E-Contents for M.Com. Semester-IV

SUBJECT COMEC-2

ADVANCED COST ACCOUNTING

UNIT- IV

Differential Costing

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DIFFERENTIAL COSTING: MEANING AND USES

Costs may increase or decrease due to increase or decrease in production, change in the method of production, change in Production mix, etc.

This increase or decrease in total costs at a particular level of activity with respect to another is known as differential costs.

Differential costs are, therefore, obtained by subtracting the costs at one level from that at a higher level.

A few definitions of differential costs are given below:

According to the Institute of Cost and Management Accounting (ICMA) London Differential Cost may be defined as "the increase or decrease in total cost or the change in specific elements of cost that result from any variation in operations."

In the words of Blocker and Weltmer, "Differential costs, also frequently described as marginal cost and Incremental costs, are the increase or decrease in total costs that result from producing and distributing additional or fewer units of a product or from a change in method of production or distribution."

Differential costs are the increase or decrease in total costs that result from producing additional or fewer units or from the adoption of an alternative course of action.

The alternative course of action may arise due to change in sales volume, alternative method of production, change in Product/Sales mix, make or buy, refuse or accept decisions, addition of a new product, exploring a new market, decision to drop a product line, etc.

Hence, differential cost is the change of cost arising from an alternative course of action.

Example,
Suppose cost of sales at present level of activity (60 % capacity) is Rs.12,00,000/- and expected cost of sales at 80% capacity is Rs.15,00,000/-, then differential cost will be Rs.15,00,000 – Rs.12,00,000 = Rs.3,00,000/-.

This concept is similar to the economists concept of marginal cost which is defined as the additional cost incurred by producing one more unit of product.

The question of differential costs would not arise when the business is to be set up afresh.

It arises only when a change is contemplated in existing business. The differential costs are future costs that differ between one course of action and another, whether fixed or variable costs.

ESSENTIAL FEATURES OF DIFFERENTIAL COSTING

1. The data used for differential cost analysis are cost, revenue and investments involved in the decision making problem.

2. Differential costs do not find a place in the accounting records. These can be determined from the analysis of routine accounting records.

3. The total cost figures are considered for differential costing and not the cost per unit.

4. Differential cost analysis determines the choice for future course of action and hence it deals with the future costs but even then historical or standard costs, adjusted to the future requirements may be used in differential costing.

5. The items of cost which do not change for the alternatives under-consideration are ignored.

6. The changes in costs are measured from a common base point which may be a present course of action or Present level of Production.

7. The alternative which shows the highest difference between the incremental revenue and the differential cost is the one considered to be the best choice.

MANAGERIAL APPLICATIONS OF DIFFERENTIAL COST ANALYSIS

Differential cost analysis is very useful to the management in formulating policies and making decisions, such as:

1. Determination of the most profitable level of production and price.

2. Introduction of New Products.

3. Acceptance of an offer at a lower selling price.

4. Changing the Product Mix.

5. Changing the Method of Product.

6. Discounting a product to avoid the losses and increase profits-decisions to drop a product line.

7. Make or buy decisions.

8. Decision regarding the depth of processing.

9. Shut-down decisions.

10. Equipment replacement decisions.

11. Determining a suitable price at which raw materials may be purchased.

MARGINAL COST AND MARGINAL COSTING

According to the Terminology of Cost Accountancy of the Institute of Cost and Management Accountants, London, Marginal Cost represents "the amount of any given volume of output by which aggregate costs are changed if the volume of output is increased by one unit."

For example, the cost of production of 1000 units of radio is Rs.2,00,000/- and that of 1001 units is Rs.2,00,150/-, the marginal cost is Rs.150/-, i.e., Rs.2,00,150 – Rs.2,00,000 = Rs.150/-.

The ICMA London has defined Marginal Costing as the ascertainment of marginal cost and of the effect on profit of changes in volume or type of output by differentiating between fixed cost and variable costs."

"In this technique of costing only variable costs are changed to operations, process or products leaving all indirect costs to be written off against profits in the period in which they arise."

Thus Marginal Costing is not a system of costing such as Process Costing, Job Costing, Operating Costing, etc but a technique which is concerned with the changes in costs and profits resulting from changes in the volume of output.

Marginal Costing is also known as “Variable Costing”.

DIFFERENCE BETWEEN MARGINAL COSTING AND DIFFERENTIAL COSTING

Marginal Costing	Differential Costing
1. It is a technique of ascertainment of marginal costs and of the effect on profit of changes in volume of output by differentiation fixed and variable costs.	1. It is a technique used in decisions of acceptability of alternatives proposals by using the differential costs and revenues.
2. It has limited scope in applications.	2. It is wider in scope and can be applied to number of alternative proposals.
3. It can be incorporated into accounting system.	3. It is only uses the accounting information and it can be part of accounting system.
4. In this technique P.V. ratio, Break-even analysis, contribution analysis, C.V.P. analysis are the important tools used in decision-making.	4. In differential cost analysis incremental costs, incremental revenues, incremental profit are the analytical tools.
5. Marginal cost can be easily ascertained by adding variable over-heads to Prime Cost.	5. Differential cost cannot be ascertained precisely as in the case of marginal cost. Sometimes differential costing is used in

	conjunction with Relevant Costs and Opportunity Costs.
6. It is used in short-term and medium terms decision making.	6. It can be used for all Short-Term, medium and long term decisions depending on the nature of problem.
7. It is a method of analysis using the marginal costs.	7. It can be used both under Absorption Costing and Marginal Costing Systems.

Differential costs are very often confused with marginal costs. This is due to the fact that both differential cost analysis and marginal costing techniques out of the basic behaviour of costs, viz the fixed and variable.

SIMILARITIES:

1. Both are techniques of cost analysis and presentation.

2. Both are used for formulating policies and for taking management decisions.

3. When fixed cost remains unaffected, both differential cost and marginal costs are the same.

DISSIMILARITIES OR DIFFERENCE:

1. Differential costs apply to the fixed additional quantity of production while marginal costs apply to any additional unit.

2. Marginal costs do not include fixed cost, while differential costs may include.

3. Unlike marginal costing, differential costs analysis statements do not find their place in accounting records.

THE RELATED NUMERICAL PROBLEMS.

Ques 1: A small scale manufacturer produces an article at the operational capacity of 10,000 units, while the normal capacity of the plant is 14,000 units.

Working at a profit margin of 20% on sales realisation, he has formulated his budget as under:

Particulars	**10,000 Rs.**	**14,000 Rs.**
Sales realisation	2,00,000	2,80,000
Variable Overheads	50,000	70,000
Semi-variable Overheads	20,000	22,000
Fixed Overheads	40,000	40,000

He gets an order for a quantity equivalent to 20% of the operated capacity and even on this additional production profit margin is

desired at the same percentage on sales realisation as for production to operated capacity. Assuming Prime cost is constant per unit of production. What should be the minimum price to realise this objective?

Solution: Differential cost of production of 2000 additional units

Elements of cost	**10,000 Units**	**12,000 Units**	**Differential cost for 2000 Units**
	Rs.	**Rs.**	**Rs.**
Prime Cost	50,000	60,000	10,000
Variable OH	50,000	60,000	10,000
Semi Variable OH	20,000	21,000	1,000
Fixed Overheads	40,000	40,000	–
	1,60,000	1,81,000	21,000

For an additional output of 2000 units over the operated capacity of 10,000 units, the differential cost is Rs.21,000 or Rs.10.50 per unit.

Since the profit margin required is 20% on sales or 25% on cost. Hence Minimum Selling Price will be

Rs.10.50

\+ Rs 2.625

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= Rs.13.125 per unit.

WORKING NOTES:

(i) Computation of Prime Cost

Sales	2,00,000	
Therefore, Cost of Sales 80% of Rs.2,00,000		1,60,000
Less Overheads		
Variable OH	50,000	
Semi Variable OH	20,000	
Fixed Overheads	40,000	1,10,000
Prime Cost		50,000

(ii) An additional production of 4,000 units results in increase of Rs.2,000 in Semi-Variable Overheads. Hence an additional production of 2000 units will result in an increase of Rs.1,000 in Semi-Variable Overheads.

Ques 2: A company has a capacity of producing 1,00,000 units of a certain products in a month. The Sales Department reports that the following schedule of sales prices is possible:

Volume of Production	**Selling price per unit in Rs.**
60%	0.90
70%	0.80
80%	0.75
90%	0.67
100%	0.61

The Variable Cost of manufacture between these levels is 0.15 per unit and Fixed Cost Rs.40,000.

(a) Prepare a statement showing incremental revenue and differential cost at each stage. At which volume of production will the profit be maximum?

(b) If there is a bulk offer at Rs.0.50 per unit for the balance capacity over the maximum profit volume for export and price quoted will not effect the internal sale, will you advise accepting this bid and why?

Solution: (a)

Capacity	**Units**	**Sales Value**	**Incre-mental Revenue**	**Vari-able Cost**	**Fixed Cost**	**Total Cost**	**Differ-ential Cost**
		Rs.	**Rs.**	**Rs.**	**Rs.**	**Rs.**	**Rs.**
60%	60,000	54,000	–	9,000	40,000	49,000	–
70%	70,000	56,000	2,000	10,500	40,000	50,500	1,500
80%	80,000	60,000	4,000	12,000	40,000	52,000	1,500
90%	90,000	60,300	300	13,500	40,000	53,500	1,500
100%	1,00,000	61,000	700	15,000	40,000	55,000	1,500

So long as the incremental revenue is more than the differential cost, it will be profitable to increase the output when both the Incremental Revenue and Differential Costs are equal, the profit will be the maximum and if the former is less than the latter, it will not be profitable.

In the above levels of Activity at which profit will be the maximum lies between 80% and 90%. Since other figures are not available, the level of production should be set at 80% only.

(b) Profit on bulk order of 20,000 (1,00,000 – 80,000) units will be:

	Internal Market	**Export Market**	**Differential**
Units	80,000	1,00,000	20,000
Variable Cost	Rs.	Rs.	Rs.
@Rs.0.15	12,000	15,000	3,000
Fixed Cost	40,000	40,000	–
Total Cost	52,000	55,000	3,000
Sales 80,000@Rs.0.75	60,000		
20,000@Rs.0.50	–	70,000	10,000
Profit	8,000	15,000	7,000

On the basis of an increase in Profit of Rs.7,000, the Export Offer is recommended.