

3.11 INCOME METHOD

3.11.1 Meaning and Composition of *NI* by Income Method

Production generates income. Production is created with the combined efforts of factors of production. That is why, owners of these factors have a claim on this income, which is distributed to them in the form of compensation of employees, rent, interest and profit. According to income method, *NI* is measured in terms of payments made to primary factors of production.

Net Value Added at Factor Cost = Sum total of factor incomes paid
or NVA_{FC} *out by a production unit.*

NDP_{FC} = Sum total of factor incomes paid
*out by all production units located
within the domestic territory of
a country. It is shared by both
residents and non-residents.*

NNP_{FC} or *NI* = Sum total of factor incomes paid
out to residents only.

According to **Paul Studenski**, "National Income of a country can be calculated either by taking the sum of incomes paid out by the producing units or by the income received by the factors."

Income method is also called **Factor Payment Method** or **Distributed Share**

Method. According to income method, the components of NI are given by the formula.

$$NI \text{ or } NNP_{FC} = \begin{aligned} &1. \text{ Compensation of employees} \\ &+ 2. \text{ Operating surplus (rent + royalty + interest + profit)} \\ &+ 3. \text{ Mixed income of self-employed} \\ &+ 4. \text{ Net factor income from abroad.} \end{aligned}$$

$$NDP_{FC} \text{ or Domestic Factor Income} = 1 + 2 + 3$$

System of National Accounts 1993, a joint publication of the United Nations and the World Bank, has elaborated the above components and recommended their use by all the countries in preparing national income estimates.

3.11.2 Steps Involved in Calculating NI by Income Method

The calculation of NI by income method is done in three steps. They are:

Step 1. Identification and Classification of Producing Enterprises which Employ Factor Inputs

This is the first step in income method. It requires:

- (a) Identifying the producing enterprises which employ the factor inputs and
- (b) Classifying the producing enterprises. All producing enterprises can be classified under three heads:
 - (i) **Primary Sector.** It is that sector which produces goods by exploiting natural resources like land, water, forests, mines, etc. This sector includes agricultural and allied activities, fishing, mining and quarrying.
 - (ii) **Secondary Sector.** It is also called manufacturing sector. Enterprises in this sector transform one type of commodity into another type of commodity. For example, leather goods from leather, flour from wheat, sugar from sugar cane, etc.
 - (iii) **Tertiary Sector.** It is also known as service sector. Enterprises in this sector produce services only. Examples are: banking, transport, communications, trade and commerce, etc.

Step 2. Classification of Factor Income

Factor income or payments are classified into the following groups:

- (a) Compensation of employees
- (b) Operating surplus
- (c) Mixed income
- (d) Net factor income from abroad.

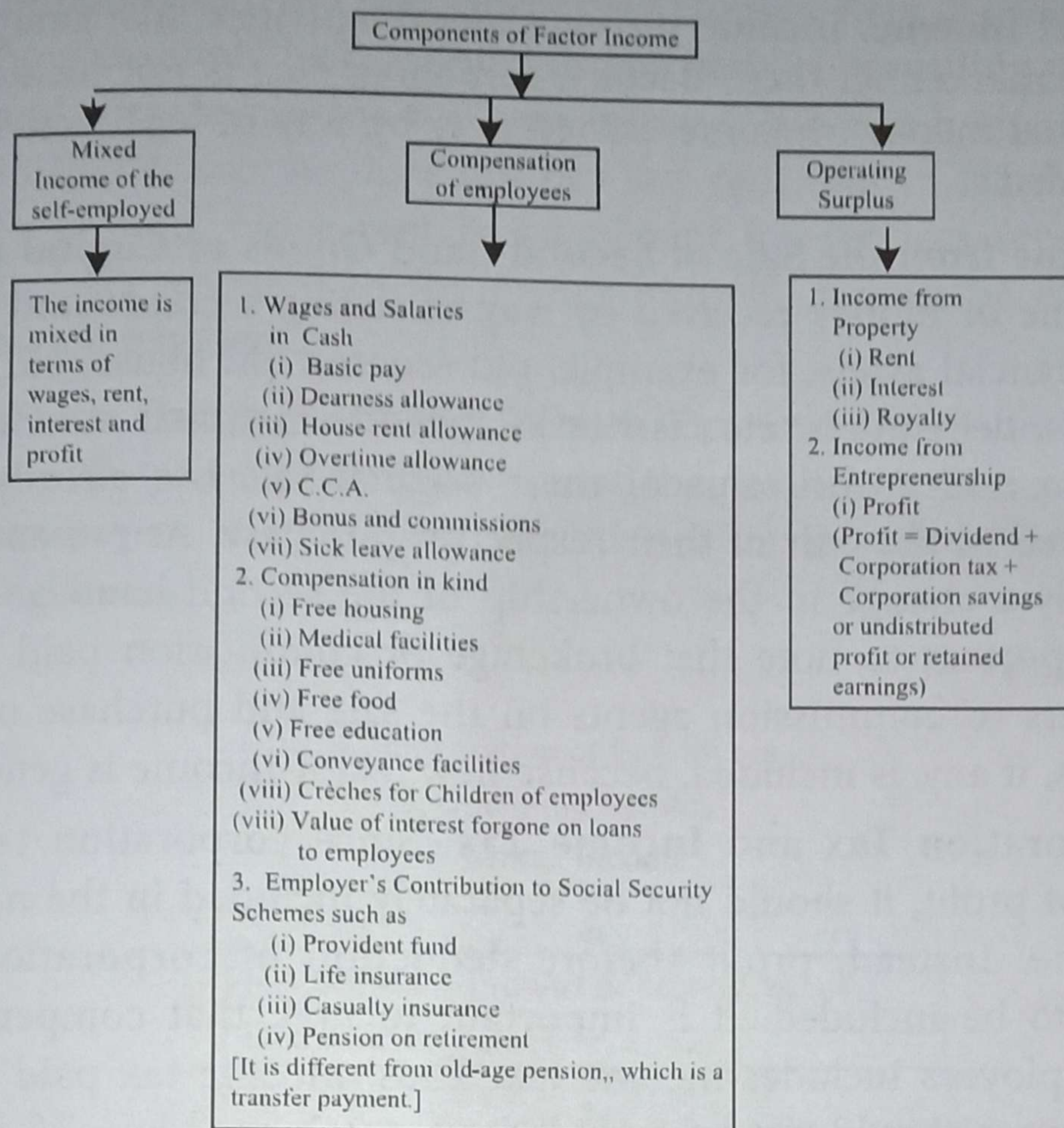


Fig. 3.2 Components of Factor Income

Fig. 3.2 gives the items included in each component of factor income.

Step 3. Estimation of national income

The last step is to calculate national income.

Fig. 3.3 shows measurement of national income.

3.11.3 Precautions Involved in Estimating NI by Income Method

Any income corresponding to which there is no flow of goods and services or value added, should not be included in calculation of national income.

Precautions to be taken while calculating factor incomes are as follows:

1. **Transfer Payments.** Transfer payments should not be included in the national income because transfers are not a productive activity. Examples are: scholarships, old-age pensions, gifts, etc. These are unilateral payments. There is no flow of goods and services in an economy with these payments. A distinction is made between old-age pension and retirement pension. Old-age pension is a welfare measure and falls under the category of transfer payment. Retirement pension (or private pension) on the other hand is the payment for services rendered in the past. It is a part of compensation of employees.

2. **Illegal Income.** Income through illegal activities, like smuggling, black marketing, theft, dacoity, gambling, etc., is not included in national income. Income earned only by way of legal activities is included.
3. **Income from the Sale of Second-hand Goods or Capital Gains.** Income or money received by way of selling second-hand goods or financial assets, for example, old scooter, old house, old radio, bonds, debentures, etc., is not included in national income. The reason is that the value of their original sale has already been counted in the year of their respective purchase. At present there is only a change in the ownership of the second-hand goods. It is important to note that brokerage or commission paid to the brokers or commission agents on the sale and purchase of such goods, if any, is included, because new factor income is generated.
4. **Corporation Tax and Income Tax.** Since corporation tax is a part of profit, it should not be separately included in the national income. Instead, profit (before deduction of corporation tax) have to be included. It is important to note that compensation of employees includes income tax. Thus, income tax paid by the employees should not be included separately.
5. **Indirect Taxes.** Indirect taxes (i.e., tax on production or sale of the commodities) tend to raise the market price of goods and services. Hence, these are included in the national income at market price.
6. **Include Free Services Provided by the Owners of the Production Units.** Owners work in their own unit but not charge salary. Owners provide finance but do not charge any interest. Owners do production in their own buildings but do not charge rent. Although they do not charge, yet the services have been performed. The imputed value of these must be included in national income.
7. **Windfall Gains.** In national income, windfall gains, for example, income from lotteries is not included. It is unearned income.
8. **Wages and Salaries in Cash and in Kind.** As compensation of employees is included in estimation of national income, any figures on wages and salaries in cash or in kind should not be separately added.
9. **Domestic Services.** Domestic services provided out of love and affection are not included. But if the same are provided by the paid employed staff such as cooks, gardeners, guards, etc. they will be included in the national income.

10. **Imputed Rent of Owner-occupied Houses.** Rent of owner-occupied houses should be calculated on the basis of prevailing market price and included in the national income. When a house owner lives in that house, he does not pay any rent. But in fact he pays rent to himself. Since rent is a payment for services rendered, even though rendered to the owner himself, it must be counted as a factor payment.
11. **Death Duties, Gift Tax, Wealth Tax, etc.** Death duties, gift tax, wealth tax, etc. are paid out of the wealth or past savings of the tax-payers. Hence, they should not be included in the national income

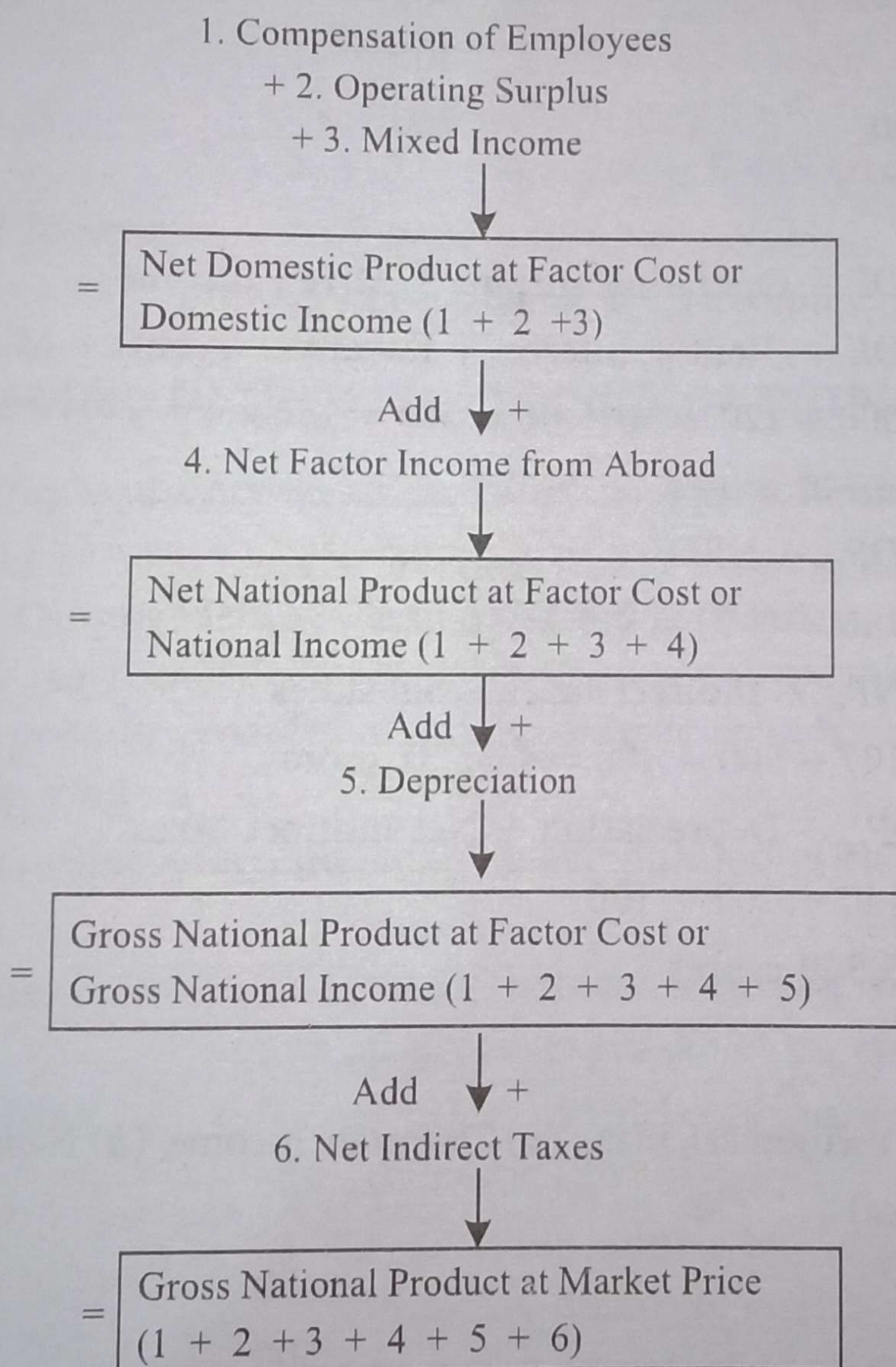


Fig. 3.3. Measurement of NI by Income Method

[Ans 2] \Rightarrow (a)

Let there be an increase in autonomous expenditure or investment by ₹ 200 crore.

It is matched by ₹ 200 crore increase in the level of national income. This would lead to an increase in spending by MPC (0.50) times the increase in income and would give rise to further induced expenditure. To meet this induced expenditure, production rises yet further. The process is explained in the below table.

Working of the Multiplier

Round	Increase in Demand	Increase in Production	Total Increase in AE
1	₹ 200 Crore	₹ 200 Crore	₹ 200 crore
2	$0.5 (\text{₹ } 200 \text{ cr.})$	$0.5 (\text{₹ } 200 \text{ cr.})$	$\text{₹ } 200 \text{ cr.} + 0.5 (\text{₹ } 200 \text{ cr.})$ $= \text{₹ } 200 \text{ cr.} (1 + 0.5)$
3	$(0.5)^2 (\text{₹ } 200 \text{ cr.})$	$(0.5)^2 (\text{₹ } 200 \text{ cr.})$	$\text{₹ } 200 \text{ cr.} + 0.5 (\text{₹ } 200 \text{ cr.})$ $+ (0.5)^2 (\text{₹ } 200 \text{ cr.})$ $= \text{₹ } 200 \text{ cr.} (1 + 0.5 + 0.5^2)$
⋮	⋮	⋮	⋮

The explanation of the above table is as follows:

Round 1: We start with increase in autonomous expenditure by ₹ 200 crore. Production increases by the same amount to meet increase in demand. It leads to equal increase in income.

Round 2: In the second round, those who receive additional income consume a part of it [depending upon MPC, 0.5] and save the rest. Thus, demand rises by 0.5 (₹ 200 cr.). Again production and income rises to match increase in demand.

The process goes on. The total change in Aggregate Expenditure (AE) due to successive rounds of increased expenditure can be summed up as:

$$\Delta AE = ₹ 200 \text{ cr.} + 0.5 (₹ 200 \text{ cr.}) + (0.5)^2 (₹ 200 \text{ cr.}) + \dots$$

$$= ₹ 200 \text{ cr.} [1 + 0.5 + (0.5)^2 + \dots]$$

$$= ₹ 200 \text{ cr.} \left[\frac{1}{1 - 0.5} \right]$$

$$= ₹ 200 \text{ cr.} \times \frac{10}{5}$$

$$= ₹ 400 \text{ cr.}$$

Thus, total change in income is ₹ 400 crore.

$$\text{Multiplier (K)} = \frac{\Delta Y}{\Delta I} = \frac{\cancel{400} \text{ Crore}}{\cancel{200} \text{ Crore}}$$

$$\Rightarrow \boxed{K = 2}$$

(b) At Equilibrium,

$$Y = AD$$

$$\Rightarrow Y = C + I + G + NX$$

$$\Rightarrow Y = (250 + 0.8Y_d) + 100 + 150 + 0$$

$$\Rightarrow Y = 250 + 0.8(Y - T) + 250$$

$$\Rightarrow Y = 500 + 0.8(Y - 50)$$

$$\Rightarrow Y = 500 + 0.8Y - 40$$

$$\Rightarrow 0.2Y = 460$$

$$\Rightarrow Y = \frac{4600}{0.2} = 2300$$

$$\Rightarrow \boxed{Y = 2300}$$

Putting $Y = 2300$ in Consumption function

$$C = 250 + 0.8Y_d$$

$$\Rightarrow C = 250 + 0.8(Y - T)$$

$$\Rightarrow C = 250 + 0.8(2300 - 50)$$

$$\Rightarrow C = 250 + 0.8(2250)$$

$$\Rightarrow C = 250 + 1800$$

$$\Rightarrow \boxed{C = 2050}$$

(i) Savings at equilibrium
level of income

$$\begin{aligned} S &= Y - C \\ &= 2300 - 2050 \\ &= ₹ 250 \text{ crore} \end{aligned}$$

(ii) Multiplier (K) = $\frac{1}{1-MPC}$

$$= \frac{1}{1-0.8}$$

$$= \frac{1}{0.2}$$

$$= 5$$

$$\text{Also, } K = \frac{\Delta Y}{\Delta I}$$

$$\Rightarrow 5 = \frac{\Delta Y}{50}$$

$$\Rightarrow \Delta Y = 250$$

Thus, if investment decreases by ₹ 50 crore, then, the change in income will be ₹ 250 crore.

9.2 AGGREGATE DEMAND (AD)

9.2.1 Shifts in the AE Curve

The AD curve relates equilibrium GDP to the price level. Any change in the price level leads to a new AE curve. A rise in the price level brings downward shift in the AE curve and a fall in the price level brings upward shift in the AE curve. Thus, *there is negative or inverse relationship between price level and AE.* This can be understood if we can trace relationship between changes in price level and consequent changes in private consumption and net exports. It is analysed below:

9.2.3 Derivation of Aggregate Demand (AD) Curve

The above result forms the basis of derivation of AD curve. The AD curve shows, for each price level, the associated level of GDP for which AE equals total output. See Fig. 9.2.

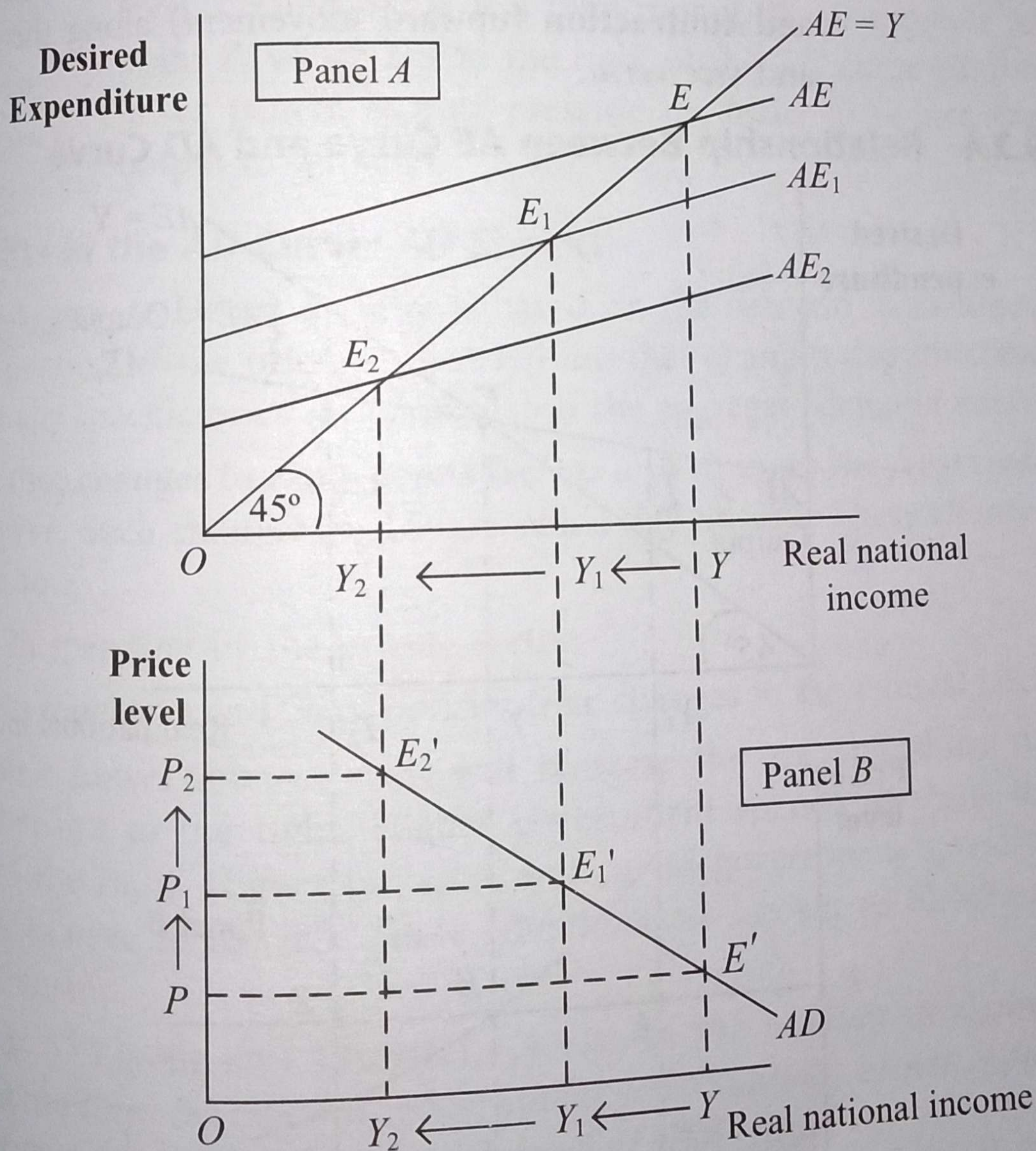


Fig. 9.2 : Determination of AD Curve

where

Points E and E' = When price level is P , the aggregate expenditure curve is AE . Equilibrium occurs at point E . Equilibrium GDP is OY . It gives one combination (P, Y) on the AD curve. It is shown by point E' .

Point E_1 and E_1' = When price level rises to P_1 , AE falls to AE_1 . New equilibrium occurs at point E_1 . GDP falls to OY_1 . It gives another point $(P_1 \text{ and } Y_1)$ on the AD curve. It is shown by point E_1' .

Similarly point E_2' is obtained on AD curve. Joining these points, a **downward sloping AD curve is obtained**.

- Results :**
1. AD curve is negatively sloping.
 2. A change in the price level causes a **shift** in the AE curve and a **movement** along the AD curve.
 3. A **rise** in price level, leads to **decrease** (shift) in AE curve and **contraction** (upward movement) along the AD curve and *vice versa*.

9.3.2 Slope of Short-run Aggregate Supply Curve

Short-run aggregate supply curve has a **positive slope**. It rises from left to right. It shows **direct positive relationship between price level and GDP**. A rise in the price level leads to an increase in the value of *GDP* and *vice versa*. The nature and slope of the short-run aggregate supply curve depends upon the following **factors**:

1. **Relationship between cost of production and the level of output :**
In the field of production due to the law of diminishing returns, with every increase in output the per unit cost increases, while keeping wages of labour and other input prices constant. As output increases,

the less efficient labour-force may be employed to carry on the process of production. Higher wages have to be paid for overtime activities. This increases the cost of production. Thus, in the short-run, the unit cost and output are positively related. That is, unit cost increases with increase in the level of output.

2. Relationship between prices and the level of output :

- (a) **In case of price taking firms.** If the nature of market is that all firms are price takers, then each firm is too small to influence the market price, which is set by aggregate demand and aggregate supply forces. In such a situation, each firm accepts the price and adjusts its output accordingly. These firms are generally called **price takers and output adjusters**. Whenever market price changes, these firms react and adjust their output accordingly. Thus, price-taking firms produce more only if price rises and less if price falls because their unit cost rises with the level of output.
- (b) **In case of price setting firms.** Presently, almost all the firms are producing differentiated products. They are not price takers, rather they are price setters. Over a small range of output, price setting firms keep the price of their product constant. The price setting firms will increase the price of the output when they expand their production into the range where the per unit cost is increasing.

From the above study of price-taking and price setting firms, it is clear that actions of both kinds of firms cause the price level to rise and the desired supply of output to be positively associated with it. As a result, **the short-run aggregate supply curve is positively sloping**. It is shown in Fig. 9.5.

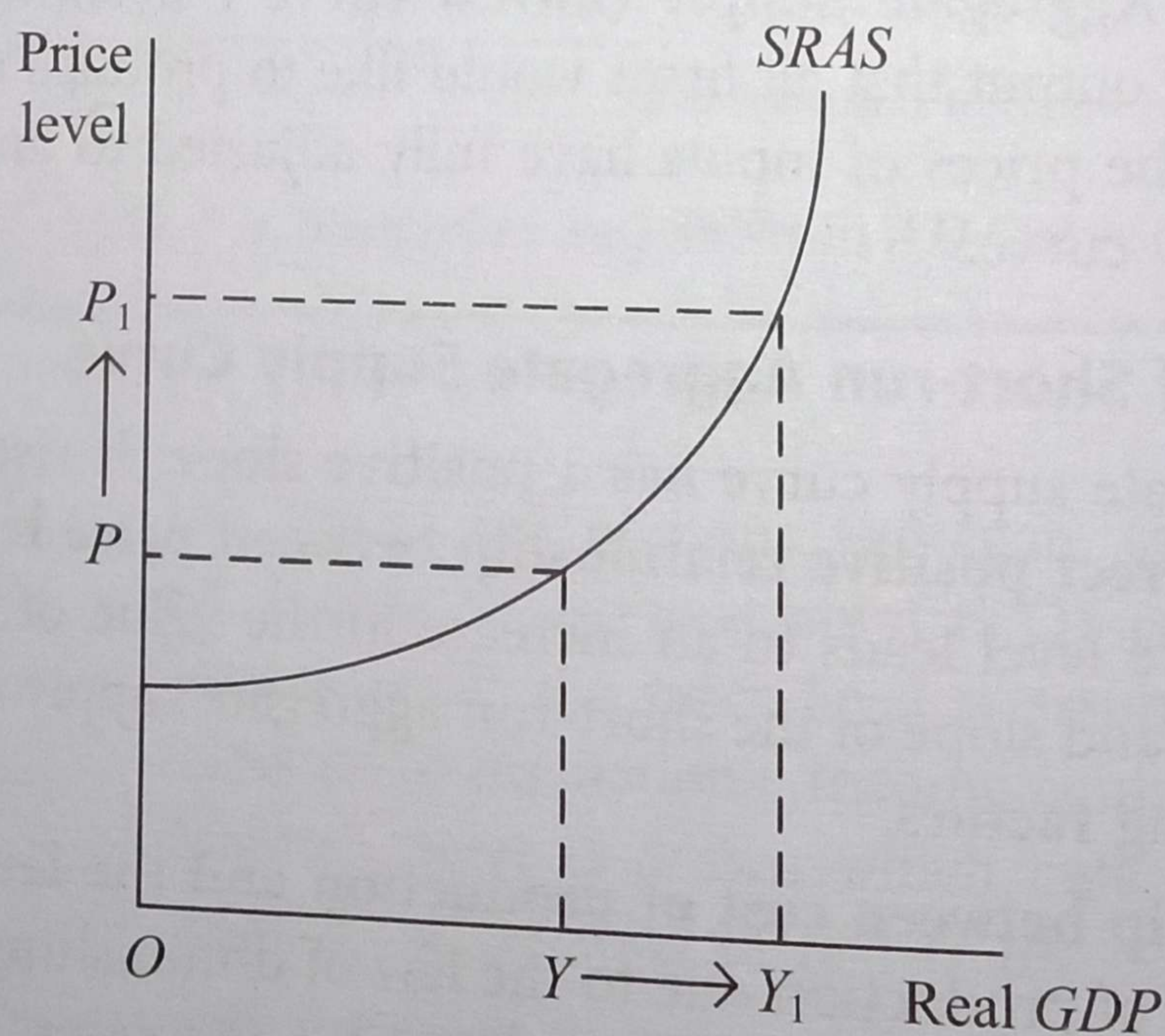


Fig. 9.5. A SARS Curve

The figure shows that as price rises from OP to OP_1 , aggregate supply rises from OY to OY_1 in the short-run.

Result : *The slope of SARS is low (fairly flat) at low levels of output and very steep at high levels of output.*

Real and Nominal wages : Wages play a vital role in making SRAS curve positively sloped. Price-taking firms equate marginal cost to marginal revenue in deciding the level of output. When general price level rises, real wages fall. On the other hand, when demand for goods increases, it leads to rise in price of output. Thus, firm's average and marginal revenue curves shift upward. The demand for labour rises. Labour will bargain for higher wages resulting in higher cost of production.

12.2 CREDIT CREATION—PRIMARY AND DERIVATIVE DEPOSITS

Credit creation refers to the power of the banks to expand deposits through the process of more loans, advances and investments. It is a special function of commercial banks. Credit is created on the basis of deposits. These deposits are of two types—primary deposits and derivative deposits. These deposits are known as real deposits or **primary deposits**, because these deposits are made at the initiative of the depositors. There is another type of deposits known as **derivative deposits**. Whenever banks lend their funds, they create deposits in the name of their debtors. The total amount of loan is not given in immediate cash. The customer (debtor) later on withdraws from his account this amount by cheques. In this way, a major part of these deposits remain with the bank. Thus, *deposits create loans and loans create deposits*. The process takes place in a particular manner. Banks receive cash deposits, known as primary deposits. Out of these deposits, banks keep a certain percentage of these deposits for their day to day operations and give the rest of the cash deposits as loans to their customers. These loan amounts are not paid in cash to them but are deposited in their accounts. The larger the amounts of primary deposits, the greater will be the expansion of credit.

12.4.2 A Multiple-Bank Economy

In reality, a large number of banks operate in an economy. The process of credit creation in a multiple bank economy is explained as follows:

Existence of a large number of banks does not materially affect the working of credit creation process. There exists a banking system in an economy which has a number of banking units.

Let us assume that Bank A receives a primary cash deposit of ₹ 100. Its balance sheet will be:

Balance Sheet of Bank A (in ₹)

Liabilities		Assets	
Deposits	100	Cash	100
Total	100		100

The minimum cash or legal reserve requirement is assumed to be 20 per cent. Bank A will keep cash reserve of ₹ 20 against its liability arising out of this deposit of ₹ 100. It will have an excess cash reserve of ₹ 80. Suppose it extends a loan of ₹ 80 to borrowers. Balance sheet of bank A will be as follows:

Balance Sheet of Bank A (in ₹)

Liabilities		Assets	
Deposits	100	Cash	20
		Loan	80
Total	100		100

Those who receive ₹ 80 from Bank A may be expected to spend the same. Thus, the money will come back to the banking system, let us say to Bank B. The balance sheet of Bank B will be as follow:

Balance Sheet of Bank B (in ₹)

Liabilities		Assets	
New deposit	80	New Cash	80
Total	80		80

After keeping cash reserve of ₹ 16, Bank B will lend the balance of ₹ 64 to the borrowers. The balance sheet of bank B will be:

Balance Sheet of Bank B (in ₹)

Liabilities		Assets	
Deposit	80	Cash	16
		Loan	64
Total	80	Total	80

Those who receive ₹ 64 from bank B are expected to spend the amount. The money will come back to the banking system, let us say to Bank C. The balance sheet of bank C will be:

Balance Sheet of Bank B (in ₹)

Liabilities		Assets	
New Deposit	64	New Cash	64
Total	64	Total	64

The process goes on till original deposit of ₹ 100 is completely exhausted. The original deposit of ₹ 100 becomes additional deposits of ₹ 80, ₹ 64 etc. If we add up all these deposits, the total will be ₹ 500 or 5 times the original deposit of ₹ 100. Deposit multiplier is 5. It is a **self-sustaining, continuous** and complete process where on one hand deposits are multiplying and on the other hand, commercial banks are increasing their assets.

In the words of Lipsey and Chrystal, "A multi-bank system creates a multiple increase in deposit money when all banks with excess reserves expand their deposits in step with each other."

10.2.1 The Output or *GDP* gap

In the long period, the potential output curve is vertical and parallel to y -axis. The potential output is the total output that can be produced when all the productive resources are being used at their normal rate of utilisation. The potential output can be greater than or lesser than the actual output. When a nation's actual output diverges from its potential output, the difference between the two is known as *GDP* gap or output gap. This output gap can be of two types:

1. When actual output is more than the potential output.
2. When potential actual output is less than the potential output.

Macroeconomic equilibrium is determined where the aggregate demand and aggregate supply are equal to each other. At that point the level of *GDP* is consistent with the given price-level and hence there is **no gap** between the actual output and the potential output. But in real life, potential and actual outputs are seldom equal. There is always disequilibrium between the two, which affects the general price level.

10.2.2 The Concept of Inflationary Output Gap

The output or *GDP* gap is the difference between potential *GDP* (Y^*) and actual *GDP* (Y). In the long run, potential *GDP* is shown by a vertical line because it refers to a given constant level of *GDP*. Whereas the actual *GDP* is determined where aggregate demand curve intersects the *SRAS* curve and there is no tendency of prices to deviate. But, in case **actual output exceeds potential output**, the price level starts deviating. It is shown in fig. 10.1.

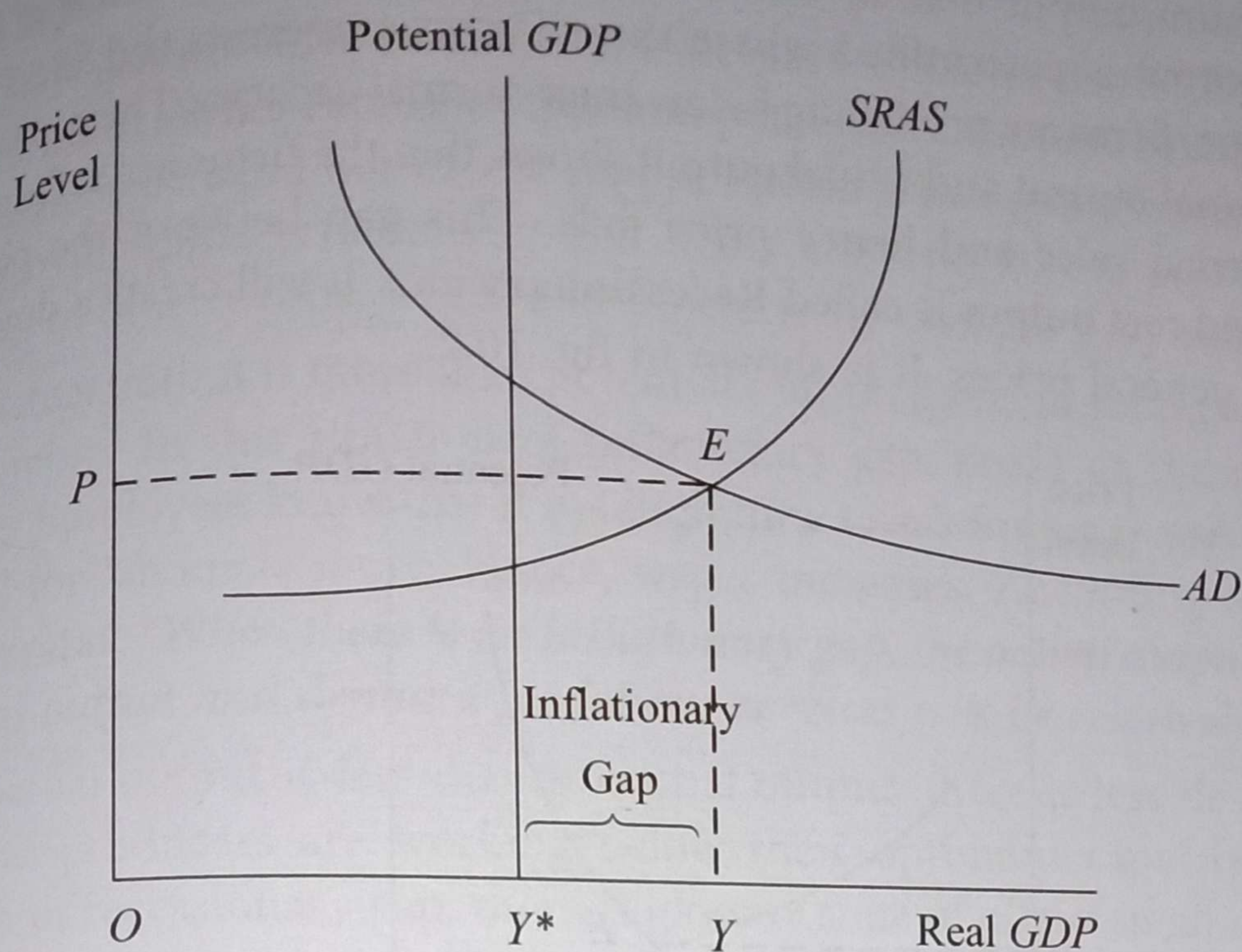


Fig. 10.1 : Inflationary Gap

where

Potential GDP Curve = It is price inelastic. It is shown by a line parallel to y -axis. OY^* is the potential level of output.

Point E = AD and $SRAS$ curves intersect at point E giving OP as the price level. The actual output produced is OY .

$Y - Y^* =$ Actual output is more than potential output. $Y - Y^*$ is the inflationary gap.

It shows that the firms are producing beyond their normal capacity. They might be making labour work overtime. This gap between the actual output and potential output is known as **inflationary gap**. Under the conditions of inflationary gap, firms are producing more than their normal capacity. Firms are earning abnormal profit. This situation is also known as **profit-oriented inflation**. When firms are earning abnormal profit, workers raise their demand for higher wages. This leads to **cost-push inflation**.

10.2.3 The Concept of Recessionary Output Gap

In long period, potential GDP is shown by a vertical line because it refers to

an optimum output that all firms can produce at different levels of prices. Actual output is determined where the AD curve intersects the SRAS curve. In this case, firms are producing below their normal capacity. The gap between the potential output and actual output shows that the firms are selling below their normal sales and hence price falls. This gap between the potential output and real output is called **Recessionary gap**. It will create a downward trend in general prices. It is shown in fig. 10.2.

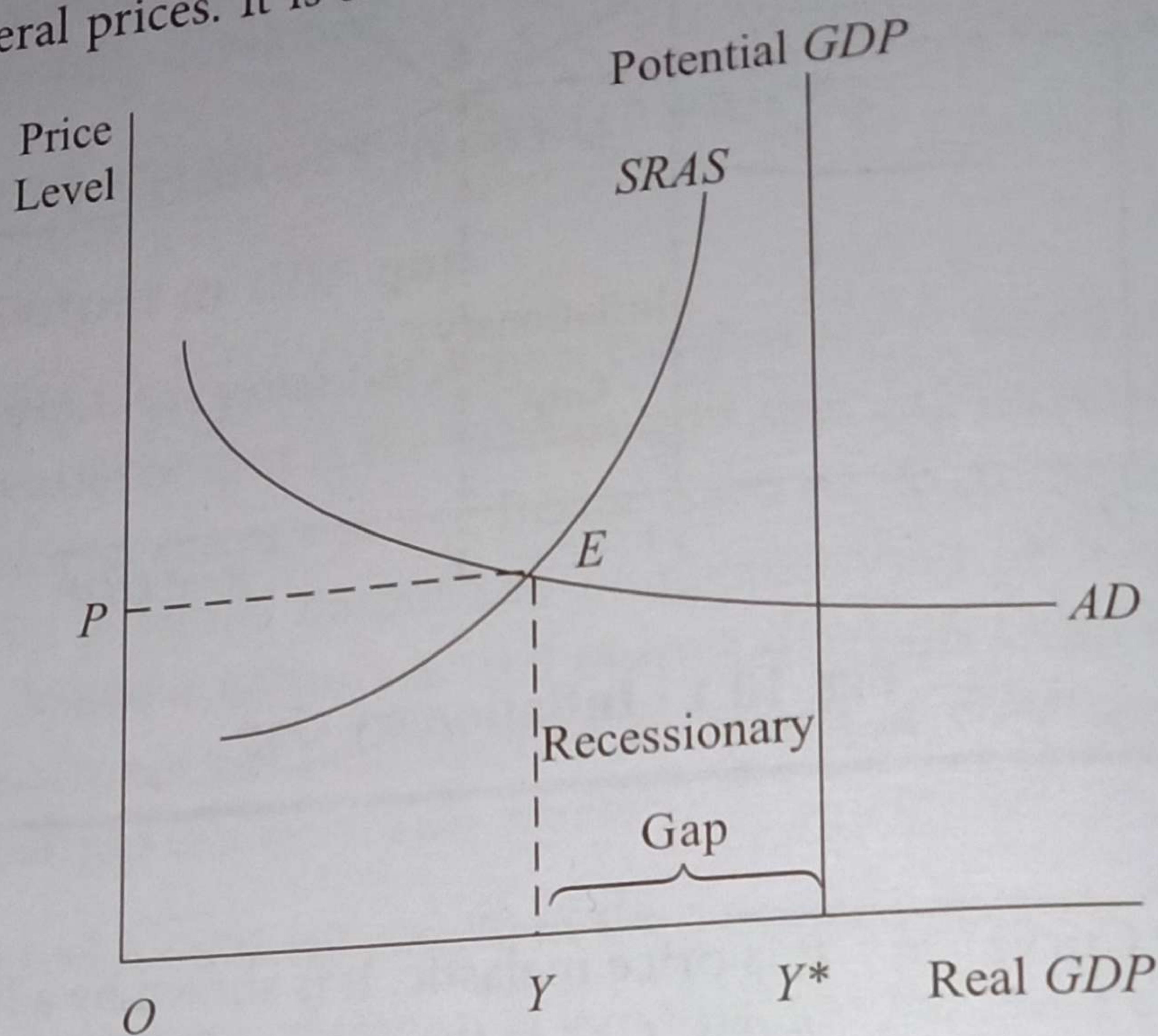


Fig. 10.2 : Recessionary Gap

where

Potential GDP curve = It is price inelastic. It is shown by a line parallel to y-axis. OY^* is the potential level of output.

Point E = AD and SRAS curves intersect at point E giving OP as the price level. The actual GDP is OY.

$Y^* - Y$ = Potential output is more than actual output. It shows that the firms are producing below their normal capacity. Labour is not fully utilised. This gap between the potential output and actual output is called **deflationary or recessionary gap**. In this case the firms are earning below normal capacity profits.

In the words of Lipsey and Chrystal, "The slump that is associated with a recessionary gap generates a set of conditions—low profit for the firms, usually low demand for labour, and a desire on the part of the firms to resist wage demands and even to push for wage concessions—that exerts downward pressure on wages and unit labour costs."