CHAPTER SIXTH

COST ACCOUNTING AND PRICE LEVEL VARIATIONS
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Cost accounting as a management discipline has been practised for more than a century. In the modern world of developing economy one of managers' important functions is the management of cost. A manufacturer who produces the product cheaper than another is more efficient and has better chances of progress and expansion as compared to another whose costs are higher. This applies almost to all manufacturing, extractive, agricultural and transport enterprises and even to charitable and non-profit making institutions like universities and service clubs. Any enterprise which produces the goods, services, skilled workers, innovations and researches at a cost cheaper than another, provided the quality is same or similar, is more efficient and a better national asset. So cost is a challenge to managers in so far as they have to produce the goods and services at the minimum sacrifice of scarce resources. The field of cost accounting covers the cost determination, analysis and interpretation, objective ascertainment of causes leading to adverse factors and investigation of the economics of utilisation of sources. In the present chapter a study has been made as to the concepts, objectives, and managerial uses of cost accounting and impact of changes in money values on the costing information provided by the cost accounts to management for exercising cost control and quality control.
COST ACCOUNTING DEFINED

The advocates of historical cost accounting believe that the determination of costs in terms of products, departments and cost centres is the main field of activity in cost accounting. The progressive accountant on the other hand, emphatically, assert that the field of cost accounting covers the estimation of cost before manufacture, ascertainment of actual cost and finding out deviations. The techniques and procedures of cost accountancy have developed so fast in the last twenty years that it is difficult to give a suitable definition which fully covers its scope. The Institute of Cost and Management Accounts, London has given the definitions of cost accountancy, costing and cost accounting as under:

(1) Cost Accountancy

The application of costing and cost accounting principles, methods and techniques to the science, art and practice of cost control and the ascertainment of profitability. It includes the presentation of information derived therefrom for the purpose of managerial decision making.

[Thus the term 'Cost Accountancy' includes (i) Costing and (ii) Cost Accounting. Its objectives are (i) cost control and (ii) profitability ascertainment. It serves as an essential tool of management for decision making].
(2) **Costing**

The techniques and process of ascertaining costs. [In addition to the presentation of statement of cost showing how the costs have been arrived at, the process of ascertaining cost is a matter related to allocation, apportionment and absorption of costs. There are various techniques of ascertaining costs such as absorption costing, marginal costing, standard costing, uniform costing etc.].

(3) **Cost Accounting**

The process of accounting for cost from the point at which expenditure is incurred or committed to the establishment of its ultimate relationship with cost centres and cost units. In its widest usage it embraces the preparation of statistical data, the application of cost control methods and the ascertainment of the profitability of activities carried out or planned.

[Thus cost accounting is the method of accounting for cost. Cost comprises three elements viz. material, labour and overheads. The recording and accounting of all these elements find their treatment in cost accounting. Cost control is the objectives of cost accountancy but the application of cost control methods lies in the domain of cost accounting].

**OBJECTS AND FUNCTIONS OF COST ACCOUNTING**

The objects of cost accounting can be broadly
summarised as under:

(1) **Cost Ascertainment**

Cost finding is cost ascertainment. The technique of ascertaining cost is known as 'Costing'. For the purpose of arriving at the total cost and the cost per unit of production the collection, classification, analysis, allocation, apportionment and absorption of expenditure is done.

(2) **Cost Control**

For the purpose of cost control various operations involved in the manufacture of products are carefully studied, budgets and standards for the consumption of materials, use of labour and for expending the overheads are set and compared with the actual performances. The variances arising out of the comparison so made state whether the cost is within control or not.

(3) **Determination of Selling Price**

Cost accounting provides detailed information about the composition of total cost due to which selling price is easily determined because the supply price or the tender price of a product depends upon its total cost plus a margin of profit which the manufacturer wants to make depending upon the interplay of factors of demand and supply. It also provides information to decide the extent to which the
prices can be reduced to meet the challenges arising out of competition by differentiating the costs into variable and fixed ones.

(4) Providing a Basis for Business Policy

Cost accounting helps the management in the formulation of business policy and in decision making. The gross profit analysis, the cost volume profit relationship, the break even point of sale and the differential costing method etc. help the management in profit planning and in taking decisions about introduction or discontinuance of a product, utilisation of idle plant capacity, selection of most profitable sales mix, dumping of goods in a foreign market at a cheaper price, make or buy etc.

METHODS OF COSTING

It has been stated earlier that cost ascertainment is the task of cost accountancy. There are different methods of costing which are illustrated as under:

(A) Job Costing

The following methods are included in job costing:

(1) Contract costing which is applicable where the cost unit is a contract which is one and complete in itself and which may continue for over more than a year.
(2) Batch costing applicable in those cases where in place of a single job, there is a batch or group of identical products.

(B) **Process Costing**

It is the method where costs are collected and accumulated according to departments or process and the cost of each department or process is divided by the quantity of production to arrive at cost per unit. The cost is calculated process wise or department wise.

(C) **Other Methods**

Other methods of costing which are based on process costing but vary due to special characteristics are as follows:

(1) Single or output costing which is used where the production is uniform and consists of only a single product and the cost is ascertained per unit of output.

(2) Operating costing which is used to determine the cost of rendering services by air-ways, railways, road transport, hospitals etc.

(3) Operation costing which is used where the manufacturing process consists of a number of distinct operations and it includes costing by every operation instead of a process.

(4) Departmental costing which is applicable where
the cost of a department or a cost centre is required to be ascertained.

(5) Multiple or composite costing which involves the application of more than one methods of costing in respect of the same product.

**FINANCIAL ACCOUNTING AND COST ACCOUNTING**

Financial accounting is concerned with the recording of transactions affecting the business and the preparation of the profit and loss account and the balance sheet. In fact utility of financial accounting can not be underrated as far as recording of cash and credit transaction of the business according to the nature of expenditure for the purpose of enabling the preparation of Profit and Loss Account for a period and the Balance Sheet on a specified date is concerned. But the financial accounts fail to serve the management in the discharge of its functions. This is so because the management is interested in knowing what is the cost and how to control and reduce the cost. The cost accounting has been originated as a branch of financial accounting to meet the call of detailed and analytical study of expenditure by proper planning to control the costs by budgets and standards and to guide the management in decision making. Hence the costing system serves the purpose of cost ascertainment as well as cost control. The information that may be obtained from cost accounts but not from financial accounts may be summarised as under:
(1) Ascertainment of costs of by-products, processes, cost centres or departments.

(2) Classification of costs according to functions viz. manufacturing, administration, selling and distribution, elements viz. material, variable and controllability viz. controllable and uncontrollable.

(3) Cost control data.

(4) Information for preparing reports to various interested parties.

(5) Cost data for helping the management in taking vital decisions and formulating policies.

**MANAGEMENT ACCOUNTING AND COST ACCOUNTING**

Management accounting is a concept designed to give utmost guidance to the management in formulating the policies and controlling the business operations. The Institute of Cost and Management Accountants, London, has defined management accounting as the presentation of accounting information in such a way as to assist management in the creation of policy and in the day to day operation of an undertaking. The sources for management accounting are the cost accounting and financial accounting. Also the definition of cost accountancy includes the presentation of information derived therefrom for managerial decision making. So it can be said that cost accountancy is not only a tool for cost finding and cost
recording but a good tool for cost control, ascertainment of profitability and for managerial decision making. That is why most of the cost accounting concepts are used in management accounting for assistance to management.

**ELEMENTS OF COST**

As cost accounting helps in managerial decision making and control, it is essential to have an idea about different elements of cost. The elements of cost are as under:

1. **Materials Cost**
   
   The materials cost is the cost of raw materials supplied to an undertaking. It is of following two types:

   1. **Direct Materials Cost**
      
      It is the cost of those materials which enter into and form part of the product e.g. timber in furniture making, yarn for cloth producing etc.

   2. **Indirect Materials Cost**
      
      It is the cost of those materials which do not form part of the product but which help the production e.g. lubricating oil, small tools, stores used for repairs and maintenance etc.

2. **Labour Cost**

   The labour cost is the cost of remuneration e.g.
wages, salaries, bonus, commission etc. of the employees of an undertaking. It is subdivided into the following two groups:

(i) **Direct Labour Cost**

It is the cost of labour directly engaged in the performance of production operation e.g. carpenters for furniture making, weavers for textiles etc.

(ii) **Indirect Labour Cost**

It is the cost of the labour not directly engaged in the production operations but engaged to assist or help the production operations e.g. watchman, storekeepers, inspectors etc.

(3) **Expenses**

Expenses as the third element of cost mean the expenses other than materials and labour. In fact it is the cost of services provided to an undertaking and the notional cost of use of owned assets. Expenses are of following two types:

(i) **Direct Expenses**

These are those expenses which are directly identified with a particular job, process or operation. Examples of direct expenses are cost of railway freight, carriage etc.
(ii) **Indirect Expenses**

Indirect expenses are those other than indirect material cost and indirect labour cost which cannot be directly identified with a particular job, process or work order but are common to jobs or processes. Examples of such expenses are factory expenses, office and administration expenses, selling and distribution expenses.

**OVERHEAD**

The aggregate of indirect materials cost, indirect labour cost and indirect expenses is called overhead. Overhead is classified according to functions into factory overheads, office and administration overheads, and selling and distribution overheads.

**ANALYSIS OF TOTAL COST**

On the basis of elements of cost, the total cost of a manufacturing concern is subdivided into following groups:

(i) **Prime Cost**

The aggregate of direct materials cost, direct labour cost and direct expenses is the prime cost.

(ii) **Factory Cost**

It is the total of prime cost plus factory
overheads.

(iii) Cost of Production

The total of factory cost and office and administration overhead is the office cost. It is more popularly called as the cost of production.

(iv) Total Cost

If the manufactured goods are sold, the selling and distribution overheads are added to the cost of production of goods sold for finding out the total cost.

(v) Selling Price

The total cost together with profit or loss is the selling price.

TOOLS OF COST ACCOUNTING

Following are the tools of cost accounting on the basis of which information for the use of management is derived:

(1) Manufacturing Accounting

In cost accounting detailed records are kept regarding manufacturing activities. The main object of keeping these records is to have a correct account of wastages of material, time etc. and to control them so that costs may be
reduced. For this purpose records are maintained about different elements of costs and necessary information is provided to the management for deciding business policies and future course of action.

(2) **Budgeting and Budgetary Control**

In order to draw the maximum benefit from the limited economic resources, it is necessary that there should be maximum utilisation of limited resources with a scientific and rational approach. For this purpose cost accounting prepares budgets relating to different manufacturing activities before commencing production and adopts the technique of budgetary control. Under budgetary control technique the budgets are established relating to the responsibilities of executives to the requirements of a policy and thereafter when production is over actual results are compared with budgeted results for the purpose of securing the objectives of the policy. Following are the objectives of the budgetary control:

(i) To exercise control on cost through comparison of the actual performance with the budgeted figures.

(ii) To take corrective measures either on the budget side or on the performance side.

(iii) To exercise control on the responsibilities of the executives in order to attain the targets fixed in different budgets.
(3) **Marginal Costing**

By the technique of marginal costing, cost accounting helps the management in studying the effects on profits of changes in volume or type of output. Marginal costing is not a system of cost ascertainment on the same lines as job costing or process costing but it is a special technique which provides management with information enabling it to study the cost volume profit relationship. The technique of marginal costing can be used in conjunction with job or process costing or with other techniques such as standard costing or budgetary control. Hence marginal costing is the ascertainment, by differentiating between fixed costs and variable costs, of marginal costs and of the effect on profits of changes in volume or type of output. With marginal costing variable costs are regarded as the cost of the products being manufactured. The fixed costs are treated as period costs which will be incurred during the period regardless of the volume of output and are charged directly to profit and loss account.

(4) **Standard Costing**

Standard costing is a system of cost accounting which makes use of predetermined standard costs relating to each element of cost viz. material, labour and overhead. Actually standard costing is the preparation and the use of standard costs, their comparison with the actual costs and
the analysis of variances to their causes and points of
ance. It is basically a technique of cost accounting
which compares the standard cost of each product or service
with the actual cost to determine the efficiency of the
operation so that any remedial action may be taken immedia-
tely. It is the most effective method available for contro-
lling performance and costs.

(5) **Uniform Costing**

Uniform costing is the application and use of
the same costing principles by several undertakings. It is
not a separate method of costing, like job or process costing,
it only introduces uniformity regarding costing principles
among the different undertakings engaged in the same industry.
The objects of uniform costing are:

(i) To provide a basis for cost comparison between
different undertakings in the same industry.

(ii) To help trade associations in regulating produc-
tion capacity, utilising surplus productive
capacity, deciding price policy etc.

(iii) To help the government in price regulation and
fixation of reasonable prices etc.

**EFFECTS OF PRICE LEVEL CHANGES ON COST ACCOUNTING OPERATIONS**

In conditions of changing price levels the measure-
ments in terms of money of the results of the operations of
a business do not reflect adequately the results in terms of real values of these operations. For example if money expended on revenue goods in one year is twice that expended in previous year, it does not mean that twice the quantity of goods has been purchased. Actually changes in money values affect the results in terms of money of both the financial and cost accounting or manufacturing and trading operations of a business. Following are the main financial and cost accounting operations of a business which are affected due to changes in money values:

(A) Financial Operations

(i) Financing the business.
(ii) Employing the finances raised.

(B) Cost Accounting Operations

(i) Consuming revenue good
(ii) Employing labour
(iii) Hiring outside services
(iv) Consuming capital goods
(v) Absorbing overheads
(vi) Creating stock of revenue goods
(vii) Selling goods and services

Now in the forthcoming pages we shall consider the effects of changes in money values on each of the classes of business operations discussed above.
(A) **FINANCIAL OPERATIONS**

The effects of changes in money values on the financial operations viz. (i) raising the finances for the business and (ii) employing them is clear - from the following:

(i) **Raising the Finances for the Business**

Usually following parties provide finances to the business:

(a) **Investors of Money**

By investors of money we mean those persons who invest money in or lend money to a business for long or for short periods on any terms of security or repayment. The resources of investors are provided to the business in the form of either (i) preference and equity shares or (ii) debentures or (iii) loans and advances. The factors which an investor takes into consideration while investing money are (i) the rate of remuneration offered on the money and (ii) the magnitude of the risk in investments. Where an investor is offered a choice of investments producing the same rate of interest, he tends to invest in that investment which in fact guarantees that the expected rate of interest will be maintained and that on realisation same amount will be returned to the investor as he originally invested - all in terms of money as opposed to real values. The changing price levels affect both (i) the real value of investments
and (ii) the return on investments. This is clear from the following example.

**Example No. 1**

We assume that investor Mr. Ashok purchases at the beginning of year one Rs.10,000 3% mortgage debentures of Re.1 each. Another investor Mr. Banshi Lal purchases on the same year end date as the debentures of Mr. Ashok are redeemed that number of 3% debentures of Re.1 each which in the past year would have assured to him the same real income as investor Mr. Ashok enjoyed during year one. The position at successive dates of redemption has been shown in the following table:

<table>
<thead>
<tr>
<th>Period in which redemption occurs</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Living Index (assumed)</td>
<td>100</td>
<td>109</td>
<td>114</td>
<td>118</td>
<td>125</td>
</tr>
<tr>
<td>Nominal income required to provided Mr. Banshi Lal with real income of Rs.300 per annum</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
</tr>
<tr>
<td>No. of 3% debentures of Re.1 each purchased by Mr. Banshi Lal to yield nominal income stated above</td>
<td>10,000</td>
<td>10,900</td>
<td>11,400</td>
<td>11,800</td>
<td>12,500</td>
</tr>
<tr>
<td>Amount repayable to Mr. Ashok</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Difference</td>
<td>900</td>
<td>1,400</td>
<td>1,800</td>
<td>2,500</td>
<td></td>
</tr>
</tbody>
</table>


From the above table it is clear that by lending money at a given rate of interest in conditions of rising prices, the longer the period for which money is lent, the greater is the loss in terms of real capital to the investor. Also the investor lose in the amount of interest earned because the real value of interest received by him in second and other years is not the same as it was in the first year. Because as per above table in second year Rs.327 are equal to Rs.300 in first year but the investor Mr. Ashok will receive an interest of only Rs.300 in terms of money value. So in case of rising prices an investor suffers a loss in real capital whereas in case of falling prices he gains in real capital by investing in long term securities.

(b) Suppliers of Goods and Services

By suppliers of goods and services we mean those persons who supply revenue or consumable goods such as raw and other materials and capital goods such as plant, machinery and motor vehicles or who provide services such as leased premises, gas, electricity, telephones, transport and professional or other services. The price to be received by the suppliers of goods and services may be that ruling at or close of the date when the goods or services are made available to the business or they may be fixed in terms of a contract for the future supply of goods or services. The effect of price level changes on the suppliers of goods and
services is clear from the following example:

**Example No. 2**

Supplier Mr. Rajiv agrees to deliver for five months 100 tons of material each month at the rate of Rs.10 per ton and supplier Mr. Suresh delivers the same quantity of material for cash on delivery on the same date as supplier Mr. Rajiv and receives payment from the business for 100 tons at the price ruling on the date of delivery. The position regarding effects of price level changes is clear from the following table:

<table>
<thead>
<tr>
<th>Month in which payment is made</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
</tr>
<tr>
<td>Current price per ton</td>
<td>10.00</td>
<td>10.50</td>
<td>10.80</td>
<td>11.00</td>
<td>11.30</td>
</tr>
<tr>
<td>Amount due to -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplier Mr. Rajiv</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Supplier Mr. Suresh</td>
<td>1,000</td>
<td>1,050</td>
<td>1,080</td>
<td>1,100</td>
<td>1,130</td>
</tr>
<tr>
<td>Difference</td>
<td></td>
<td>50</td>
<td>80</td>
<td>100</td>
<td>130</td>
</tr>
</tbody>
</table>

From the above table it is clear that by allowing progressively longer periods of credit suppliers of goods and services suffer a progressively greater loss in terms of real capital. But in case of falling prices a supplier gains in real capital by allowing extended terms of credit.
(c) Claimants to Contingent Rights

The investors and the suppliers of goods and services provide finance to the business by transferring money and money's worth respectively. With the finance so provided, business conducts its manufacturing and business activities and earns profit. The profit earned by the business is also a source of finance so long it is retained into the business and not distributed. Normally whole of the profits earned are never retained into the business but disbursements are made therefrom to taxation authorities, loan creditors, shareholders etc. They are called claimants to contingent rights. These claimants of contingent rights possess a command over a certain amount of purchasing power, the effective use of which is prevented by any postponement of the settlement of claim. So in a period of rising prices claimants to contingent rights suffer in terms of purchasing power. In case of falling prices the reverse is the case.

(ii) Employing the Finances Raised

Now we shall discuss the effect of price level changes on those operations of the business which involve the employment of the finances raised by the business. The finances raised by the business may be employed in the following:
(a) **Acquisition of Tangible Stock and Intangible Rights**

For the purpose of carrying out manufacturing and trading activities it is essential to have capital and revenue goods i.e. tangible stock. The capital goods include land, buildings, furniture, fixtures, machinery, plant, rolling stock, live stock etc. and revenue goods include all the tangible goods acquired by a business other than those defined as capital goods. The effect of price level increases is to increase the money cost of an investment in a constant quantity of capital goods while a contrary effect is produced by falling price levels. This is clear from the following example:

**Example No. 3**

Manufacturer X and Y instal during period one a machine with a productivity index of 100 at a cost of Rs.5,000. Manufacturer X does not replace this machine while manufacture Y replaces his machine each period with a machine of higher productivity. Assuming that the cost of a machine relative to its productivity can be established, the cost of each machine purchased is shown in the following table:
<table>
<thead>
<tr>
<th>Period</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price Index</td>
<td>100</td>
<td>107</td>
<td>112</td>
<td>117</td>
<td>124</td>
</tr>
<tr>
<td>Productivity Index including correction for increased prices</td>
<td>100</td>
<td>112</td>
<td>120</td>
<td>128</td>
<td>140</td>
</tr>
<tr>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
</tr>
<tr>
<td>Cost of Y's Machine</td>
<td>5,000</td>
<td>5,350</td>
<td>5,600</td>
<td>5,850</td>
<td>6,200</td>
</tr>
<tr>
<td>Cost of Productivity Factor = Rs.2,000 x</td>
<td>2,000</td>
<td>2,240</td>
<td>2,400</td>
<td>2,560</td>
<td>2,800</td>
</tr>
<tr>
<td>Productivity Index</td>
<td>Net Cost of Y's Machine</td>
<td>3,000</td>
<td>3,110</td>
<td>3,200</td>
<td>3,290</td>
</tr>
<tr>
<td>Net Cost of X's Machine</td>
<td>3,000</td>
<td>3,000</td>
<td>3,000</td>
<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Difference</td>
<td>-</td>
<td>110</td>
<td>200</td>
<td>290</td>
<td>400</td>
</tr>
</tbody>
</table>

Hence in a period of fluctuating price levels, the amount spent on the purchase of capital goods does not represent their value in real terms because in conditions of rising price levels the real value is less than and in times of falling price levels it is more than the amount shown as invested in them. As far as the effect of changing price levels on the amount invested in revenue goods is concerned it is identical with that on the amount invested in capital
(b) **Disposing Money**

A business not only maintains stock of capital and revenue goods but also maintains a stock of money for replacement of these goods in short periods. Also money is applied by a concern in making prepayments and investments in shares and debentures of another business. Money invested in this manner is excluded from the stock of money held for financial purpose. So as far as disposal of money is concerned we have the items investments, pre-payments, cash in hand and cash at bank. The effect of price level changes on all these items is that their values as shown in the balance sheet do not represent real values. A detailed discussion of all these items has already been made in earlier chapters.

(c) **Granting Credit**

Money can also be disposed off by granting credit i.e. by supplying goods and services on credit under long or short term contracts and by establishing claims to contingent rights. The effects of price level changes on such transactions has been discussed earlier in this chapter.

(B) **COST ACCOUNTING OPERATIONS**

Price level changes have a serious impact on manufacturing operations of a business. Its effect on cost accounting operations is clear from the following:
(i) Consuming Revenue Goods

More than fifty per cent of the total cost of the product or the job is generally the cost of materials. For any organisation engaged in manufacturing and selling activities proper planning and control of material is one of the first functions. The price level changes affect the consumption of revenue goods. Revenue goods include those items which are consumed by being used or sold. Hence consumption of revenue goods occurs when these goods are taken out of the stock of revenue goods held and are used or have work carried out upon them. Strictly speaking revenue goods are consumed not only by being used but by being sold also. The immediate effect of price level changes on the value of revenue goods is that in periods of rising price levels, the real value of revenue goods is less than and in periods of falling prices, it is greater than the amount invested in them subject always to the reservation applicable to conditions where rising price levels are followed by falling price levels or vice-versa. The effect of changing price levels on the value of revenue goods acquired is transmitted to the value of these goods consumed by means of the price at which the revenue goods consumed in production have been valued. The various prices generally used in valuing goods consumed in production are as follows:
(a) **Cost Prices Such as**

(i) Actual price where identification of goods is possible.

(ii) First in first out (FIFO) price based on the assumption that materials received first are issued first.

(iii) Last in first out (LIFO) price based on the assumption that materials received last are issued first.

(iv) Highest in first out (HIPO) price assuming that materials received at the highest price in the stock are issued first.

(v) Simple average price calculated by taking simple arithmetic average of the prices of goods in the stock available.

(vi) Weighted average price calculated by taking arithmetic average of the prices weighted by the quantities at each price of the goods available for consumption during a given period.

(vii) Arithmetic average of the prices weighted by the quantity at each price of the goods in the available stock.

(viii) Moving average of the prices paid during a given number of previous period.

(b) **Standard Price Such as**

(i) Basic standard price previously fixed to operate
over a long period.

(ii) Current standard price previously fixed to operate over a short period.

(c) **Replacement Price**

It has been stated earlier that the quantum of effect of price level changes on the value of revenue goods consumed in production will depend upon the method of valuation which has been adopted for charging the consumption of revenue goods to production. In the next example we shall illustrate the effect of price level changes on the raw material consumed in production under different valuation methods.

**Example No. 4**

In the following table purchases of raw materials in different periods and position of stock in period 28 is given. We assume that in period 28/4 units of material to be issued to production are 500. We are giving here two tables. In first table prices for valuing issue of materials to production under different methods of pricing of issue of materials have been given and in the second table indices have been given for measuring relative changes in relation to the basic standard value, specific price and replacement price for issue of material:
<table>
<thead>
<tr>
<th>Period</th>
<th>Units Purchased (P)</th>
<th>Actual Price per unit (Rs.)</th>
<th>Value (Rs.)</th>
<th>Derived Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Basic Standard</td>
</tr>
<tr>
<td>20</td>
<td>P 10,000</td>
<td>13.00</td>
<td>1,30,000</td>
<td>Current Standard</td>
</tr>
<tr>
<td>21</td>
<td>P 8,000</td>
<td>13.30</td>
<td>1,06,400</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>P 13,000</td>
<td>14.00</td>
<td>1,82,000</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>P 15,000</td>
<td>14.50</td>
<td>2,17,500</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>P 11,000</td>
<td>14.80</td>
<td>1,62,800</td>
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</tr>
<tr>
<td>25</td>
<td>P 12,000</td>
<td>15.40</td>
<td>1,84,800</td>
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</tr>
<tr>
<td>26</td>
<td>P 14,000</td>
<td>16.00</td>
<td>2,24,000</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>P 13,000</td>
<td>16.37</td>
<td>2,12,810</td>
<td></td>
</tr>
<tr>
<td>28/oa</td>
<td>S 500</td>
<td>14.00</td>
<td>7,000</td>
<td>Moving Average</td>
</tr>
<tr>
<td>b</td>
<td>S 1,000</td>
<td>14.80</td>
<td>14,800</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>S 500</td>
<td>15.40</td>
<td>7,700</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>S 1,000</td>
<td>16.00</td>
<td>16,000</td>
<td></td>
</tr>
<tr>
<td>28/1</td>
<td>P 500</td>
<td>16.50</td>
<td>8,250</td>
<td></td>
</tr>
<tr>
<td>28/2a</td>
<td>P 3,000</td>
<td>16.10</td>
<td>48,300</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>P 1,000</td>
<td>16.30</td>
<td>16,300</td>
<td></td>
</tr>
<tr>
<td>28/4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Simple Average</td>
</tr>
<tr>
<td>28/5a</td>
<td>P 6,000</td>
<td>16.40</td>
<td>98,400</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>P 2,500</td>
<td>16.60</td>
<td>41,500</td>
<td></td>
</tr>
</tbody>
</table>

- **Type of Price**: Basic Standard, Current Standard, Moving Average, FIFO, Specific Price, Simple Average, Weighted Average, LIFO, Replacement, Weighted Periodic Average
- **Period**: 1, 20, 21 to 26, 22 to 27, 23 to 28, 25, 28/oa to 28/2b, 28/2b, 28/4, 28/oa to 28/5b
- **Derived Price per unit (Rs.)**: 10.00, 12.10, 14.17, 14.67, 15.18, 14.00, 14.80, 15.59, 15.78, 16.30, 16.40, 16.14
## Statement Showing Valuation of 500 Units to Be Issued to Production in Period 28/4 and Indices of Values

<table>
<thead>
<tr>
<th>Price Used</th>
<th>Value Rs.</th>
<th>Period of Calculation</th>
<th>Basic Indices of Value</th>
<th>Specific Price</th>
<th>Replacment Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Basic Standard</td>
<td>5,000</td>
<td>100</td>
<td>68</td>
<td>82</td>
<td>100</td>
</tr>
<tr>
<td>2. Current Standard</td>
<td>6,050</td>
<td>121</td>
<td>74</td>
<td>95</td>
<td>100</td>
</tr>
<tr>
<td>3. First in first out</td>
<td>7,000</td>
<td>140</td>
<td>85</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>4. Specific Price</td>
<td>7,400</td>
<td>148</td>
<td>90</td>
<td>103</td>
<td>100</td>
</tr>
<tr>
<td>5. Moving Average</td>
<td>7,590</td>
<td>152</td>
<td>93</td>
<td>105</td>
<td>100</td>
</tr>
<tr>
<td>6. Simple Average</td>
<td>7,795</td>
<td>156</td>
<td>95</td>
<td>107</td>
<td>100</td>
</tr>
<tr>
<td>7. Weighted Average</td>
<td>7,890</td>
<td>158</td>
<td>96</td>
<td>109</td>
<td>100</td>
</tr>
<tr>
<td>8. Periodic Average</td>
<td>8,070</td>
<td>161</td>
<td>98</td>
<td>110</td>
<td>100</td>
</tr>
<tr>
<td>9. Last-in-First Out</td>
<td>8,150</td>
<td>163</td>
<td>99</td>
<td>111</td>
<td>100</td>
</tr>
<tr>
<td>10. Replacement</td>
<td>8,200</td>
<td>164</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From the above tables it is clear that 500 units of materials consumed in period 28/4 were purchased in period 25 at a price 48% above the basic standard price. This increase of 48% represents the rise in price level of material not only between periods 1 and 25 but also between periods 1 and 28 as far as consumption of raw materials is concerned. By observation of index value of the material in relation to the specific price i.e. actual price in second table we find that the use of other bases for valuing material consumed either modify or exaggerate the effect of rising price levels on the cost of a specific item of revenue goods. The same is true in conditions of falling price levels. Hence we conclude that in conditions of changing price levels the value of revenue goods shown as consumed is affected by:

(i) The change in price level.
(ii) The length of interval between the dates of purchase and consumption of the goods.
(iii) The basis upon which the price at which the goods are valued is calculated.

(ii) Employing Labour

The second important element of cost is labour. The labour employed includes all employees of a business whatever may be the method of their remuneration and in whatever activity they may be engaged. The remuneration of labour takes place almost simultaneously with its employment in
production, the value of the labour so consumed is the current money value of the labour. In most of the cases basic standard or current standard rates are used for valuing labour consumed. The result is that the rate used may be above or below the current money rate. Often owing to the relationship between a business and its employees delay occurs between the application for and the granting of increases in labour rates. In certain cases the award of increases operates retrospectively. So we can say that in periods of rising price levels the current money rate of labour is less than the current earnable rate. This is clear from the following example.

Example No. 5

In the following table values of wages by use of various rates are given. We assume that basic standard rate is an indicator of real value of the labour.

<table>
<thead>
<tr>
<th>Rate Used</th>
<th>Period of Rate</th>
<th>Weekly Rate Rs.</th>
<th>Basic Standard = 100</th>
<th>Current Money = 100</th>
<th>Current Earnable = 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Basic Standard</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>59</td>
<td>56</td>
</tr>
<tr>
<td>2. Current Standard</td>
<td>20</td>
<td>160</td>
<td>160</td>
<td>94</td>
<td>89</td>
</tr>
<tr>
<td>3. Current Money</td>
<td>28</td>
<td>170</td>
<td>170</td>
<td>100</td>
<td>94</td>
</tr>
<tr>
<td>4. Current Earnable</td>
<td>32</td>
<td>180</td>
<td>180</td>
<td>106</td>
<td>100</td>
</tr>
</tbody>
</table>
From the above table we find that current value is 70% above the real value. At the same time rise in price level of 70% can be inflated or deflated by use of different labour rates.

(iii) **Hiring Outside Services**

Outside services include those which are hired at (a) specific charge in the form of a fee, premium or charge e.g. professional services, hotel charges, carriage, gas, electricity, repair charges etc., (b) rental e.g. accommodation, provision of special machines etc, and (c) rental and specific charge e.g. telephone.

Generally the price paid for outside services is sensitive to increases in price levels and sluggish in relation to falling price levels. The price current for a particular service may be taken as a true index of price changes. But this assumption does not apply where a service contract subsists for the payment of a fixed charge during the period of the contract. In such case if the price level is rising the charge is less than and where price levels are falling the charge is greater than the current 'earnable' charge.

(iv) **Consuming Capital Goods**

Capital goods depreciate by the action of wear and tear while in use. At the same time capital goods may
become no longer usable for the specific purpose for which they are acquired. The immediate effect of changing price levels on the value of capital goods is produced at the time of their purchase. The effect of changing price levels on the value of capital goods acquired is transmitted to the value of capital goods consumed by means of the depreciation rate used to evaluate this consumption. Thus the changes in price levels affect the depreciation charge. The effect of price level changes on depreciation charge has already been discussed in fourth chapter.

(v) Absorbing Overheads

Overheads are those costs which can not be identified with any particular class or quantity of the revenue goods which they are instrumental in producing and value of consumption of which must therefore, be assigned to these goods in accordance with a selected basis of overhead absorption. For this purpose overhead rates are calculated in advance of a period of production by dividing the predetermined overheads for that period by the predetermined quantity of the base on which absorption is to be made. The different bases which may be applied for the absorption of overheads are as follows:

(i) Direct material cost method under which the total overheads of a department are divided by the total cost of direct material and a rate is ascertained in percentage.
(ii) Direct wages method under which the total overheads of a department are divided by the total cost of direct wages and a rate is determined in percentage.

(iii) Direct labour hours method under which total hours worked by labour in a department are calculated for a specified period and the overheads of that department for that period are divided by the number of hours to get the hourly rate of overheads.

(iv) Machine hour rate method under which a machine hour rate is calculated either for a group of machines or for each individual machine for absorption of overheads by dividing the total expenses chargeable to the machine by the total hours worked by the machine.

(v) Combined machine hour and direct labour hour method under which combined application of machine hour rate and labour hour rate is made for absorption of overheads. This method is useful in factories where labour and machines work together.

(vi) Production units method under which overheads of the department are divided by the units of production and thus a rate per unit is ascertained for absorption of overhead.

(vii) Prime cost method under which overheads of a department are divided by the prime cost, viz. aggregate of direct material and direct labour of that
department and overhead rate is ascertained in percentage.

As far as effect of changing price levels on the value of overheads recovered is concerned, they are affected—

(a) directly by—

(i) changes in the price levels of the constituents of the overheads incurred and the value of the base of overhead recovery,

(ii) the accuracy with which estimates are made of real values or quantities of overheads, changes in the price levels of overheads and the value of base and the money value of overheads and the base,

(iii) the length of the period of recovery or the frequency with which the rate is revised, and

(b) indirectly where the value of revenue goods consumed or labour employed have been used as a base by—

(i) changes in the price levels of the value of the base,

(ii) the method used to calculate the value of the base,

(iii) the length of the interval between the purchase and use of the goods whose value is used as a base.
(vi) Creating Stock of Revenue Goods

The revenue and capital goods labour and outside services combine to produce for resale other revenue goods. Thus the product i.e. the revenue goods produced represents the combination of certain weights or physical units of materials and the hours for which labour, capital goods and outside, services are employed in its production. The only common measure for expressing the various quantities of various factors which contribute to the manufacture of the product is money. In earlier pages we have discussed the impact of money changes on the evaluation of consumption of materials consumed, labour employed, capital goods and outside services hired for production. It follows, therefore, that the evaluation of the goods produced by these factors is also subject to the same influences as affect the evaluation of these factors. In brief it can be said that in conditions of changing price levels following factors affect the evaluation of goods produced:

(i) Changes in price level.
(ii) The time lag between the purchase and consumption of goods.
(iii) The basis adopted for evaluation of consumption of material, labour and outside services.
(iv) The accuracy with which estimates are made.
(v) The base and variations in the value of the base used for evaluating the overhead content of the
goods produced.

(vi) The frequency with which overhead absorption rates are revised.

(vii) Selling Goods and Services

The changes in money values also affect the selling prices of goods and services. The price received for good and services supplied may be:

(i) that ruling at or close to the date when the goods or services are supplied,

(ii) that fixed in terms of contract.

The price obtainable for the supply of goods or services is influenced by the following principal factors:

(i) The market price.

(ii) The price of certain competitors.

(iii) The price fixed by agreement between suppliers and consumers.

(iv) The delivered cost of goods or services.

(v) The profit obtainable or the loss bearable.

(vi) Allowances in the form of:

(a) quantity discounts to raise the marginal contribution, and

(b) trade discounts to cover distribution costs incurred by certain classes of customer.
In normal conditions of trade and prices, the proceeds of sale are sufficient to (i) replace the goods consumed during production, (ii) satisfy the claims of taxation authorities and (iii) remunerate adequately the providers of capital to the business. Often the upward movement of the cost of replacing goods is not accompanied by an adequate increase in proceeds of sale or an adequate reduction in the claims of taxation authorities or shareholders. The result is that sale proceeds fail to satisfy the demands placed upon them.
The discussions in the chapter suggest that at present our cost accounting is concerned with recording of money values in respect of various operations involved in manufacturing activities. On the basis of information available from cost accounting records we make plans for future and prepare budgets regarding different activities, lay down standards necessary for cost control and quality control and take various managerial decisions. Due to price fluctuations cost accounting records are distorted and do not provide any fruitful information for internal control. The effects of price level changes on cost accounting data lead to failure of the cost ascertainment objective of cost accounting. Costs are not accurately ascertained due to which the selling price fixed is not sufficient to cover the replacement of materials and various other payments. Hence it is essential that cost accounting data regarding materials consumed, wages paid and overheads absorbed should be properly adjusted for the effects of price level changes so that costs may be correctly computed and selling price to be obtained may be sufficient to finance increased replacement costs. Also the provision of up to date costing information in terms of current money values will assist the management in making correct forecasts while preparing budgets, laying down attainable standards and calculating correct variances and taking decisions involving cost volume analysis.