**UNIT FOUR**

**STANDARD COSTING AND VARIANCES**

**4.1. INTRODUCTION**

One of the most important functions of management is control. The major aspect of managerial control is cost control. Control normally refers to the function which ensures the actual performance conforms to a given plan. Hence, the control function of management can be effective only when it is preceded by planning. Standard costing is a technique which helps management to plan and control business operations.

The word ‘standard’ means a bench-mark or yardstick. The standard cost is a predetermined or expected cost which determines what each product or service should cost under given conditions. In other words, it is the expected cost of producing one unit. It is, in effect, a budget for one unit. Standard costing may be defined basically as a technique of cost accounting which compares the standard cost of each product or service with the actual cost to determine the efficiency of operation so that remedial action may be taken immediately. The institute of costs and management accounts of England defines standard costing as “the preparation and use of standard costs, the comparison with the actual costs, and the analysis of variances to their cause and the points of incidence.” Variance is the difference between a budget or standard amount and the actual amount during a given period.

4.2. **STANDARD COST SYSTEMS**

4.2.1**. MEANING OF STANDARD COSTING**

Standard costs are predetermined costs that are usually expressed on per unit basis. In other word, standard cost is a predetermined calculation of how much costs should be incurred under specified working condition. It is built up from an assessment of the value of direct material, direct labor and overhead items.

**4.2.2. WHY STANDARD COST SYSTEMS ARE USE**

“A standard cost system has three basic functions: collecting the actual costs of a manufacturing operation, determining the achievement of that manufacturing operation, and evaluating performance through the reporting of variances from standard.” These basic functions result in six distinct benefits of standard cost systems.

**Clerical Efficiency**

A company using standard costs usually discovers that less clerical time and effort are required than in an actual cost system. In an actual cost system, the accountant must continuously recalculate changing actual unit costs. In a standard cost system, unit costs are held constant for some period. Costs can be assigned to inventory and cost of goods sold accounts at predetermined amounts per unit regardless of actual conditions.

**Motivation**

Standards are a way to communicate management’s expectations to workers. When standards are achievable and when workers are informed of rewards for standards attainment, those workers are likely to be motivated to strive for accomplishment. The standards used must require a reasonable amount of effort on the workers’ part.

**Planning**

Planning generally requires estimates about the future. Managers can use current standards to estimate future quantities and costs. These estimates should help in the determination of purchasing needs for material, staffing needs for labor, and capacity needs related to overhead that, in turn, will aid in planning for company cash flows. In addition, budget preparation is simplified because a standard is, in fact, a budget for one unit of product or service. Standards are also used to provide the cost basis needed to analyze relationships among costs, sales volume, and profit levels of the organization.

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**Controlling**

The control process begins with the establishment of standards that provide a basis against which actual costs can be measured and variances calculated. Variance analysis is the process of categorizing the nature (favorable or unfavorable) of the differences between actual and standard costs and seeking explanations for those differences. A well-designed variance analysis system captures variances as early as possible, subject to cost-benefit assessments. The system should help managers determine who or what is responsible for each variance and who is best able to explain it. An early measurement and reporting system allows managers to monitor operations, take corrective action if necessary, evaluate performance, and motivate workers to achieve standard production.

 **Decision Making**

Standard cost information facilitates decision making. For example, managers can compare a standard cost with a quoted price to determine whether an item should be manufactured in-house or instead be purchased. Use of actual cost information in such a decision could be inappropriate because the actual cost may fluctuate from period to period. Also, in making a decision on a special price offering to purchasers, managers can use standard product cost to determine the lower limit of the price to offer. In a similar manner, if a company is bidding on contracts, it must have some idea of estimated product costs. Bidding too low and receiving the contract could cause substantial operating income (and, possibly, cash flow) problems; bidding too high might be uncompetitive and cause the contract to be awarded to another company.

**Performance Evaluation**

When top management receives summary variance reports highlighting the operating performance of subordinate managers, these reports are analyzed for both positive and negative information. Top management needs to know when costs were and were not controlled and by which managers. Such information allows top management to provide essential feedback to subordinates, investigate areas of concern, and make performance evaluations about who needs additional supervision, who should be replaced, and who should be promoted. For proper performance evaluations to be made, the responsibility for variances must be traced to specific managers.

**4.2.3. BUDGETARY CONTROL vs. STANDARD COSTING**

Budgetary control and standard costing are comparable system of cost accounting in that they are both predetermined of forward – looking. The common objective is of controlling business operations by establishing predetermined targets. However, there are a few differences between these two systems are which given below:

|  |  |
| --- | --- |
| Budgetary control system | Standard costing system  |
| 1. Budgetary control is related to all types of items of revenue and expenditure, whether they belong to the product or not, i.e. to all types of business activities. Hence, it is more extensive.
2. Budget is based on past experience and in most cases a projection of financial accounts.
3. Budgets are comparatively less rigid and ‘should be’ estimates. They fix limits.
4. Budgetary control can be operated without a standard costing system. It can be adopted in part.
5. The study of variances is not a subject of special study as in the case of standard costing
 | 1. Standard costing is related to production and production costs. Hence, it is more rigorous and intensive.
2. Standard is established on the basis of technical estimates. It is the projection of accounts.
3. Standard are very rigid and ‘ought to be’ estimates. They fix targets.
4. Standard costing system cannot operate well without a budgetary control system. Also, it is not possible to operate the system in parts
5. Variance analysis is a subject of special study of standard costing.
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* + 1. **ADVANTAGES AND LIMITATIONS OF STANDARD COSTING**

***Advantages of standard costing***

1. The weakness of the traditional costing system can be estimated by compiling standard costs more carefully.
2. Standard costs can be used as a yardstick against which actual costs can be compared. It is an effective tool for planning production costs. Hence, cost control is greatly facilitated.
3. Variance analysis helps management to have regular as well as better checks over costs incurred. It makes the application of the principle of management by exception more easy. That is, the management can concentrate its attention on variances only, leaving the other aspects of cost control to be taken care of at the lower level.
4. It is a valuable guide to management in the formulation of production and price policies in advance with certainty. It also assists management in the areas of profit – planning, product –pricing, and inventory pricing, etc.
5. Standard costing makes the reporting of operating data more meaningful and also fast. This makes the interpretation of management reports easy.
6. As the emphasis of the standard costing system is more on cost variations, it makes the entire organization cost conscious. It makes the employees recognize the importance of efficient operations so that costs can be reduced by joint efforts.
7. Labor, materials and machines can be effectively used, and economies can be affected in addition to increase productivity. Standards may also be used as the basis for introducing incentive schemes.

***Limitations of standard costing***

1. Setting of standards is a very difficult task. It requires a lot of scientific studies such as time –study, motion study, etc., and therefore it is very costly. Small firms may find it very difficult to operate such a system.
2. Standards are very rigid estimates and once set, are not changed for a considerable time. This makes the standards highly unrealistic in certain industries which face fluctuations in prices of products due to frequent changes.
3. The utility of variance analysis depends much more on the standard set. While a loosely set standard may be ridicule the standards which are set very high may create frustration in the minds of the workers. At the same time setting of correct standards is also, it is difficult to apply this system when production takes more than one accounting period.
	* 1. **DEVELOPMENT OF A STANDARD COST SYSTEM**

Although standard cost systems were initiated by manufacturing companies, these systems can also be used by service and not-for-profit organizations. In a standard cost system, both standard and actual costs are recorded in the accounting records. This dual recording provides an essential element of cost control: having norms against which actual operations can be compared. Standard cost systems make use of ***standard costs,*** which are the budgeted costs to manufacture a single unit of product or perform a single service. Developing a standard cost involves judgment and practicality in identifying the material and labor types, quantities, and prices as well as understanding the kinds and behaviors of organizational overhead.

A primary objective in manufacturing a product is to minimize unit cost while achieving certain quality specifications. Almost all products can be manufactured with a variety of inputs that would generate the same basic output and output quality. The input choices that are made affect the standards that are set. Some possible input resource combinations are not necessarily practical or efficient.

Once management has established the desired output quality and determined the input resources needed to achieve that quality at a reasonable cost, quantity and price standards can be developed. Experts from cost accounting, industrial engineering, personnel, data processing, purchasing, and management are assembled to develop standards. To ensure credibility of the standards and to motivate people to operate as close to the standards as possible, involvement of managers and workers whose performance will be compared to the standards is vital.

**Material Standards**

The first step in developing material standards is to identify and list the specific direct materials used to manufacture the product. This list is often available on the product specification documents prepared by the engineering department prior to initial production. In the absence of such documentation, material specifications can be determined by observing the production area, querying of production personnel, inspecting material requisitions, and reviewing the cost accounts related to the product. Three things must be known about the material inputs: types of inputs, quantity of inputs used, and quality of inputs used.

In making quality decisions, managers should seek the advice of materials experts, engineers, cost accountants, marketing personnel, and suppliers. In most cases, as the material grade rises, so does cost; decisions about material inputs usually attempt to balance the relationships of cost, quality, and projected selling prices with company objectives. The resulting trade-offs affect material mix, material yield, finished product quality and quantity, overall product cost, and product salability. Thus, quantity and cost estimates become direct functions of quality decisions.

Given the quality selected for each component, physical quantity estimates of weight, size, volume, or some other measure can be made. These estimates can be based on results of engineering tests, opinions of managers and workers using the material, past material requisitions, and review of the cost accounts.

Specifications for materials, including quality and quantity, are compiled on a bill of materials. Even companies without formal standard cost systems develop bills of materials for products simply as guides for production activity. When converting quantities on the bill of materials into costs, allowances are often made for normal waste of components. After the standard quantities are developed, prices for each component must be determined. Prices should reflect desired quality, quantity discounts allowed, and freight and receiving costs. Although not always able to control prices, purchasing agents can influence prices. These individuals are aware of alternative suppliers and attempt to choose suppliers providing the most appropriate material in the most reasonable time at the most reasonable cost. The purchasing agent also is most likely to have expertise about the company’s purchasing habits. Incorporating this information in price standards should allow a more thorough analysis by the purchasing agent at a later time as to the causes of any significant differences between actual and standard prices.

When all quantity and price information is available, component quantities are multiplied by unit prices to obtain the total cost of each component. (Remember, the price paid for the material becomes the cost of the material.) These totals are summed to determine the total standard material cost of one unit of product.

**Labor Standards**

Development of labor standards requires the same basic procedures as those used for material. Each production operation performed by either workers (such as bending, reaching, lifting, moving material, and packing) or machinery (such as drilling, cooking, and attaching parts) should be identified. In specifying operations and movements, activities such as cleanup, setup, and rework are considered. All unnecessary movements by workers and of material should be disregarded when time standards are set.

To develop usable standards, quantitative information for each production operation must be obtained. Time and motion studies may be performed by the company; alternatively, times developed from industrial engineering studies for various movements can be used. A third way to set a time standard is to use the average time needed to manufacture a product during the past year. Such information can be calculated from employees’ past time sheets. A problem with this method is that historical data may include inefficiencies. To compensate, management and supervisory personnel normally make subjective adjustments to the available data.

After all labor tasks are analyzed, an **operations flow document** can be prepared that lists all operations necessary to make one unit of product (or perform a specific service). When products are manufactured individually, the operations flow document shows the time necessary to produce one unit. In a flow process that produces goods in batches; individual times cannot be specified accurately.

Labor rate standards should reflect the employee wages and the related employer costs for fringe benefits, FICA (Social Security), and unemployment taxes. In the simplest situation, all departmental personnel would be paid the same wage rate as, for example, when wages are job specific or tied to a labor contract. If employees performing the same or similar tasks are paid different wage rates, a weighted average rate (total wage cost per hour divided by the number of workers) must be computed and used as the standard. Differing rates could be caused by employment length or skill level.

**Overhead Standards**

To provide the most appropriate costing information, overhead should be assigned to separate cost pools based on the cost drivers, and allocations to products should be made using different activity drivers.

After the bill of materials, operations flow document, and predetermined overhead rates per activity measure have been developed, a standard cost card is prepared. This document summarizes the standard quantities and costs needed to complete one product or service unit.

Data from the standard cost card are then used to assign costs to inventory accounts. Both actual and standard costs are recorded in a standard cost system, although it is the standard (rather than actual) costs of production that are debited to Work in Process Inventory. Any difference between an actual and a standard cost is called a variance.

* + 1. **CONSIDERATIONS IN ESTABLISHING STANDARDS**

When standards are established, appropriateness and attainability should be considered. Appropriateness, in relation to a standard, refers to the basis on which the standards are developed and how long they will be expected to last. Attainability refers to management’s belief about the degree of difficulty or rigor that should be incurred in achieving the standard.

**Appropriateness**

Although standards are developed from past and current information, they should reflect relevant technical and environmental factors expected during the time in which the standards are to be applied. Consideration should be given to factors such as material quality, normal material ordering quantities, expected employee wage rates, degree of plant automation, facility layout, and mix of employee skills. Management should not think that, once standards are set, they will remain useful forever. Current operating performance is not comparable to out-of-date standards.

Standards must evolve over the organization’s life to reflect its changing methods and processes. Out-of-date standards produce variances that do not provide logical bases for planning, controlling, decision making, or evaluating performance.

 **Attainability**

Standards provide a target level of performance and can be set at various levels of rigor. The level of rigor affects motivation, and one reason for using standards is to motivate employees. Standards can be classified as expected, practical, and ideal. Depending on the type of standard in effect, the acceptable ranges used to apply the management by exception principle will differ. This difference is especially notable on the unfavorable side.

* 1. **VARIANCE ANALYSIS**
		1. **Introduction**

The main advantage of the standard costing system is variance analysis. The principle of “management by exception” is practiced easily with the help of variances. Variance may be defined as the difference between standard and actual for each element of cost and sometimes for sales. And ‘variance analyses’ may be defined as the process of analyzing variance by sub –dividing the total variance in such a way that management can assign responsibility for off –standard performance. When the actual results are better than expected, a ‘favorable’ variance arises; where they are not up to the standard, an ‘adverse/unfavorable variance’ occurs.

Variances help to fix the responsibilities so that management can ascertain the person responsible for the poor results. For example, an adverse material usage variance would indicate that excess material cost was due to inefficient use of materials. This would enable management to fix the responsibility on the supervisor in charge of a particular operation in which the inefficiency occurred. It may be discovered that the variance was caused by (say) inefficient handling, purchase of poor quality materials or employment of trainees. The important point is that the reason for the variance must be found, explained and wherever necessary, corrective measures taken.

* + 1. **Classification of variances**

Budget Variances indicate the total deviation of actual costs from expected costs. However, they do not give the complete story about deviations between budgeted and actual results; i.e. it is not yet clear what contributed to the variances unless further investigations are made.

Hence, a ***total flexible budget variance (FBV)*** is the difference between total actual costs incurred and total standard cost applied to the output produced during the period. This variance can be diagrammed as follows:

Actual Cost of Actual Production Input **Less**  Standard Cost of Actual Production Output

 Total Variance (***FBV)***

Since total variances do not provide useful information for determining why cost differences occurred; to help managers in their control objectives, total variances are subdivided into price and usage components. Hence, the total variance diagram can be expanded to provide a general model indicating the two sub-variances as follows:

 Actual Cost of Standard Cost of Standard Cost of

 Actual Production Actual Production Standard Quantity

 Inputs Inputs of Inputs

 (AP x AQ) (SP x AQ) (SP x SQ)

 Price/Rate Variance Quantity/Efficiency variance

 Total Variance (***FBV)***

A price/rate variance reflects the difference between what was paid for inputs and what should have been paid for inputs. A usage /Quantity//Efficiency variance shows the cost difference between the quantity of actual input and the quantity of standard input allowed for the actual output of the period. The quantity difference is multiplied by a standard price to provide a monetary measure that can be recorded in the accounting records. Usage variances focus on the efficiency of results or the relationship of input to output

 As shown above, the diagram moves from actual cost of actual input on the left to standard cost of standard input quantity on the right. The middle measure of input is a hybrid of actual quantity and standard price. The change from input to output reflects the fact that a specific quantity of production input will not necessarily produce the standard quantity of output. The far right column uses a measure of output known as the standard quantity allowed. This quantity measure translates the actual production output into the standard input quantity that should have been needed to achieve that output. The monetary amount shown in the right-hand column is computed as the standard quantity allowed times the standard price of the input.

The price variance portion of the total variance is measured as the difference between the actual and standard prices multiplied by the actual input quantity:

 i.e. Price Element= (AP -SP)(AQ

Whereas, the usage variance portion of the total variance is measured as measuring the difference between actual and standard quantities multiplied by the standard price:

 i.e. Usage Element= (AQ - SQ)(SP)

* + - 1. **DIRECT MATERIAL AND LABOR VARIANCES**
1. **DIRECT MATERIAL COST VARIANCES:**

To completely and meaningfully analyze the flexible budget variance for material, it should be analyzed in terms of the materials price standard and the materials quantity standard. This level of analysis resulted in: (i) material price variance that identifies the effect of differences in prices paid for materials. (ii) Material quantity (usage) variance that identifies the effect of difference in the quantities of materials used.

1. **Material Price Variance(MPV)**

A material price variance is the difference between the actual price of material/unit and the standard price of material per unit multiplied by the actual quantity of material purchased. In other words, the ***material price variance*** (MPV) indicates whether the amount paid for material was below or above the standard price. Material price variance can be calculated as:

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| MPV = (SP – AP) AQ  |

where: SP is the standard price of material per unit AP is actual price of material per unit              AQ is the actual quantity of material                       purchased and consumed |

If the actual price is larger than the standard price, this variance is unfavorable (U); if the standards are larger than the actual; the variance is favorable (F)

1. **Materials Quantity (usage) Variance(MQV)**

The ***material quantity variance*** (MQV) indicates whether the actual quantity used was below or above the standard quantity allowed for the actual output. This difference is multiplied by the standard price per unit of material. i.e. A material quantity (usage) variance is the difference between the actual quantity of materials used and the standard quantity of materials that should have been used to produce the actual output, multiplied by the standard price of materials per unit. It can be calculated as:

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|  **MQV = (SQ-AQ) x SP** |

where: SP is the standard price of material per unit SQ is the actual quantity of material used for                     units produced AQ═ the actual quantity of material used |

If the actual quantity amounts are larger than the standard quantity amounts, this variance is unfavorable (U); if the standards are larger than the actual; the variance is favorable (F)

**Example 4.1** In August 2001, East Publishing Company’s costs and quantities of paper consumed in manufacturing its 2002 Executive Planner and Calendar were as follow:

 Actual unit purchase price Br 0.16 per page

 Standard quantity allowed for good production 195,800 pages

 Actual quantity purchased during August 230,000 pages

 Actual quantity used in August 200,000 pages

 Standard unit price Br 0.15 per page

***Required:***

1. Calculate the total cost of purchases for August.
2. Compute the material price variance on the bases of purchase
3. Calculate the material quantity variance.
4. Total FBV

***Solution:***

1. Total cost of purchases for August would be:

 Actual unit purchase price (a) -------------------------------- Br 0.16 per page

 Actual quantity purchased during August (b) ---------------- 230,000 pages

 Total cost (a x b) ------------------------------------ Br.36,800

1. MPV = (SP – AP) AQ

 = (Br 0.15 per page - Br 0.16 per page) 230,000 pages= Br. 2,300 (U)

1. MQV = (SQ-AQ) x SP

 **= (**195,800 pages - 200,000 pages) Br 0.15 per page= Br. 630(U)

1. Total FBV═ Br 2,300U + Br. 630U═ Br.2,930 U

***Activity4.3***

*Iron Eagle makes wrought iron table and chair sets. During April 2001, the purchasing agent bought 12,800 pounds of scrap iron at Br. 0.89 per pound. Each set requires a standard quantity of 35 pounds at a standard cost of Br 0.85 per pound. During April, the company used 10,700 pounds and produced 300 sets. For April, compute the direct material price variance and the direct material quantity variance.*

1. **LABOR COST VARIANCES:**

Just like we have done for material inputs, we will do the same meaningful analysis for labor inputs. Hence, the variance investigation to flexible budget variance for labor resulted in: (i) labor rate variance that identifies the effect of differences in the rates paid to workers, and (ii) labor efficiently or usage variance that identifies the effect of differences in the quantities of labor used.

1. **Labor Rate Variance(LRV)**

The ***labor rate variance*** (LRV) shows the difference between the actual wages paid to labor for the period and the standard wages for all hours worked. Thus, Labor rate variance is the difference between the actual rate of labor per hour and the standard rate of labor per hour, multiplied by the actual hours of labor worked.

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|  LRV= (SR-AR) x AH |

Where: SR is standard rate of labor per hour AR is actual rate of labor per hour, AH is a total actual hour of labor worked  |

1. **Labor Efficiency Variance (LEV)**

A labor efficiency variance is the difference between the actual labor hours worked and the standard labor hours that should have been worked to produce the actual output, multiplied by the standard rate of labor per hour. Thus, multiplying the standard labor rate by the difference between the actual minutes worked and the standard minutes for the production achieved results in the ***labor efficiency variance*** (LEV)

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| LEV = (SH – AH) x SR |

 Where: SH is standard hours of labor for the actual unit produced AH is actual labor hours used for the unit produced SR is standard rate of labor per hour |

***Example 4.2*** Sagittarius Corp. has established the following standards for the prime costs of one of its chief product, dart boards.

 Standard Qty standard Price (Rate) Total Standard cost

Direct material 8.5 pounds Br.1.80/pound Br.15.30

Direct labor 0.25 hour 8.00/hour 2.00

 Br.17.30

During May, Sagittarius purchased 160,000 pounds of direct material at a total cost of Br.304, 000. The total wages for May were Br.42, 000, 90% of which were for DL. Sagittarius manufactured 19,000 dart boards during May; using 142,500 pounds of direct material & 5,000 direct labor hours.

**Required**: Compute the following variances for May.

1. Direct material price variances
2. Direct material usage variance
3. Direct material cost variance
4. Direct labor rate variance
5. Direct labor efficiency variance
6. Direct labor cost variance

**Solution**

**Material Variances**

i). SQ = Standard Quantity of Direct material for Actual Output would be:

 1 dart board = 8.5 pounds Direct material

 19,000 dart boards = ?

 So, SQ = 8.5 pounds Direct material x 19,000 = 161,500 pounds

ii). SP = Standard price of Direct material = Br. 1.80/pounds.

iii). AP = Actual Price of Direct material = Total cost of Direct material purchased

 Total units of direct material purchased

 = Br. 304,000 = Br.1.90/ pounds

 160,000 pounds

iv). AQ=Actual Quantity of Direct material purchased or used = 142,500 pounds

1. MPV= (SP – AP) AQ

 = (Br.1.80/pds - Br.1.90/ pds) 142,500 pounds = Br. 14,250(U)

1. MQV = (SQ-AQ) x SP

 = (161,500 pounds - 142,500 pounds) Br. 1.80/pounds= Br. 34,200(F)

1. Material cost variance = MPV **+** MQV

 **=** Br. 14,250 (U) + Br. 34,200 (F) = Br. 19,950 (F)

 ***Labor Variances***

i) SR= Standard Rate of DL per hour= Br.8.00/Hr

ii) SH=Standard Hours of DL for Actual Output would be:

 0.25Hrs=1dart board

 ? = 19,000 dart boards

 SH = 0.25x19, 000=4,750Hrs

iii) AH=Actual hrs of DL used = 5,000 hrs

iv) AR= 0.9 x 42,000 = 37,800 = Br.7.56/Hr

 5,000 5,000

1. LRV= (SR-AR) x AH

 = (Br.8.00/Hr - Br.7.56/Hr) 5,000 hrs = Br. 2,200 (F)

1. LEV = (SH – AH) x SR

 = (4,750Hrs - 5,000 hrs) Br.8.00/Hr = Br.2, 000(U)

1. labor cost variance = LRV + LEV= Br. 2,200 (F) + Br.2, 000(U) = Br. 200 (F)

1. **MIX AND YIELD VARIANCES**

Most companies use a combination of many materials and various classifications of direct labor to produce goods. In such settings, the material and labor variance analysis presented in the above section are insufficient.

When a company’s product uses more than one material, the goal is to combine those materials in such a way as to produce the desired product quality in the most cost-beneficial manner. Sometimes, materials can be substituted for one another without affecting product quality. In other instances, only one specific material or type of material can be used. For example, a furniture manufacturer might use either oak or maple to build a couch frame and still have the same basic quality. A perfume manufacturer, however, may be able to use only a specific fragrance oil to achieve a desired scent.

Labor, like materials, can be combined in many different ways to make the same product. Some combinations will be less expensive than others; some will be more efficient than others. Again, all potential combinations may not be viable.

Management desires to achieve the most efficient use of labor inputs. As with materials, some amount of interchangeability among labor categories is assumed. Skilled labor is more likely to be substituted for unskilled because interchanging unskilled labor for skilled labor is often not feasible. However, it may not be cost effective to use highly skilled, highly paid workers to do tasks that require little or no training. A rate variance for direct labor is calculated in addition to the mix and yield variances.

Each possible combination of materials or labor is called a ***mix*.** Management’s standards development team sets standards for materials and labor mix based on experience, judgment, and experimentation. Mix standards are used to calculate mix and yield variances for materials and labor. An underlying assumption in product mix situations is that the potential for substitution exists among the material and labor components. If this assumption is invalid, changing the mix cannot improve the yield and may even prove wasteful. In addition to mix and yield variances, price and rate variances are still computed for materials and labor.

* 1. **Material Mix and Yield Variances**

A material price variance shows the Birr effect of paying prices that differ from the raw material standard. The ***material mix variance* (MMV)** measures the effect of substituting a nonstandard mix of materials during the production process. The ***material yield variance* (MYV)** is the difference between the actual total quantity of input and the standard total quantity allowed based on output; this difference reflects standard mix and standard prices. The sum of the material mix and yield variances equals a material quantity variance; the difference between these two variances is that the sum of the mix and yield variances is attributable to multiple ingredients rather than to a single one. A company can have a mix variance without experiencing a yield variance.

Computations for the price, mix, and yield variances are given below in a format similar to that used in the above section.

Actual Mix **X** Actual Mix **X** Standard Mix **X**  Standard Mix **X**

Actual Quantity Actual Quantity Actual Quantity Standard Quantity

**X** Actual **X** Standard **X** Standard  **X** Standard

Price Price Price Price

 Material Price Material Mix Material Yield

 Variance Variance Variance

The formula to compute material mix and yield variance would be:

 To compute material mix variance:

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| --- |
| Material Mix Variance(MMV)= (RSQ – AQ)SPWhere, RSQ = revised standard quantity( i.e. actual quantity at standard mix)  = SQ for each material x Total AQ (OR)  Total SQ = Total AQ X standard mix ratio  AQ= Actual Quantity at actual mix SP = standard price |

To compute material yield variance:

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| --- |
| MYV = (SQ – RSQ)SPWhere, SQ= Standard Quantity at standard mix RSQ = Revised Standard Quantity SP = standard price  |

**Example4.3**The Scent Makers Company produces perfume. To make this perfume, Scent makers uses three different types of fluids: Dycone, Cycone, & Bycone are used in standard proportions of 4/10, 3/10, & 3/10 and their standard costs are Br. 6.00, Br. 3.50 & Br. 2.50 per unit, respectively. The chief engineer reported that for the past few months the standard yield has been 80% on 100 pints of mix. The Company maintains a policy of not carrying any direct material, as inventory storage space is costly.

 Last week the company produced 75,000 pints of perfume at a total direct material cost of Br. 449,500. The actual number of pints used and costs per unit for the three fluids are as follows:

 **Material Actual Pints Cost/Pint**

Dycone 45,000 Br. 5.50

Cycone 35,000 4.20

Bycone 20,000 2.75

100,000

**Required**

1. Compute the total direct material yield & mix variances for the last week..
2. Compute the total direct material price & usage variances for perfume made in the last week.

***Solution:***

1. SQ = Standard quantity for actual output

 Standard yield (80% on 100 pints of mix)

 i.e. 80pints required = 100 pints of mix

 For actual production of 75,000 pints = ?

 =75,000 x 100 = 93,750 pints of mix

 80

 So, SQ for: Dycone: 0.4 x 93,750 = 37,500

 Cycone: 0.3x93, 750= 28,125

 Bycone: 0.3x93, 750= 28,125

* 1. RSQ for:

 Standard Mix Actual quantity Proportion RSQ

Dycone : 0.4 45,000 0.4 x 100,000 40,000

Cycone : 0.3 35,000 0.3 x 100,000 30,000

Bycone : 0.3 20,000 0.3 x 100,000 30,000

 Total 100,000

 Thus, the direct material cost variances, in diagram, would be:

 1 2 3 4

 SP x SQ SP x RSQ SP x AQ AP x AQ

Dycone: 6 x 37,500 6 x 40,000 6 x 45,000 5.5 x 45,000

Cycone: 3.5x28, 125 3.5x30, 000 3.5x35, 000 4.2 x 35,000

Bycone: 2.5x28,125 2.5x30,000 2.5x20,000 2.75x20,000

 393,750 420,000 442,500 449,500

 26,250U 22,500U

 Yield Mix 7,000U

 48,750U Price

 Usage

 55,750U

 FBV for direct material

Note:

1. MYV = 1-2= SP x (SQ x RSQ) = Br. 26,250U
2. MMV =2-3= SP x (RSQ-AQ) = Br. 22,500U
3. MQV=1-3 = (SP x SQ) – (AP x AQ) =MYV+ MMV= Br. 48,750U
4. MPV=3-4= (SP-AP)AQ= Br. 7,000 U
5. FBV for DM= 1-4= (SP x SQ) –(AP x AQ)= MQV+ MPV= Br. 55,750 U
6. **Labor Mix, and Yield Variances**

The labor rate variance is a measure of the cost of paying workers at other than standard rates. The labor mix variance is the financial effect associated with changing the proportionate amount of higher or lower paid workers in production. The labor yield variance reflects the monetary impact of using more or fewer total hours than the standard allowed. The sum of the labor mix and yield variances equals the labor efficiency variance. The diagram for computing labor rate, mix, and yield variances is as follows:

(Actual Mix) **X**  (Actual Mix) **X**  (Standard Mix) **X**  (Standard Mix) **X**

(Actual Hours) (Actual Hours) (Actual Hours) (Standard Hours) **X** (Actual Rate) **X** (Standard Rate) **X** (Standard Rate) **X** (Standard Rate)

 Labor Rate Variance Labor Mix Variance Labor Yield Variance

The formula to compute labor mix and yield variance would be:

 To compute labor mix variance:

|  |
| --- |
| Labor Mix Variance (LMV)= (RSH – AH)SRWhere: RSH= revised standard hour (i.e. actual hours at standard mix)  = SH for each labor x Total AH ( OR )  Total SH = Total AH X standard mix ratio  AH=Actual hours at actual mix SR= standard rate per hours |

To compute Labor Yield Variance

|  |
| --- |
| Labor Yield Variance(LYV) = (SH-RSH)SRWhere: SH= standard hours at standard mix  RSH= revised standard hour SR= standard rate per hours |

**Example4.4** Buffon Legal Services has three labor classes: secretaries, paralegals, and attorneys. The standard wage rates are shown in the standard cost system as follows: secretaries, Br 25 per hour; paralegals, Br 40 per hour; and attorneys, Br 85 per hour. The firm has established a standard of 0.5 hours of secretarial time and 2 hours of paralegal time for each hour of attorney time in probate cases. The actual direct labor hours worked on probate cases and the standard hours allowed for the work accomplished for one month in 2001 were as follows:

Standard Hours

 Actual Labor Hrs for Output Achieved

 Secretarial 500 500

 Paralegal 1,800 2,000

 Attorney 1,100 1,000

 Total: 3, 400hrs 3,500hrs

***Required***: Calculate the amount of the direct labor efficiency variance for the month and decompose the total into the following components:

 **1.** Direct labor mix variance

 **2.** Direct labor yield variance

***Solution:***

1. SR= Standard Rate per DL Hr

 For Secretarial: Br. 25, Paralegal: Br 40, and for Attorney: Br 85

1. RSH: Revised Standard hours = SH for each labor x Total AH

 Total SH

 RSH for Secretarial: 500 hrs x 3, 400hrs = 486hrs

 3,500hrs

 For Paralegal: 2,000 hrs x 3, 400hrs = 1,943hrs

 3,500hrs

 For Attorney: 1,000 hrs x 3, 400hrs = 971hrs

 3,500hrs

1. LMV= (RSH – AH)SR

 For Secretarial: (486hrs - 500 hrs) Br. 25 = Br. 350 (U)

 For Paralegal: (1,943hrs - 1, 800 hrs) Br 40 = 5,720(F)

 For Attorney: (971hrs - 1, 100 hrs) Br 85 = 10,965(U)

 Total Br.5, 595(U)

1. LYV = (SH-RSH)SR

 For Secretarial: (500 hrs - 486hrs) Br. 25 = Br. 350 (F)

 For Paralegal: (2,000 hrs- 1,943hrs) Br 40 = 2,280(F)

 For Attorney: (1,000 hrs - 971hrs) Br 85 = 2,465(F)

 Total Br. 5, 095(F)

* + - 1. **OVERHEAD COST VARIANCES**

In developing overhead application rates, a company must specify an operating level or capacity. Capacity refers to the level of activity. Alternative activity measures include theoretical, practical, normal, and expected capacity. Because total variable overhead changes in direct relationship with changes in activity and fixed overhead per unit changes inversely with changes in activity, a specific activity level must be chosen to determine budgeted overhead costs.

A ***flexible budget*** is a planning document that presents expected overhead costs at different activity levels. In a flexible budget, all costs are treated as either variable or fixed; thus, mixed costs must be separated into their variable and fixed elements. The activity levels shown on a flexible budget usually cover the contemplated range of activity for the upcoming period. If all activity levels are within the relevant range, costs at each successive level should equal the previous level plus a uniform monetary increment for each variable cost factor. The increment is equal to variable cost per unit of activity times the quantity of additional activity.

The use of separate variable and fixed overhead application rates and accounts allows separate price and usage variances to be computed for each type of overhead.

1. **VARIABLE OVERHEAD COST VARIANCE (VOHV**)

This is the difference between standard variable overheads for actual production and the actual variable overheads.

|  |
| --- |
| Symbolically,  VOHV =SC-ACWhere: SC= standard variable overheads for actual production AC= actual variable overheads |

It can be sub –divided into ***Variable overhead expenditure variance, and Variable overhead efficiency variance.***

1. ***VOH expenditure variance*** is the difference between the standard variable overheads for the actual hours worked, and the actual variable overheads incurred. The formula for computing it is as follows:

|  |
| --- |
|  VOH Exp. Variance = AVOH –SVOH.  Where: AVOH is actual variable overheads incurred SVOH is standard variable overheads for the actual hours worked, |

1. ***VOH efficiency variance*** arises when the actual output produced differs from the standard output for actual hours worked. It is a measure of extra overhead (for saving) incurred solely because of the efficiency shown during the actual hours worked. The formula to compute it is as follows:

|  |
| --- |
| VOH efficiency variance = (SHOV for actual hours worked)- (SHOV for actual output) |

***Example 4.5*** From the following information, calculate VOH cost variances assuming labor hours as cost driver for variable manufacturing overhead.

 Budget output 5000 units

 Budgeted hours 10,000

 Budgeted variable overheads Br. 2,000

 Actual variable overheads Br. 3,000

 Actual output 4,000 units

 Actual hours 12,000 hours

***Solution***

1. VOH cost variance =AVOH –SVOH for actual production

 = Br.3, 000 - (4000 x Br 0.40\*)

 = Br...3,000 - Br. 1600= Br.1400 (U)

1. VOH expenditure variance = AVOH – SVOH for actual hours worked

 = Br.3000 - (12000 x 0.20\*\*) =Br. 600 (U)

1. VOH efficiency variance = SVOH for actual Hrs - SVOH for actual output

 =Br. 2400 – Br. 1600=Br. 800 (U)

 ***Workings:***

 \*SVOH per unit of output –*Br.*2000/5000 = *Br.*0.40 per unit

 \*\* SVOH pre hours = *Br.*2000/10,000 = *Br.*0.20 per hour

1. **FIXED OVERHEADS COST VARINANCE (FOHV**)

This is the difference between the standard fixed overheads for actual output and actual fixed overheads. The reasons for the variance are over absorption or under –absorption of overheads for the actual production the budgeted production may be different form the actual production for the actual overheads incurred. The major sub –divisions of FOHV are FOH expenditure variance and FOH volume variance. The formula for FOHV is as follows:

|  |
| --- |
|  FOHV =AFOH –SFOH Where: AFOH = actual fixed overheads. SFOH = standard fixed overheads for actual output |

Note that, if the AFOH is less than the SFOH, the variance is favorable (F), and vice versa. This variance can be classified into two.

1. ***FOH expenditure variance (FOHEV)***

This is the difference between Actual fixed overhead costs and Budgeted fixed overhead

 (Symbolically, FOHEV= AFOH –BFOH)

If the actual is greater than the budgeted, this variance is adverse (U), and vice versa

1. ***FOH volume Variance (FOHVV)***

This is the difference between the budgeted fixed overheads and the standard fixed overheads absorbed on actual production. The formula is as follows:

 FOHVV =BFOH –SFOH on actual production.

If the BFOH is greater than the SFOH on actual production, the variance is adverse (U) and vice versa.

***Example 4.***6: From the following data calculate FOH cost variance.

Budgeted hours: 10,000 hours; Budgeted output: 5,000 units, Budgeted FOH: Br.3,000 Actual hours: 12,000hours; Actual output: 4,800 units; Actual FOH: Br.3,600

***Solution:***

* 1. FOHV = afoh – sfoh on actual output

 = Br.3600 - (0.60\* x4800)

 = Br. 3600 - Br. 2880 =. Br.720 (U)

* 1. FOHEV= AHOH – BFOH

 = Br.3600 – Br.3000 =. Br.600 (U)

* 1. FOHVV = BFOH – SFOH on actual output

 = Br.3000 - (0.60 x 4800)

 = Br.3000 – 2880 =. Br.120 (U)

 ***Workings:***

 \*SFOH per unit = Br. 3000/5000= Br.0.60 per unit

* + - 1. **SALES VARIANCES**

The standard costing system is complete only when sales variances are detailed with it as part of comprehensive information presented to management. Sales variances are calculated by two methods, viz., ***sales value method and sales margin or profit method.*** Basically, changes in price and changes in sales volume give rise to sales variances. A change in value may, in its own turn, result due to a change in quantity, or a change in sales mix

1. **SALES VALUE METHOD**

The value method is used to denote variance arising due to change in sales price, quantity mix, etc, or the sales value. The sales variances may be classified as: Sales price variance, and Sales volume variance.

1. **Sales Value Variance (SVV)** is the difference between standard sales and the actual sales.

|  |
| --- |
|  i.e. SVV =(SS-AS)=(SP X SQ) – (AP X AQ)Where: SP= standard price AP = actual price SQ= standard quantity to be sold AQ= actual quantity sold  |

1. **Sales Price Variance (SPV)** is the difference between standard price of actual quantity and actual price of the actual quantity of goods sold

|  |
| --- |
|  i.e. SPV = AQ (SP –AP)Where: SP= standard price AP = actual price AQ= actual quantity sold |

 If the actual price is greater than the standard price, the variance is favorable, and vice versa.

1. **Sales Volume Variance (SVLV**) is the difference between the actual quantity or volume and the standard quantity or volume and the standard quantity or volume of sales. It shows the effect of a change in volume of total sales.

|  |
| --- |
| SVLV =SP(SQ -AQ)Where: SQ= standard quantity to be sold AQ= actual quantity sold SP= standard price  |

If the actual quantity sold is greater than the standard, the variance is favorable, and vice versa.

Sales volume variance may be further divided into sales mix variance and sales quantity or sub –volume variance

1. ***Sales Mix Variance (SMV)***

Where two or more items are used in the composition of sales, the differences between the standard compositions of sales and the actual composition or mix is called the sales mix variance. It is a part of the value variance arising due to change in the mix. It highlights the fact that the actual mix of sales has not been in the same ratio as budgeted

|  |
| --- |
|  SMV= SP (Revised standard sales – Actual sales)where: SP= standard price  |

Note that the ***revised standard sales*** are calculated by ***dividing the total actual sales quantity in the standard proportion***. If the actual sales quantity is greater than the revised standard quantity, the variance is favorable, and vice versa.

1. **Sales Quantity Variance (SQV)**

This is the difference between the revised standard quantity of actual sales and the standard quantity budgeted. This variance shows the position of actual quantity of sales, as distinct from the mix of sales, in comparison with budgeted or expected sales.

|  |
| --- |
|  Thus, SQV =SP (SQ -RSQ)Where: SP= standard price SQ= standard quantity to be sold  RSQ = revised standard sales ( quantity***)*** |

If the RSQ is greater than the SQ, the variance is favorable, and vice versa.

***Example5.7:*** calculate (i) sales variance (ii) sales price variance; (iii) sales volume variances, (iv) sales mix variance and (v) sales quantity variance from the following

 Standard Actual

Product quantity (units) price (Br.) quantity (units) price (Br.)

 A 5,000 5.00 5,000 5.00

 B 4,000 6.00 6,000 6.25

 C 3,000 7.00 4,000 6.75

Total 12,000 15,000

***Solution***

* Sales value variance = (SP X SQ) – (AP X AQ)

Product A= (5,000 x Br. 5) – (5,000 x Br. 5) = Br 0

Product B= (4,000 x Br. 6) – (6,000 x Br. 6.25) = 13,500 F

Product C= (3,000 x Br. 7) – (4,000 x Br. 6.75) = 6,000 F

 Total = Br 19,500 F

* Sales price variance =AQ (SP- AP)

Product A= 5,000 (Br. 5- Br. 5) = Br 0

Product B= 6,000 (Br. 6- Br. 6.25) = 1,500 F

Product C= 4,000 (Br. 7- Br. 6.75) = 1,000 U

 Total = Br 500 F

* Sales Volume Variance =SP(SQ- AQ)

Product A = Br. 5(5,000 - 5,000) = Br 0

Product B = Br. 6(4,000 - 6,000) = 12,000 F

Product C = Br. 7(3,000 - 4,000) = 7, 000 F

 Total = Br 19,000 F

* Sales mix variance =SP(RSQ\* - AQ)

Product A= Br. 5(6,250 - 5,000) = Br 6,250 U

Product B = Br. 6(5,000 – 6000) = 6,000 F

Product C = Br. 7(3,750 – 4,000) = 1,750 F

 Total = Br.1, 500 F

\*Calculation of RSQ: total AQ x standard ratio = 15,000units x (5:4:3)

Product A= 15,000x5/12 = 6,250 units

Product B =15,000x4/12 = 5,000 units

Product C =15,000x3/12 =3,750 units

 Total = 15,000 units

* Sales quantity variance =SP(SQ- RSQ)

Product A= 5(5,000- 6,250) = Br 6,250 (F)

Product B= 6(4,000- 5,000) = 6,000 (F)

Product C= 7(3,000- 3,750) = 5,250 (F)

 Total = Br 17, 500 (F)

1. **SALES MARGIN METHOD OR PROFIT METHOD**

Sales margin variance this is the difference between the standard margins appropriate to the quantity of sales budgeted for a period, and the margin between standard cost and the actual selling price of the sales effected. This variance arises due to the difference between total budgeted profit and total actual profit

|  |
| --- |
| Sales Margin Variance = budgeted profit – actual profit |

Sales margin variance may be classified into the sales margin price variance and sales margin volume

1. ***Sales margin price variance*** which is due to the difference between the standard price of the quantity of sales affected, and the actual price of the sales. It is the difference between the standard profit and actual profit. This variance is similar to the price variance calculated under value method, and the formula is as follows:

|  |
| --- |
| Margin price variance = AQ (Standard profit –Actual Profit) |

If the actual profit is greater than the standard profit, the variance is favorable and vice versa.

1. ***Sales margin volume variance***. This is the portion of total margin variance which is due to the difference between the budgeted quantity and actual quantity of sales. This is the amount by which standard profit differs from budgeted profit. The formula is as follows:

|  |
| --- |
| Margin volume variance = standard profit (SQ -AQ) |

If the actual quantity is greater than standard quantity, the variance is favorable, and vice versa.

1. ***Sales margin mix variance.*** This is that portion of total margin variance which is due to the difference between the budgeted and actual quantities of each product of which the sales mixture is composed, valuing sales at the standard net selling prices and cost of sales at standard. That is, the difference between the revised standard profits is the mix variance.

|  |
| --- |
| Margin mix variance =standard profit (RSQ –AQ)  |

If the actual quantity is greater than the revised standard quantity, the variance is favorable, and vise versa

***Example4.8. ABC*** Ltd had budget the following sales for December 2007.

Product A 9,000 units at Br.5per unit

Product B 6,500 units at Br.10per unit

Product C 12,000 units at Br 7.5per unit

As against this, the actual sales were:

Product A 10,000 units at Br.5per unit

Product B 7,000 units at Br.10per unit

Product C 11,000 units at Br 7.5per unit

The cost per unit of A, B and C was Br.4.5, Br.8.5, and Br.6.5 respectively. Compute the different variances to explain the difference between budgeted profit and actual profit.

***Solution***

1. Sales margin variance =(SM x SQ) – (AM x AQ)

 Product A = (0.5 x9,000)-(1x10,000) = Br. 5,500 (F)

 Product B = (1.5 x6,500)-(1x70,00) = Br. 2,750 (U)

 Product C = (1x12,000)-(1.3x11,000)= Br. 2300 (F)

 Total Br. 5,050 (F)

1. Sales margin price variance = AQ(SM –AM)

Product A = 10,000 (Br. 0.5 \_ Br. 1.00) = Br. 5,000 (F)

 Product B =7,000 (Br. 1.5 \_ Br. 1.0) =. Br. 3,500(U)

 Product C = 11,000 (Br. 1.0\_ Br. 1.3) =Br. 3,300 (F)

 Total Br.4800 (F)

1. Sales margin volume variance = SM (SQ –AQ)

Product A = Br. 0.5 (9,000- 10,000) = Br. 500 (F)

 Product B = Br. 1.5 (6,500-7,000) = Br. 750 (F)

 Product C = Br. 1.0(12,000-11,000) = Br. 1,000 (U)

 Total Br. 250 (F)

1. Sales margin mix variance =SM (RSQ –AQ)

Product A = Br. 0.5 (9,164 – 10,000) =. Br. 418(F)

 Product B = Br. 1.5 (6,618 – 7,000) = Br. 573 (F)

 Product C = Br. 1.0 (12,218 – 11,000) =Br. 1218(U)

 Total Br.227 (U)

1. Sales margin quantity variance = SM (SQ-RSQ)

 Product A = Br. 0.5(9,000 – 9,164) =Br 82 (F)

 Product B = Br. 1.5(6,500 – 6,618) = Br 177 (F)

 Product C = Br. 1.0(12,000 – 12,218) = Br 218(F)

 TOTAL = Br. 477 (F)

\*Working notes on profit per unit for budget and actual, and RSQ

**BUDGET**

Product SQ SP Total sales Cost per unit Total cost profit per unit Total profit

 Br Br Br Br Br Br Br

A 9,000 5 45,000 4.5 40,500 0.5 4,500

B 6,500 10 65,000 8.5 55,250 1.5 9,750

C 12,000 7.5 90,000 6.5 78,000 1.0 12,000

 27,500 200,000 173,750 26,250

**ACTUAL**

A 10,000 5.5 55,000 4.5 45,000 1.0 10,000

B 7,000 9.5 66,500 8.5 59,500 1.0 7,000

C 11,000 7.8 85,800 6.5 71,500 1.3 14,300

 28,000 207,300 176,000 31,300

RSQ = AQ x (Standard ratio) = 28,000 x (18:13:24)

Product A= 28,000 x 18/55 9,164

Product B = 28,000 x 13/55 6,618

Product C = 28,000 x 24/55 12,218

* + 1. **CAUSES AND DISPOSITION OF VARIANCES**

In order to make the variance analysis a control instrument, the management should investigate the causes of variances and take the necessary corrective measures. There is no uniformity of opinion regarding the disposal of variances. ***Method I:*** where it is desired to maintain the same standard in future, the variances must be written –off to Profit and Loss Account. ***Method II:*** According to strict principle, the amount of variances resulting from incorrect standards or condition beyond control, like material price changes, wage rate increases due to fair legislation, etc., are allocated to inventories and cost of sales in proportion to their value of closing balances. ***Method III:*** another method is to carry forward the variances to the next financial year by crediting the same to a reserve account to be set off in the subsequent year or years. The favorable and adverse variances may cancel each other in the course of reasonable time and thus be disposed of.

1. ***Materials price variances***. (a) *Causes.* Change in market price, delivery costs, purchase of non –standard materials, emergency purchases, incorrect shipping instruction, loss of discounts, etc. (b) *Disposition.* If all or a portion of the price variance is the result of inefficiencies or a saving has resulted from efficient purchasing, the amount may be adjusted to Profit and Loss Account. If it is due to incorrect standards or change in market price, the amount may be adjusted to inventories and cost of goods sold. It may be mentioned that under method I, such adjustment must be made for inventories under materials control, work –in –progress, finished goods, and cost of the goods sold. Under Methods II and III, such adjustments are required for inventories under work –in –progress, finished goods, and cost of goods sold.

2. ***Materials usage variance*** (a) *Causes*. Poor quantity of materials: change in material mix, product or production methods: careless handing: excessive waste or scrap; incorrect setting of standards. (b) *Disposition*. The amount of usage variance resulting in inefficiency in handling and processing materials is transferred to profit and loss account. The amount of usage variance due to incorrect standards is apportioned to work –in –progress, finished goods and cost of goods sold.

3. ***Direct wages rate variances***: (a) *Causes* general rise due to ward or agreement, non –standard grade, abnormal overtime or payment above or below standard rates during seasonal or emergency operations. (b) *Disposition*. The amount of variance arising out of inefficiency can be controlled if transferred to profit and loss account. The amount of variance resulting from the use of out –of –date standards or from conditions beyond the control of management is adjusted to work –in –progress, finished goods and cost of goods sold, on the basis of wages or time.

4. ***Direct labor efficiency variance*** (a) *Causes*, Poor working conditions, abnormal idle time, i.e. power failure, breakdown, go slow technique quality of supervision, non standard grade of material, or employee non cooperation in service departments. (b) *Disposition.* The amount of variance attributed to various forms of inefficiency which are controllable is transferred to profit and loss account. The amount of variance resulting from improperly prepared standard and from conditions beyond the control of management may be adjusted to work – in – progress, finished goods, and cost of goods sold.

5. ***Overhead expenditure variance*** (a) *Causes*. Under the over utilization of a service; seasonal conditions; inefficiency in the use of a service (e.g., electricity in lieu of gas) (b) *Disposition.* The amount of variance due to seasonal conditions should be treated as a deferred item. The amount arising out of inefficiency which is controllable is transferred to profit and loss account. The amount resulting from incorrectly prepared standard and from conditions beyond control is adjusted to work in progress, finished goods, and cost of goods sold.