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COSTING FOR DECISION MAKING

As you will appreciate, the exercise of arriving at Total Unit Cost and the exercise in Standard Costing do help in taking various decisions. But you will also appreciate that these techniques are quite elaborate and time consuming and generally revolve around past performance.

In the real business world, we do not have too much time to wait before taking decisions. Besides, various alternatives have to be considered before finalizing a particular decision. The focus is on the Future Costs and Future Revenues while taking the decisions. Past data only provides a useful guidance.

Keeping the above in mind, many costing techniques have been developed which are less time consuming and still are, quite precise. These techniques mainly rely upon the broad classification of cost into two categories:

i. Variable costs

ii. Fixed costs

Variable costs are the ones which vary proportionally along with the change in the output. On the other hand, the costs which do not vary with the changes in the output are called *Fixed Costs*.

There is also a category of costs which do not vary in the same proportion with the changes in output. They are called semi-variable costs.

Some illustrations are:

Variable cost: Raw materials
Power (particularly in Caustic Soda and aluminum plants)
Factory labour (on piece rate)
Sales commission (when determined by sales volume)

Fixed costs: Depreciation on plant and equipment (if charged as percent of the asset cost per annum).
Rentals
Interest
Administrative salary, etc.

Some of the costs like Distribution Cost, Wages, etc. do not vary directly in the same proportion as the output. They are '*Semi Variable Costs*'.

Points to Ponder

1. Would the classification of the costs into fixed and variable be the same for all industries?
2. Is the cost of Nails in a furniture industry a fixed cost or a variable cost?
3. Are all "Direct" costs variable? Is the converse true?

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BREAK-EVEN ANALYSIS

Assuming when a unit of product is sold, the company gets sales revenue. For the same product, various costs are incurred. It is not too easy to find out the variable cost per unit. The *'Direct Costs'* (after arriving at the same based upon assumptions as discussed in earlier chapter) form the base variable costs. Before fixing the variable cost figure, due weightage must be given to semi variable costs too.

However still, one can, and one would rather, arrive at a broad ball park number as the *Variable Cost Per Unit.*

This will trigger off a major and more relevant journey to effective decision making.

Let us look at this with a small illustration. Say for instance a unit of product (X) is sold for Rs. 10/- (Rs. 12 selling price less Rs. 2 as commission) and the variable cost per unit is Rs. 3/-. The question that arises is: What would this figure Rs. 7/- (10-3) signify?

We can easily deduce that this figure of Rs. 7/- represents the surplus out of which the fixed costs will be met.

Now, the company naturally has huge fixed costs (overheads). Rs. 7/- cannot be enough. But this Rs. 7/- is realized out of the single unit that is sold. Likewise, millions of units of product X will be sold. Similar surplus of each would be added up to meet the fixed costs of the company. Naturally, if these surplus are less than the fixed costs during a period, the company will incur losses. And if these surpluses are more than the fixed costs, the company will earn a profit. If they are even, the company is said to have break even. The capacity utilization or the level of quantity of sale, at which this equation is struck is called the *'Break Even Point'.*

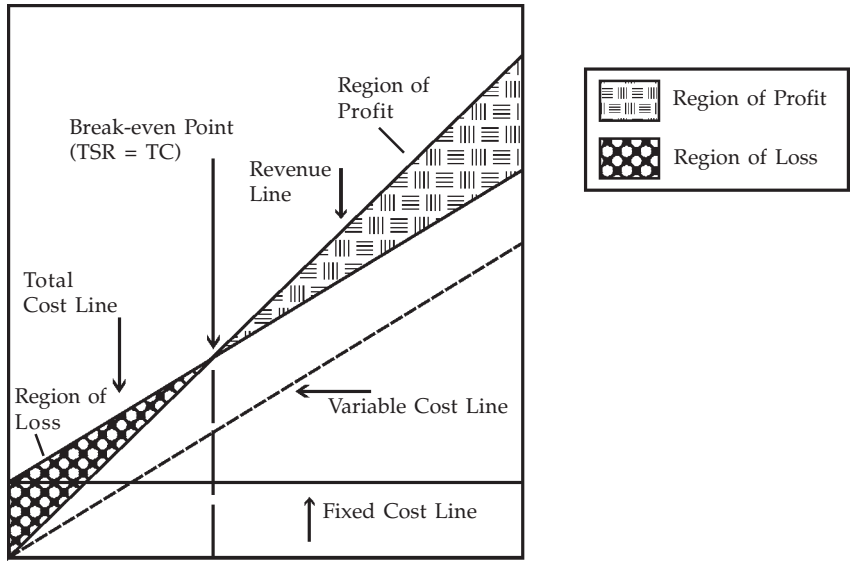
Rs. 7/- is called the contribution per unit. In other words,

Sales price per unit - Variable cost per unit = Contribution per unit.

And the level at which the total contribution (number of units sold (X) contribution per unit) equals the fixed costs, it is called the *'Break Even Point'* (BEP).

The following graph explains this more clearly.

Break-even Point Curve



Number of Units of Capacity Utillisation of Age

Thus, BEP is the volume of output at which revenue just equals the total costs (fixed and variable).

The mathematical way of finding out the breakeven point of a company is:

BEP *number of units* = Fixed Costs / Contribution per unit

Now, it should be appreciated that BEP is almost always an approximation. The reasons are as follows:

a. The fixed costs do not remain absolutely "Fixed" at varying levels of output.

b. Similarly, the variable costs are also not totally variable; Economies of scale usually help in reducing the material consumption, etc.

c. It is very difficult to always classify the costs into only two categories viz. Fixed and variable. Various assumptions regarding semi-variable costs will have to be taken.

d. Again, many a times there are more than one products dealt with by a company and there are peculiarities of various fixed and variable costs. There can be more than one "Selling Prices" even for a single product. Theoretically, one can imagine even more than one BEP for a company.

Therefore BEP is based upon a set of assumptions and provides only a ball park idea to guide the decision making.

Points to Ponder

4. What is the importance of finding a BEP?

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MARGINAL COSTING AND RELATED CONCEPTS

The concept of finding out contribution per unit is extremely useful in taking various decisions. For instance, given a choice, the company would always try to produce and sell the product which is giving maximum contribution. The *"Contribution"* data thus helps in taking production planning decisions.

Points to Ponder

5. Company A can manufacture 1000 units of product P or 800 units of product Q in one shift. Product P contributes Rs. 10 and product Q contributes Rs. 11 per unit. Other things being equal, which product should the company manufacture?

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When the company is having idle capacity, the management would certainly think of selling its products at the lowest possible prices, in order to use the capacity. Naturally, the variable cost per unit is the lowest that the company should realize. Any realization above the V.C would give additional contribution towards the fixed costs.

Points to Ponder

6. A Pharmaceutical company has unsold stock of product X (which expires in 40 days). There are no buyers for it except Mr. T who offers Rs. 30 per unit. The raw material cost of the drug is Rs. 40. Should the company sell product X at Rs 30? If some other party is likely to offer Rs. 31 after 30 days should the company wait? (Assuming that Mr. T's offer of Rs. 30 stands for 30 days.)

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One interesting aspect for decision making is that we have to consider the costs which are relevant. What is '*relevant*' also changes from situation to situation and from decision to decision. Say, while deciding about a particular investment, one has to collect data about various alternative investment proposals. In other words, we are evaluating the opportunity costs.

Even while putting our savings in to a bank, we look at the rates of interest offered by various saving schemes, etc. We are, actually studying the opportunity costs which are relevant.

Points to Ponder

7. What are the relevant opportunity costs while deciding whether to buy a new Ford car?
8. What costs will we consider while deciding whether to go to Baroda by car or by train?

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Many times the company decides to change its course of action. Say, after incurring huge expenses on R&D, a company may decide not to go in for the commercial production of a product. The question that arises, *what should be the treatment of the costs incurred for the R&D?*

These are *'Sunk Costs'*. They are irrevocably lost (if they are spent on paying salary and other consumables). The future products of the company should not unnecessarily carry its burden. Variable (marginal) costs incurred on irrelevant/useless projects are sunk costs.

Points to Ponder

9. If you find a movie useless after buying the tickets what would you do? You can't sell them back. Is the cost of the movie a sunk cost?

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While taking decisions, various aspects have to be considered. It is not necessary that you will always consider the variable costs alone. The impact of a decision on the fixed costs will also have to be considered. Again, your decisions will have to be made based upon the likely future costs. Because, the impact of the decision will only be felt in the future, past data will merely act as a guide. It is a pre-requisite for costing for decision making, to exactly know what decision you are trying to take based upon the cost data. Take all relevant costs (they may be fixed and/or variables) into consideration.

Many times, the impact of a decision over a much longer time will have to be considered. Say for instance, extra wage demands by the union may have to be considered after keeping in mind the future industrial peace and better efficiency etc. The exact profitability of such decisions and its costs are very complex to be precisely calculated. Costing data in such situations provide a guideline but cannot be the sole criteria. Many aspects including the corporate image, social obligations, political pressures, market conditions, strategic importance, etc. do have to be considered while taking many decisions. The ultimate objective being the impact of the decision on bottom line (the profit) in future. At least, we should know at "what cost" we are giving considerations to these intangible factors. The age old saying *"We know the cost of everything but the value of nothing"* holds true.

Points to Ponder

10. *Funda Company : A caselette*

The income statement of Funda Company appears below. Please note that the commissions are based on sales, and other variable expenses vary in terms of units sold.

The factory has a capacity of 150,000 units per year. The results for 2006 have been disappointing. Top management is thinking about a number of possible ways to make operations profitable in 2007. Consider each of the alternatives given as independent of each other.

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FUNDA COMPANY

Profit and Loss Statement
For the year ended December 31, 2006

Sales (90,000 units @Rs. 4.00)			Rs. 360,000
Costs of goods sold:			
Direct materials	Rs. 90,000		
Direct labour	Rs. 90,000		
Factory overhead:			
Variable	Rs. 18,000		
Fixed	Rs. 80,000	Rs. 98,000	Rs. 278,000
Gross margin		Rs. 82,000	
Selling expenses:			
Variable:Sales Commissions:	Rs. 18,000		
Outward Freight:	Rs. 3,600	Rs. 21,600	
Fixed: Advertising, Salaries, etc.		Rs. 40,000	Rs. 61,600
Administration Expenses:			
Variable	Rs. 4,500		
Fixed	Rs. 20,400	Rs. 24,900	Rs.86,500
Net Loss			Rs. 4,500

* Recast the income statement into a contribution format

The sales manager is torn between various courses of action.

1. He has studied the market potential and believes that a special additional sales commission of 10 per cent would generate additional orders of 40,000 units.

2. He wants to completely stop sales commissions and increase advertising by 40,000. Under these circumstances, he thinks that units volume will increase by 40,000 units.
3. A big firm is willing to buy 50,000 units of product if the price is right. Assume that the present market of 90,000 units at Rs. 4.00 each will not be disturbed, Funda Company will not pay any sales commission on these extra sales. Terms are ex-works. However, Funda must refund Rs. 20,000 of the total sales price as a promotional and advertising allowance for the big firm. In addition, special packaging will increase manufacturing costs on these 50,000 units by 10 paise per unit. At what unit price must this order business be quoted in order for Funda to show a profit of Rs. 36,000?

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