

1. INTRODUCTION TO LABOR COSTING AND LABOR COST CONTROL

Labor cost is the second important element of the cost of production after material cost. Labor costs constitute a major portion of the total cost of a product or service that may take the form of wages, salaries and/or other incentives of employee remunerations. The profitability and growth of the entity depends greatly upon the proper utilization of the human resources that in turn needs to be properly recoded and controlled.

1.1. Types of labor cost:

The labor cost has two types:

a) Direct Labor Cost: Direct labor cost is any cost that is specifically incurred for or can be readily charged to or recognized with any specific contract, job or work order. In cost accounting it is classified as direct labor cost which becomes part of prime cost. For example: In a watch manufacturing factory, a worker operating a molding machine to produce a part of wrist watch.

b) Indirect Labor Cost: Where the direct labor can be recognized with and charged to the job, the indirect labor cannot be so charged and hence is treated as part of the factory overheads. For example: Wages paid to supervisor of a factory or salary paid to driver of delivery van used for distribution of the product.

Wage payments are generally based on the productivity, time and skill or their combination. Proper control and accounting for this cost factor and motivation of worker is important in bringing efficiency to an enterprise.

For example:

- a) **Wage payment based on productivity:** Wages paid on the basis of number of units produced, like stitching 2000 pieces of shirts at Rs. 75 per piece.
- b) **Wage payment based on time:** Wages paid on the basis of number of hours a worker performed his in a production line, like 160 hours paid at Rs. 175 per hour.
- c) **Wage payment based on skill:** A wage differentiation due to varied skills, like skilled workers are paid higher than apprentice for the same job.

1.2. Measuring labor activity:

It is important to differentiate between “production” and “productivity” while measuring labor activity.

Production: Production refers to the quantity or volume of the output produced i.e. the total number of units produced. Production therefore is a measure of quantity of work.

Productivity: Productivity unlike production is a measure of efficiency with which the units have been produced.

Example 01:

Mr. X is supposed to produce six units in every hour at work. The standard productivity rate is six units per hour for every employee. During the week he made 252 units in 38 hours of work. The productivity ratio is worked out as:

The total production in the week is 252 units.

Productivity is a relative measure of the hours actually taken and the hours that should have been taken to make the output. It might be determined in either of the following two methods

Method 1:

| | |
|---|----------|
| 252 units should take | 42 hours |
| But took | 38 hours |
| Productivity ratio = $42/38 \times 100$ | 110.5% |

Method 2:

| | |
|---|-----------|
| In 38 hours Mr.X should make | 228 units |
| But made | 252 units |
| Productivity ratio = $252/228 \times 100$ | 110.5% |

Comment: A productivity ratio greater than 100% indicates that the actual efficiency is better than the standard or expected level of efficiency.

1.3. Labor payment methods:

The choice of appropriate labor payment method is very important for any organization as it:

- may affect the cost of the finished products specially when it is a labor intensive organization,
- casts a major impact on the morale and efficiency of the employees and serious consideration should therefore be given to the possible motivational impact of the remuneration method being adopted.

The two widely known basic labor payment methods are time rate and piece work. These are discussed in detail below:

Time rate

If an employee works for more hours than the basic daily requirement or on days which do not constitute a part of the working week (e.g. Saturdays and Sundays), then he may be entitled to an overtime payment. The overtime hours are usually paid at a premium rate such as “time and a quarter”, “time and a half” or “double-time”.

Time and a quarter for example, means that 1.25 times the basic hourly rate is paid for hours worked in excess of the basic requirement. The overtime premium is the extra rate paid over and above the basic rate.

If employees work unsocial hours, e.g. overnight, then they are entitled to a shift premium which is quite similar to an overtime premium and means that the employees are paid at an increased hourly rate.

Example 02:

If the basic rate of pay per hour is Rs. 6 and overtime rate is time and a half, then calculating the overtime premium for 8 hours worked in excess of the basic requirement would involve below working

| | Rs. |
|------------------------------|-----|
| Basic Pay (8 x Rs. 6) | 48 |
| Overtime premium (8 x Rs. 3) | 24 |
| Total (8 x Rs. 9) | 72 |

Piecework:

Under this method the employee is paid an agreed amount for each unit of output completed or for each task carried out. Output units per hour may also be an agreed upon number that is referred to as “standard hour produced”. It is also normal under piecework scheme that the employees get a guaranteed minimum wage regardless of the number of units produced. This safeguards them from loss of earnings when the production is low and is not on account of their own fault. The wages under the piecework system can be calculated as:

$$\text{Wages} = \text{Units produced} \times \text{Per unit pay rate}$$

Example 03:

Straight piecework with guaranteed minimum wage Sara is paid Rs. 20 for each unit produced with a guaranteed wage of Rs. 2000 for a 40-hour week. For a series of 4 weeks of the month she produced 140, 160, 180 and 200 units. In order to calculate total amount for the month, please see below:

| | Rs. |
|--|--------|
| Week 1 [(140 units x Rs. 20) + Rs. 2000] | 4,800 |
| Week 2 [(160 units x Rs. 20) + Rs. 2000] | 5,200 |
| Week 3 [(180 units x Rs. 20) + Rs. 2000] | 5,600 |
| Week 4 [(200 units x Rs. 20) + Rs. 2000] | 6,000 |
| Total for the month | 21,600 |

Example.

Penny Pincher is paid 50c for each towel she weaves, but she is guaranteed a minimum wage of \$60 for a 40 hour week. In a series of four weeks, she makes 100, 120, 140 and 160 towels.

Required

Calculate her pay each week, and the conversion cost per towel if production overhead is added at the rate of \$2.50 per direct labour hour.

ANSWER

| Week | Output Units | Pay \$ | Production overhead \$ | Conversion cost \$ | Unit conversion cost \$ |
|------|-----------------|-----------|------------------------------|--------------------------|----------------------------------|
| 1 | 100 (minimum) | 60 | 100 | 160 | 1.60 |
| 2 | 120 | 60 | 100 | 160 | 1.33 |
| 3 | 140 | 70 | 100 | 170 | 1.21 |
| 4 | 160 | 80 | 100 | 180 | 1.13 |

There is no incentive to Penny Pincher to produce more output unless she can exceed 120 units in a week. The guaranteed minimum wage in this case is too high to provide an incentive.

Example.

An employee is paid \$5 per piecework hour produced. In a 35 hour week they produce the following output.

| | |
|----------------------|------------------------------------|
| | Piecework time allowed per unit |
| 3 units of product A | 2.5 hours |
| 5 units of product B | 8.0 hours |

Required:

Calculate the employee's pay for the week.

Solution:

Piecework hours produced are as follows.

| | | |
|-----------------------|---------------|-------------------|
| Product A | 3 × 2.5 hours | 7.5 hours |
| Product B | 5 × 8 hours | 40.0 hours |
| Total piecework hours | | <u>47.5</u> hours |

Differential piecework scheme

Differential piecework schemes offer an incentive to employees to increase their output by paying higher rates for increased levels of production. For example:

| | |
|---|--------|
| Up to 80 units per week, rate of pay per unit = | \$1.00 |
| 80 to 90 units per week, rate of pay per unit = | \$1.20 |
| Above 90 units per week, rate of pay per unit = | \$1.30 |

Employers should obviously be careful to make it clear whether they intend to pay the increased rate on all units produced, or on the extra output only.

1.4. Basis of labor cost control:

Labor cost control requires analysis of labor cost with different angles and perspectives, such as, cost per hour, cost by departments, by product lines, by direct and indirect angle, by rates, by jobs or processes. Labor cost controls aim to achieve maximum efficiency without compromising the quality and effectiveness of the operations. Cost analysis and wage system help in achieving this objective.

Example 04:

ABC Publishers Limited pays wages to workers working on book binding machine at the rate of Rs. 17 per book. Workers are not paid for the misaligned binding and such book is scraped for Rs. 15 per kg. The policy motivates the workers to work hard and maximize productivity. However, the rate of wastage in ABC is 3% as against industry average of 1%.

ABC re-visited the wage policy and felt that it is likely that workers tend to compromise the quality because of insignificant loss they suffer due to bad quality. It intends to bring a policy whereby a deduction of Rs. 70 will be made from the wages for each misaligned binding beyond 1% industry average. However, it is estimated that such policy will reduce the efficiency of workers because they would reduce the speed to achieve desired quality benchmark and avoid deduction.

The cost controller of ABC is supposed to work out the differential cost and revenue to evaluate the policy before implementation. For this purpose, cost controller needs precise data with reasonable accuracy about the machine capacity, labor related wastage, impact of slow speed and contribution margin per unit.

Effective labor cost control is achieved through different tools including;

- analyzing the targeted production,
- preparing labor budget and standardizing labor cost per unit,
- monitoring output, quality, wastage ratios, rework cost due to bad workmanship
- wage incentive systems.

2.3 Bonus/incentive schemes

2.3.1 Introduction

In general, **bonus schemes** were introduced to compensate workers paid under a time-based system for their inability to increase earnings by working more efficiently. Various types of incentive and bonus schemes have been devised which encourage greater productivity. The characteristics of such schemes are as follows.

- (a) Employees are paid more for their efficiency.
- (b) The profits arising from productivity improvements are shared between employer and employee.
- (c) Morale of employees is likely to improve since they are seen to receive extra reward for extra effort.

A bonus scheme must satisfy certain conditions to operate successfully.

- (a) Its **objectives** should be **clearly stated** and **attainable** by the employees.
- (b) The **rules** and conditions of the scheme should be **easy to understand**.
- (c) It must **win** the full **acceptance** of everyone concerned.
- (d) It should be seen to be **fair to employees and employers**.
- (e) The bonus should ideally be **paid soon after the extra effort has been made** by the employees.
- (f) **Allowances** should be made for external factors outside the employees' control which reduce their productivity (machine breakdowns, material shortages).
- (g) Only those employees who make the extra effort should be rewarded.
- (h) The scheme must be **properly communicated** to employees.

We shall be looking at the following types of incentive scheme in detail.

- High day-rate system
- Individual bonus schemes
- Group bonus schemes
- Profit sharing schemes
- Incentive schemes involving shares
- Value added incentive schemes

Some organisations employ a variety of incentive schemes. A scheme for a production labour force may not necessarily be appropriate for white-collar workers. An organisation's incentive schemes may be regularly reviewed, and altered as circumstances dictate.

2.4 High day-rate system

A **high day-rate system** is a system where employees are paid a high hourly wage rate in the expectation that they will work more efficiently than similar employees on a lower hourly rate in a different company.

2.4.1 Example: High day-rate system

For example if an employee would make 100 units in a 40 hour week if they were paid \$2 per hour, but 120 units if they were paid \$2.50 per hour, and if production overhead is added to cost at the rate of \$2 per direct labour hour, costs per unit of output would be as follows.

- (a) Costs per unit of output on the low day-rate scheme would be:

$$\frac{(40 \times \$4)}{100} = \$1.60 \text{ per unit}$$

- (b) Costs per unit of output on the high day-rate scheme would be:

$$\frac{(40 \times \$4.50)}{120} = \$1.50 \text{ per unit}$$

- (c) Note that in this example the labour cost per unit is lower in the first scheme (80c) than in the second (83.3c), but the unit conversion cost (labour plus production overhead) is higher because overhead costs per unit are higher at 80c than with the high day-rate scheme (66.7c).
- (d) In this example, the high day-rate scheme would reward both employer (a lower unit cost by 10c) and employee (an extra 50c earned per hour).

2.5 Individual bonus schemes

An individual bonus scheme is a remuneration scheme whereby **individual** employees qualify for a bonus on top of their basic wage, with each person's bonus being calculated separately.

- (a) The bonus is **unique** to the individual. It is not a share of a group bonus.
- (b) The individual can earn a bonus by working at an **above-target** standard of efficiency.
- (c) The individual earns a **bigger bonus the greater their efficiency**, although the bonus scheme might incorporate quality safeguards to prevent individuals from sacrificing quality standards for the sake of speed and more pay.

To be successful, however, an **individual bonus scheme** must take account of the following factors.

- (a) Each individual should be rewarded for the **work done by that individual**. This means that each person's output and time must be measured separately. Each person must therefore work without the assistance of anyone else.
- (b) Work should be **fairly routine**, so that standard times can be set for jobs.
- (c) The bonus should be **paid soon after the work is done**, to provide the individual with the incentive to try harder.

2.6 Group bonus schemes

A group bonus scheme is an incentive plan which is related to the output performance of an entire group of workers, a department, or even the whole factory.

Where individual effort cannot be measured, and employees work as a team, an individual incentive scheme is impracticable but a **group bonus scheme** would be feasible.

1.3 Labour efficiency, capacity and production volume ratios

2.2. Labor Efficiency:

Labor efficiency measures how efficiently workers produce a given quantity of units.

Productivity can be stated in one figure, such as; in Engine Installation Department of Motor company, 3 units per 8 labor hours is the productivity of the department. In assessing efficiency, a single figure could not suffice. There should be any comparable figure, like own historical data, industry average or budgeted productivity.

If Motors Company achieved 3 units per 8 labor hours' productivity in 2018 in Engine Installation Department as against 2.8 units per 8 labor hours in 2017. The department efficiently utilized its human resources in the year 2018 as compared to 2017 Efficiency is achieved through high motivation and skills of workers and by better processes and quality of machines and tools. Improved productivity positively impacts the business profits and the earnings of workers.

It may be noted that productivity and efficiency measures generally indicate number of output as against The labor input and do not usually refer to the quality and level of bad workmanship. The quality aspect is also important to achieve the objectives of cost controls.

Labour Efficiency Ratio

It measures the performance of the workforce by comparing the actual time taken to do a job with the expected time.

$$\text{Labour Efficiency Ratio} = \frac{\text{Standard hours}}{\text{Actual hours}} \times 100\%$$

Illustration

A Co. budgeted to work 8,000 hours manufacturing 20,000 units. They actually produced 25,000 units and it actually took them 11,000 hours to produce them.

What is the labour efficiency ratio?

Solution

Step 1: Calculate the Standard hours

Budgeted hours to produce 1 unit = 8,000 hours / 20,000 units = 0.4 hours per unit

Standard hours to produce the Actual units = 0.4hr per unit x 25,000 units = 10,000 hours

Step 2: Calculate the Labour Efficiency ratio

Labour Efficiency ratio = Standard hours / Actual hours x 100%

$$= 10,000 / 11,000 \times 100\% = 90.9\%$$

Labour Capacity Ratio

It measures the number of hours spent actively working as a percentage of the total hours available for work.

$$\text{Labour Capacity Ratio} = \frac{\text{Actual hours}}{\text{Budgeted hours}} \times 100\%$$

Illustration

A Co. budgeted to work 8,000 hours manufacturing 20,000 units. They actually produced 25,000 units and actually took 11,000 hours.

What is the capacity ratio?

Solution

$$\text{Labour Capacity Ratio} = \text{Actual hours} / \text{Budgeted hours} \times 100\%$$

$$\text{Labour Capacity Ratio} = 11,000 / 8,000 \times 100\% = 137.5\%$$

2.3. The importance of measuring productivity and efficiency:

In a competitive business environment where the price of a product is difficult to be controlled by the producers, the efficient utilization of resources is the key. Labor cost in many industries is so significant that its efficiency can make the difference. A producer should be able to set standards of performance in terms of hours and cost per hour or cost per unit of production.

The performance standards measure the performance in unit and rupee term and variances help the managers to focus around the problem areas.

Labour Production Volume Ratio

It compares the number of hours expected to be worked to produce actual output (Standard hours) with the total hours available for work (Budgeted hours).

$$\text{Labour Production Volume Ratio} = \frac{\text{Standard hours}}{\text{Budgeted hours}} \times 100\%$$

Illustration

A Co. budgeted on producing 20,000 units with 8,000 budgeted labour hours. They actually produced 25,000 units and actually took 11,000 hours.

What is the labour production volume ratio?

Solution

Step 1: Calculate the Standard hours

Budgeted hours to produce 1 unit = 8,000 hours / 20,000 units = 0.4 hours per unit

Standard hours to produce the Actual units = 0.4hr per unit x 25,000 units = 10,000 hours

Step 2: Calculate the Labour Efficiency ratio

Labour Production Volume Ratio = Standard hours / Budgeted hours x 100%

Labour Production Volume Ratio = 10,000 / 8,000 x 100% = 125%

Comprehensive Question

A company budgets to make 25,000 standard units of output in 100,000 hours (each unit is budgeted to take four hours each).

Actual output during the period was 27,000 units which took 120,000 hours to make.

Calculate the efficiency, capacity and production volume ratios.

Efficiency ratio = $4 \times 27,000 / 120,000 \times 100$
= 90%

Capacity ratio = $120,000 / 100,000 \times 100$
= 120%

Production volume ratio = $4 \times 27,000 / 100,000 \times 100$
= 108%