

Differential Cost Analysis

Meaning of Differential Cost Analysis

Differential costing is a technique where mainly differential costs are considered relevant. Differential cost is the difference in total costs between two acceptable alternative courses of action.

The alternative actions may arise due to change in sales volume, price, product mix, or such actions as make or buy or continue or stop production, etc.

The key emphasis in differential costing is on change in total costs associated with alternative decisions. When the change in costs occurs due to change in the activity from one level to another, it may result in incremental cost [i.e., increase in costs] or decremental cost [i.e., decrease in costs]. Differential costing is a broader term that includes both incremental costing and decremental costing.

The differential cost analysis is a useful tool for the management to know the results of any proposed changes in the level or nature of activity. Under this method, the differential costs are ascertained for each proposal and compared with the expected changes in revenue associated with each proposal.

When there is net excess revenue, the proposal will be accepted; otherwise it will be rejected. The determination of differential cost is simple. It represents the difference in the relevant costs for the alternative proposal under consideration.

When two levels of activities are being considered, the differential cost is obtained by deducting the cost at one level from another level.

The following example will illustrate the computation of differential cost:

	Alternative I	Alternative II	Differential Cost
Sales	Rs. 50,000	80,000	Rs. 30,000
Direct Material	7,500	12,000	4,500
Direct wages	10,000	16,000	6,000
Semi-variable overheads	7,500	9,000	1,500
Fixed overheads	10,000	10,000	
Total cost	35,000	47,000	12,000
Profit	15,000	33,000	18,000

In the above analysis, it is ascertained that the fixed overheads and a portion of semi-variable overheads remain constant for both the alternatives. Hence, they will be considered irrelevant for decision-making, as they are not affected by increase in sales volume. However, if some additional fixed costs are incurred for increased sales volume that will be considered for computation.

Practical Applications of Differential Cost Analysis:

Some of the decision-problems where it may be applied are as follows:

- (a) Determination of the most profitable levels of production and price
- (b) Acceptance of special orders – offer at a lower price or offering a quotation at lower selling price in order to increase the capacity.
- (c) Sell a product as it is or after further processing
- (d) Determination of right price at which materials may be purchased
- (e) Decisions regarding alternative capital investment and plant replacement

(f) Decisions such as changing the product mix, method of production, make or buy, adding new product, etc.

Decision Making Through Differential Costing

Question 1.

In a light engineering company, Kitchen mixer machines are manufactured. Prepare a schedule showing the total differential costs and increments in revenue from the following data. At what volume the company should set its level of production?

Output [Nos. in lakhs]	Selling price per machine [Rs.]	Total semi-fixed costs [Rs. In lakh]	Total variable cost [Rs. In lakhs]	Total fixed cost [Rs. In lakhs]
0.60	240	30.00	83.60	28.40
1.20	220	30.00	163.60	28.40
1.80	200	34.00	255.60	28.40
2.40	180	34.00	315.60	28.40
3.00	160	40.00	355.60	28.40
3.60	140	40.00	380.40	28.40

[ICWA. Final]

Solution

Comparative Statement of Incremental Revenue and Differential Cost

Output in lakhs	Total Sales [Rs. In lakhs]	Incremental Revenue [Rs. In lakhs]	Total cost [Rs. In lakhs]	Differential cost [Rs. In lakhs]
0.60	144	–	142.00	–
1.20	264	120	222.00	80.00
1.80	360	96	318.00	96.00
2.40	432	72	378.00	60.00
3.00	480	48	424.00	46.00
3.60	504	24	448.80	24.80

Analysis:

In the above case, the output level should be fixed at Rs.3 lakhs where the selling price is at Rs.160 per machine. Under differential cost method, the decision criterion is that it would be profitable to increase the output as long as the incremental revenue equals or exceeds the differential cost. Up to Rs.3 Lakhs level the incremental revenue is more than differential cost

thereby adding to the profit figure. After that level the differential cost is more than the incremental revenue thus resulting in a loss on additional output.

Question 2

A company is at present working at 90% capacity producing 13 500 units per annum. It operates a flexible budgetary control system.

The following figures are obtained from its records budget:

	90% Rs.	100% Rs.
Sales	15,00,000	16,00,000
Fixed Expenses	3,00,500	3,00,600
Semi-fixed expenses	97,500	1,00,500
Variable expenses	1,45,000	1,49,500
Units produced	13,500	15,000

Labour and material costs per unit are constant under present conditions. Profit margin is 10%.

- (a) You are required to determine the differential cost of producing 1500 units by increasing capacity to 100%.
- (b) What would you recommend for an export order the minimum price taking into account that overseas prices are much lower than indigenous prices?

Solution:

Differential Cost Statement

	90% capacity	100% capacity	Differential Cost
Production in units	13,500	15,000	1,500
	Rs.	Rs.	Rs.
Material and Labour	8,07,000	8,96,667	89,667
Variable expenses	1,45,000	1,49,500	4,500
Semi-variable expenses	97,500	1,00,500	3,000
Fixed expenses	3,00,500	3,00,600	100
Total	13,50,000	14,47,267	97,267

Total differential cost = Rs.97 267

Minimum price for export = $\text{Rs.}97\ 267/1500 = \text{Rs.}64.84$ per

This price is the minimum that should be charged to avoid any loss.
Hence, any price above Rs.64.84 may be acceptable.

Working Notes:

	Rs.
Sales at 90% capacity	15,00,000
Less: Profit at 10%	1,50,000
Total cost	13,50,000
Less: All other expenses	5,43,000
Cost of labour and material at 90%	8,07,000

Cost of labour and material at 100% = $[\text{Rs. } 807000/90] \times 100 = 896667$.