicating positive saving).
- The relationships between consumption and income (propensity to consume) are expressed in the following ways.
 - i Average Propensity to Consume (APC)
 - ii Marginal Propensity to Consume (MPC)

I *Average Propensity to Consume (APC)*

- *APC is the ratio of total consumption expenditure (C) to total income (Y_d) at a given level of income in an economy. Symbolically,*

$$APC = C/Y_d$$

- For example, if at a particular time, the income level in an economy is Birr 250 million, and consumption is Birr 175 million,

$$APC = C/Y_d = 175/250 = 0.7 \text{ or } 70\%$$

- This example indicates that 70% of income was spent by way of consumption expenditure. But if aggregate income is very low — for example, Birr 50 million – and if aggregate consumption is Birr 75 million, $APC = 75/50 = 1.5$.

II *Marginal Propensity to Consume (MPC)*

- *The ratio of change in consumption (ΔC) to change in income (ΔY_d) is called marginal propensity to consume. Literally, marginal means additional (or incremental) and propensity to consume means desire (or urge) to consume.*

$$MPC = \Delta C / \Delta y_d$$

- For example if a country's national income increases from Birr 200 million to Birr 250 million, and as a result consumption expenditure goes up from Birr 150 million to Birr 175 million, then
- $MPC = \Delta C / \Delta y_d = 25/50 = 0.50$
- Note that, with an increase in income, consumption expenditure also increases (i.e., $MPC > 0$), but the entire increase in income is not spent on consumption (i.e., $MPC < 1$).

Properties of MPC

- MPC is greater than zero but less than one This is because, with an increase in income, consumption expenditure also increases. But the entire increase in income is not spent — part of it is saved. Thus, $MPC > 0$, but $MPC < 1$.
-))MPC falls with increase in income As the community becomes richer, it tends to consume a smaller percentage of each increment to its aggregate income.
-))MPC of the poor class is higher than those of other classes: In the case of poor people, most of their basic needs remain unfulfilled. As a result, an additional increment to income leads to greater consumption.
-))MPC is stable in the short run: This is because it depends upon psychological factors which do not change in the short run.

8.2 SAVING

- *The part of income which is not spent on is called savings. Thus, we may say 'Savings is an excess of income over consumption expenditure'.*

$$S = Y_d - C$$

- Note the following points in the context of saving:
- *)Just like consumption, saving depends directly upon income.*
- *)As income increases, savings also increase, but the rate of increase in*
- *savings is more than the rate of increase in income. This means that as income increases, the proportion of income saved increases (and the proportion of income consumed decreases).*
- *) At low income levels, savings is negative. In other words, when there is no income or a very low level of income, consumption expenditure is more than income, leading to negative saving (i.e., dissaving).*

Determinants of Saving

- *Level of Income:*
- *Distribution of Income*
- *Expectation Future for the*
- *Rate of Interest:*
- *Level of Wealth*
- *Level of Direct Taxes*
- *Individual Nature*

Saving Function

- *The functional relationship between saving and income is called saving function (or propensity to save). The saving function is the proportion of income which is saved. Thus saving (S) is a function (f) of income (Yd). Symbolically:*

$$S = f(Y_d) \text{ or } S = Y_d - C \quad (8.5)$$

- The saving function shows the tendency of households to save at given levels of income. Thus the saving function is a corollary or reciprocal of the consumption function.

Table 8.5: Hypothetical Saving Function Schedule (in million Birr)

Income (Y_d)	Consumption (C)	Savings (S)
0	50	-50
50	75	-25
100	100	0
150	125	25
200	150	50
250	175	75
300	200	100

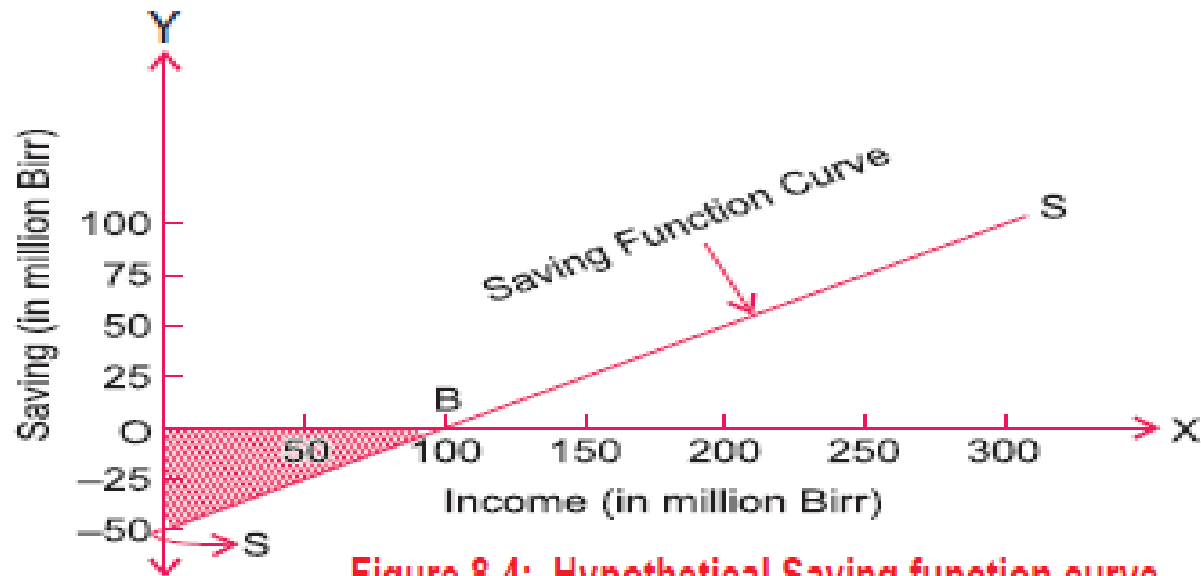


Figure 8.4: Hypothetical Saving function curve

Consumption and Saving Functions are Complementary

- Since income is either consumed or saved, consumption + saving is always equal to income. This indicates that the consumption and saving curves, which represent the consumption and saving functions, are complementary.
- Observe from the figure that the saving function is the mirror image of the consumption function
- **Figure 8.5: Consumption and saving functions**

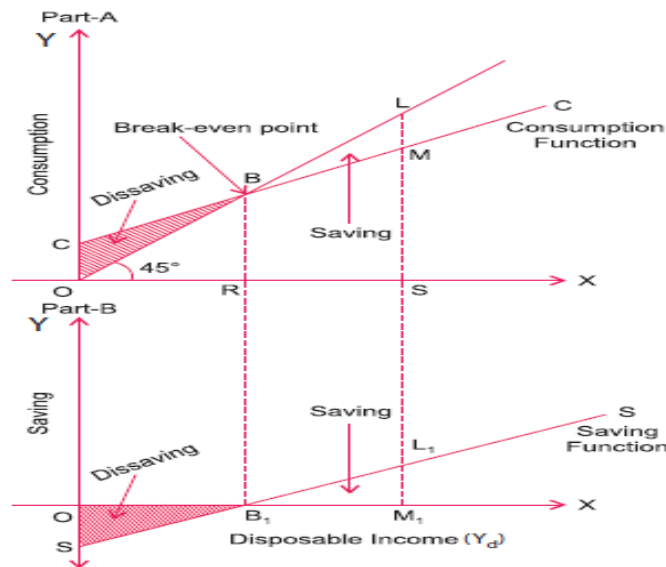
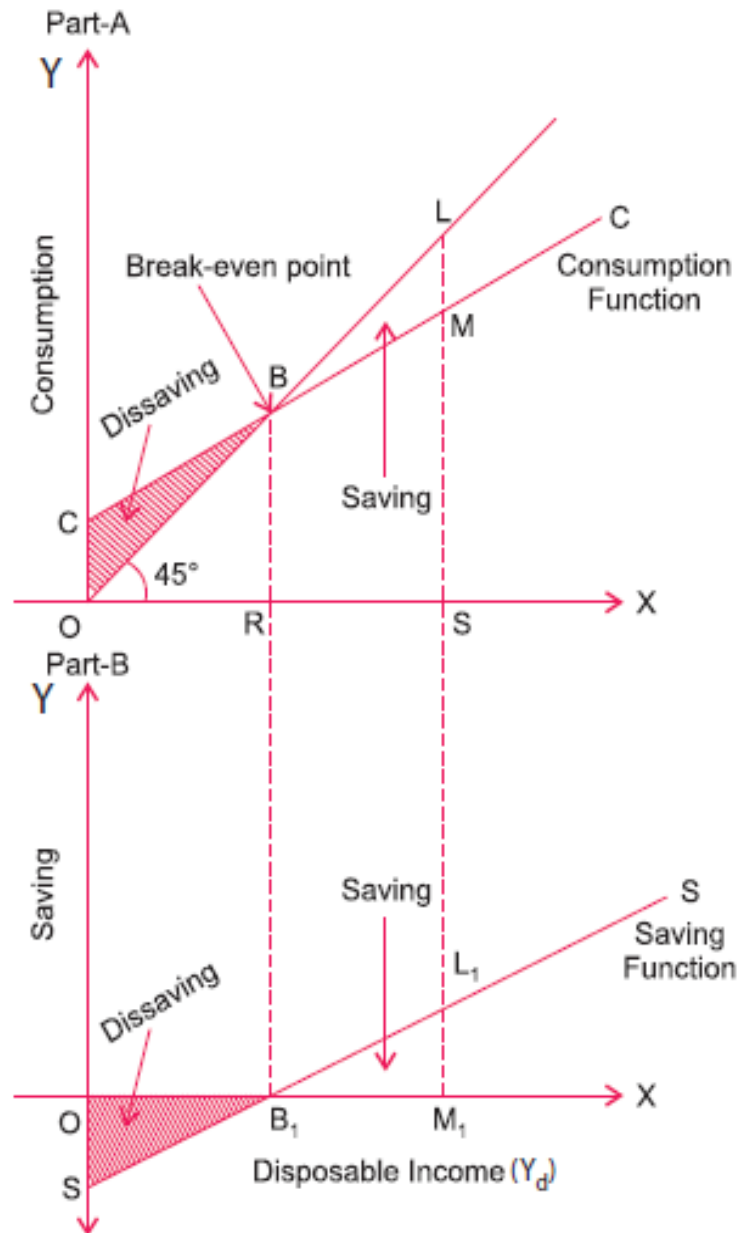


Figure 8.5: Consumption and saving functions



- As in the case of the consumption function, the relationships between saving and income (propensity to save) are expressed in the following ways.

I Average Propensity to Save (APS)

- *Average propensity to save is the ratio of total savings (S) to total income (Y). It is the part of total income which is saved. Symbolically:*

$$APS = S/Y_d$$

- For example, if income (Y_d) is Birr 250 million and saving(s) is Birr 75 million,
- $APS = S / Y_d = 75/250 = 0.3$ or 30%

II Marginal Propensity to Save (MPS)

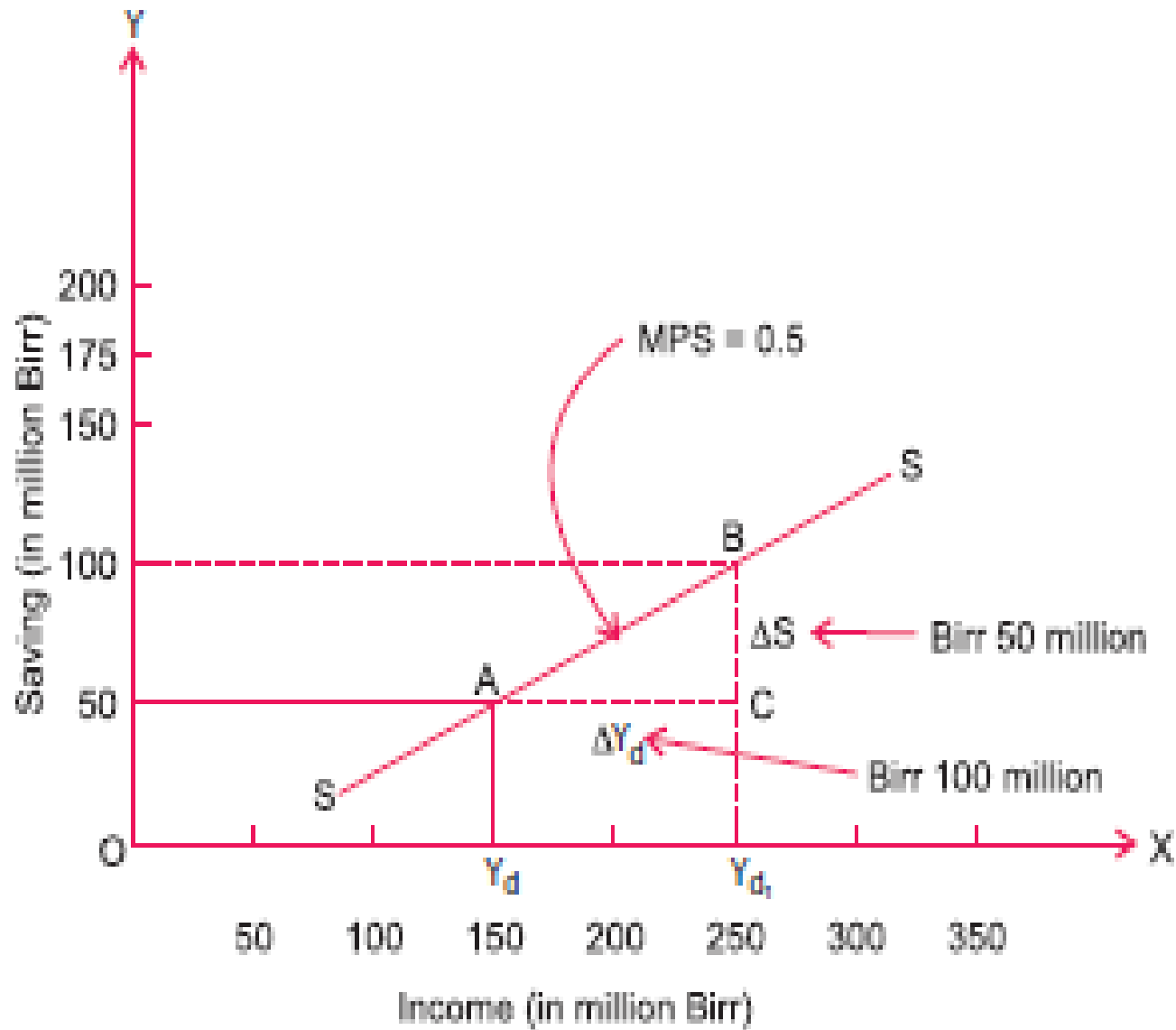
- *It is the ratio of the change in saving (ΔS) to the change in income (ΔY_d). Symbolically:*

$$MPS = \Delta S / \Delta Y_d$$

- For example, if a country's national income increases from Birr 200 million to Birr 250 million, and saving increases from Birr 50 million to Birr 75 million, then

$$MPS = \Delta S / \Delta y_d = 25 / 50 = 0.5$$

Table 8.7: Hypothetical MPS estimation



Properties of MPS

- *Value of MPS lies between 0 and 1. In other words, $0 < MPS < 1$.*
- *)) MPS increases with increase in income.*
- *)) The MPS of the poor is lower than that of the rich*

8.3 RELATIONSHIP BETWEEN CONSUMPTION AND SAVING

- Relationship between APC and APS We know $Y_d = C + S$, dividing both sides by Y_d , we get

$$\frac{Y_d}{Y_d} = \frac{C}{Y_d} + \frac{S}{Y_d}$$

- $1 = APC + APS$

or $APC = 1 - APS$, and $APS = 1 - APC$

- We may conclude: *the sum of APC and APS is always equal to unity (1). This is because income is either consumed or saved.*

- Relationship between MPC and MPS

We know $Y_d = C + S$

$$\Rightarrow \Delta Y_d = \Delta C + \Delta S$$

- Dividing both sides by ΔY_d , we get

$$\Delta Y_d / \Delta Y_d = \Delta C / \Delta Y_d + \Delta S / \Delta Y_d$$

$$1 = \Delta C / \Delta Y_d + \Delta S / \Delta Y_d$$

$$1 = MPC + MPS$$

or $MPC = 1 - MPS$, and $MPS = 1 - MPC$

- We may conclude: *the sum of MPC and MPS is always equal to unity (1). The following list shows this inter-relationship:*

–)) $APC + APS = 1$

–)) $APS = 1 - APC$

–)) $APC = 1 - APS$

–)) $MPC + MPS = 1$

–)) $MPS = 1 - MPC$

–)) $MPC = 1 - MPS$

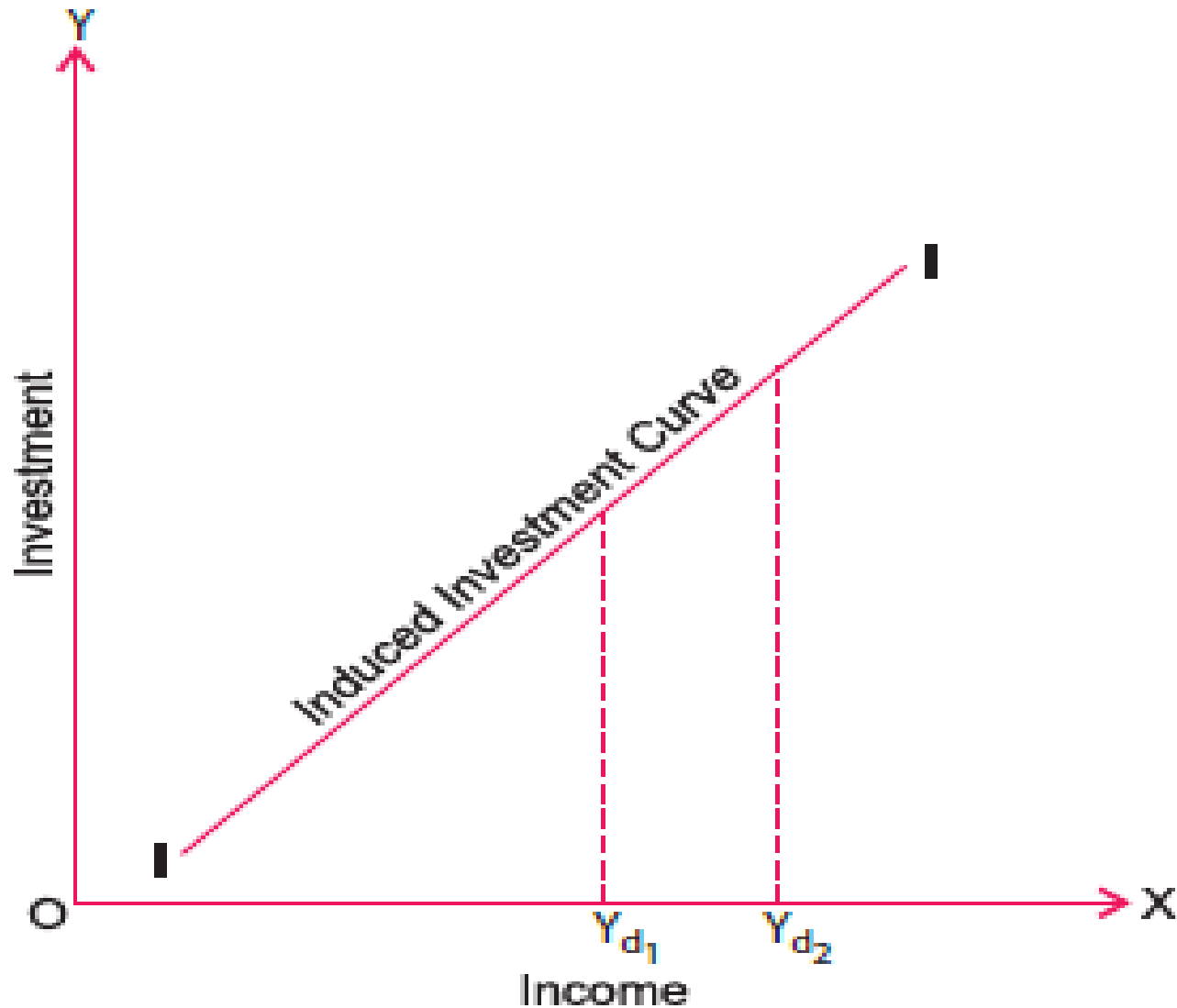
8.4 INVESTMENT

- In economics, *investment means an addition, during a predefined 'current period', to national resources such as:*
- *))existing stock of physical (or real) assets for example, the building of new factories, new machines or equipment;*
- *))existing stock of finished goods or raw materials.*

Induced Investment

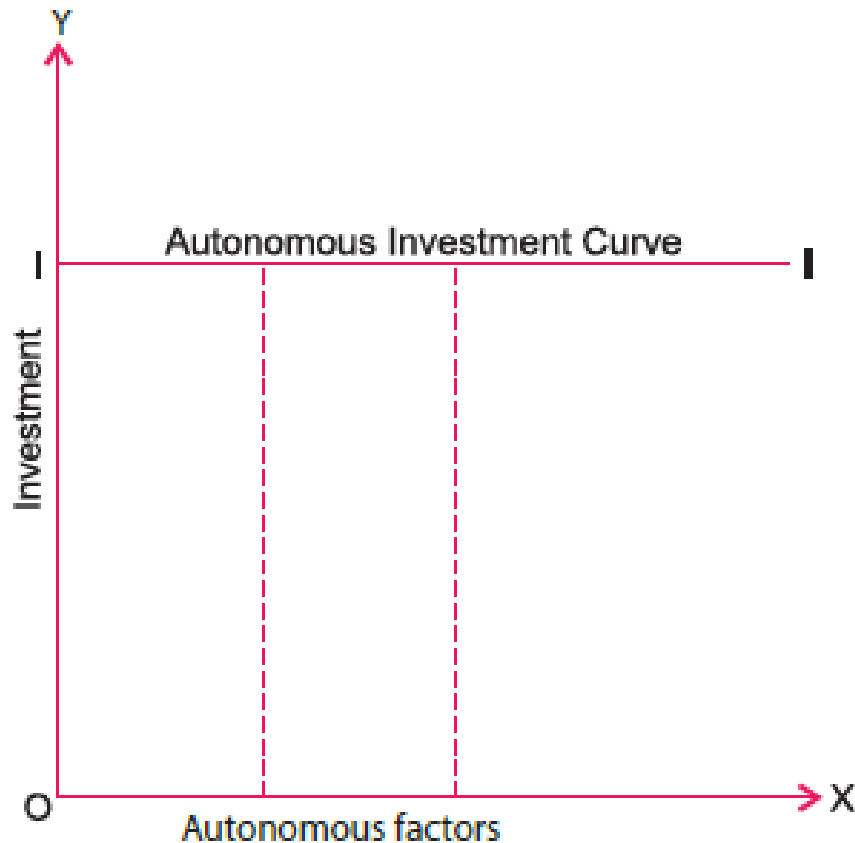
- *Induced investment is investment which is made with the motive of earning a profit as in the private sector. Induced investment depends directly upon profit expectations.*
- It is income-elastic. If national income goes up, induced investment also goes up – an increase in income induces investment.

- Figure 8.8: Induced investment



Autonomous Investment

- *Autonomous investment refers to investment which is made irrespective of income level.*
- *This approach is generally taken in the government sector. Autonomous investment is income inelastic – it is not affected by changes in income level.*
- **Figure 8.9: Autonomous factors**



- **Profit Expectation:** Business investment depends upon the expectations of the business firms involved. If the business people feel confident that opportunities for making profits in the future exist, they will be prepared to undertake investment expenditure
- **Rate of Interest:** After business expectation of profit opportunities is taken into account, investment depends upon the rate of interest, on the one hand, and upon the expected rate of return on capital.
- If investment is to be profitable, then the expected rate of profit cannot be less than the current rate of interest in the market. For instance, if an entrepreneur finds out that funds for a project must be borrowed at a 15% interest rate, then the proposed investment would be undertaken only if the project's expected rate of profit were more than 15%.

- **Corporate Tax:** Taxes are imposed by governments on corporations. A corporation uses part of its revenues to pay these taxes. The higher the tax rate is, the more that paying taxes reduces revenues and, in turn, reduces profits.
- **Level of National Income:** If national income goes up, induced investment also goes up. The reason is that an increase in national income leads to an increase in the demand for goods and services and in investors' interest in supplying them, which leads to increased investment. Therefore, we can say that a higher level of national output induces investment. This principle also acts inversely.

Role of Investment in Economic Growth

- Investment plays a crucial role in the economic growth of a nation. Nations that invest a large part of their income tend to have rapid output growth. As you know, investment in an economy can be in the private sector and in the public (government) sector.

❖ Role of Private Investment in Economic Growth

- Investment made by the private sector in the form of new machinery and equipment, the building of new factories, increases in inventories, etc., increases the productive capacity of the economy and hence increases output and income.

❖ Role of Public Investment in Economic Growth

- Public investment plays an active role in promoting economic growth, especially in developing countries.
- *))Public investment promotes economic growth directly by developing social overhead and infrastructure, by establishing capital-good industries, basic and key industries, etc.*
- *))Public investment can stimulate economic growth indirectly by providing education, training, and research facilities. Public investment in education and training and in public health and social security schemes increases peoples' efficiency and skills, and thereby contributes to economic growth.*
- *))Public investment reduces disparities in income and wealth as well as regional disparities. Thus public investment promotes the achievement of economic growth with social justice.*

- Answer each of these questions and then consider the solutions.

a If APS is 0.6, how much is APC?

$$\text{Solution: } APC = 1 - APS = 1 - 0.6 = 0.4$$

b If APC is 0.7, how much is APS?

$$\text{Solution: } APC + APS = 1, \text{ therefore } APS = 1 - 0.7 = 0.3$$

c If MPC is 0.75, what is MPS?

$$\text{Solution: } MPS = 1 - MPC = 1 - 0.75 = 0.25$$

d If APC is 0.75, how much is APS?

$$\text{Solution: } APS = 1 - APC = 1 - 0.75 = 0.25$$

e If MPS = 1, how much is MPC?

$$\text{Solution: } MPC = 1 - MPS = 1 - 1 = 0$$