



Technical Bulletin -
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Cost-Output-Profit Relationship in Business Enterprises

*“A Bulletin for anyone interested in growth of
Producer Groups/Farmer producer institutions”*

Cost-Output-Profit relationship in Business Enterprises

“Cost Output Profit and Break-Even Analysis are the critical factors to be considered while forming a new enterprise or expanding the existing one.”

This bulletin seeks to discuss the impact of Cost Output Profit and Break- Even Analysis factors while considering a formation of a Farmer Producer Organisation or expansion of an existing one.

Cost Volume Profitability (CVP) analysis is a valuable tool for Farmer Producer Organisations to understand the relationship between costs, volume, and profit. It helps in various decision-making processes.

CVP analysis can be used by the Farmer Producer Organisations (FPOs) in the following ways:

(i)Forecasting Costs and Profits

Farmer Producer Organisations can use CVP analysis to estimate costs and profits based on changes in volume. By determining the cost per unit at different output levels, Farmer Producer Organisations can forecast their financial performance.

(ii)Sales Volume Fixation

CVP analysis assists Farmer Producer Organisations in setting the desired sales volume to achieve specific targets, such as earning a target revenue, meeting a desired return on capital employed, or achieving a particular rate of dividend.

(iii)Comparative Profitability

Farmer Producer Organisations can evaluate the profitability of each product line, project, or profit plan using CVP analysis. It helps identify which

products or projects contribute more to overall profitability.

(iv)Shift in Sales Mix

CVP analysis provides suggestions for optimizing the sales mix of products within an FPO. By analyzing the contribution margin of different products, Farmer Producer Organisations can determine the most profitable combination of products to focus on

Some of the Concepts of Costs are defined below:

Types of Costs

Costs can be classified into direct and indirect, as well as fixed and variable costs.

a.Direct and Indirect Costs

Direct costs are expenses directly tied to the production of specific goods or services. For example, direct costs in an FPO may include direct labor, direct materials, manufacturing supplies, wages for production staff, and fuel or power consumption.

On the other hand, indirect costs in Farmer Producer Organisations extend beyond production and include expenses involved in maintaining and running the company. These overhead costs include items like computers, electricity, and rent, which contribute to the organisation as a whole but are not directly assigned to the creation of any specific service.



b. Fixed, Variable, and Semi-Variable Costs

Understanding the classification of costs is crucial for Farmer Producer Organisations. Costs can be categorized as fixed, variable, or semi-variable.

Fixed Costs: Fixed costs are expenses that do not change with the level of production or sales. They remain constant within a certain range of activity. Examples of fixed costs in Farmer Producer Organisations include rent, lease costs, salaries, utility bills, and insurance premiums.

Variable Costs: Variable costs vary directly with the level of production or sales. As the volume of activity increases, variable costs increase proportionally. Examples of variable costs in Farmer Producer Organisations include raw materials, direct labor, production supplies, commissions, and delivery costs.

Semi-Variable Costs: Semi-variable costs contain both fixed and variable components. They are partly affected by fluctuations in the level of activity. For instance, electricity costs for an FPO may have a fixed base rate but increase as production grows, resulting in higher electricity bills.

c. Contribution

Contribution per unit is a crucial concept for determining profitability in Farmer Producer Organisations. It represents the amount of revenue available to cover fixed costs and contribute towards profit after deducting variable costs.

The formula for contribution per unit is:

Contribution per unit = Sales revenue per unit - Total variable cost per unit

Farmer Producer Organisations can use contribution per unit to assess the profitability of individual products. By comparing the contribution per unit for different products, Farmer Producer Organisations can prioritize products that yield higher contributions and are more profitable.

Illustration

Let's consider an FPO called "Jai Maa Fruits & Vegetables" that specializes in the production and sale of fruits. Jai Maa Fruits & Vegetables has 100 farmer members who collectively cultivate and supply various types of fruits.

Sales:

Jai Maa Fruits & Vegetables sells its fruits to local markets, supermarkets, and wholesale buyers. The total sales revenue is determined by multiplying the quantity of fruits sold by the selling price per unit.

For instance, let's assume that Jai Maa Fruits & Vegetables sold 5,000 kilograms of fruits in a month at a selling price of Rs5 per kilogram. Therefore, the total sales revenue generated by Jai Maa Fruits & Vegetables would be Rs5 multiplied by 5,000 kilograms, which equals Rs25,000.

Variable Costs:

Variable costs are the expenses that vary with the quantity of fruits produced and sold. These costs include expenses directly associated with production, packaging, transportation, and marketing.

Let's consider the following variable costs incurred by Jai Maa Fruits & Vegetables:

Cost of raw materials (seeds, fertilizers, pesticides): Rs3,000

Packaging and labeling costs: Rs1,500



Transportation expenses: Rs2,000

Commission fees to agents: Rs500

The total variable costs incurred by Jai Maa Fruits & Vegetables would be the sum of all these expenses, which is $\text{Rs}3,000 + \text{Rs}1,500 + \text{Rs}2,000 + \text{Rs}500 = \text{Rs}7,000$.

Contribution:

The contribution is calculated by subtracting the variable costs from the total sales revenue. It represents the amount that contributes to covering fixed costs and generating profits.

In this example, the contribution of Jai Maa Fruits & Vegetables can be calculated as $\text{Rs}25,000$ (total sales revenue) - $\text{Rs}7,000$ (variable costs), which equals $\text{Rs}18,000$.

The contribution per unit can also be determined by dividing the total contribution by the quantity of fruits sold. Assuming Jai Maa Fruits & Vegetables sold 5,000 kilograms of fruits, the contribution per unit would be $\text{Rs}18,000$ divided by 5,000 kilograms, resulting in a contribution of $\text{Rs}3.60$ per kilogram.

By analyzing the contribution per unit, Jai Maa Fruits & Vegetables can assess its profitability and make informed decisions regarding pricing, cost management, and investment in further business development. This allows the FPO to optimize its operations and ensure the sustainability of its fruit production and sales activities.

a.Limiting Factor

The limiting factor is a constraint that restricts an FPO's ability to maximize its sales due to demand constraints or limited availability of production

resources. It can be a bottleneck in the production process.

For example, let's consider an organisation with a maximum capacity of 4,800 labor hours per month. The FPO produces two different types of articles. If labor availability is the limiting factor, the FPO needs to determine which product is more profitable based on the contribution per labor hour.

By calculating the contribution per labor hour for each product, the FPO can identify the more profitable product. This analysis helps in resource allocation and decision-making, ensuring that the FPO optimizes its limited resources and maximizes profitability.

b.Break-even Analysis

A break-even analysis helps determine the point at which an FPO, a new product, or a service becomes profitable. It calculates the number of products or services that need to be sold to cover all costs. When the break-even point is reached, the FPO is neither losing nor making money.

For example, let's say an FPO sells 275,000 units of a product at $\text{Rs } 37.50$ per unit. The variable costs are $\text{Rs } 17.50$ per unit (manufacturing costs of $\text{Rs } 14$ and selling costs of $\text{Rs } 3.50$ per unit). The fixed costs incurred throughout the year amount to $\text{Rs } 3,500,000$. To determine the break-even sales quantity, we divide the fixed cost by the contribution per unit: $\text{Rs } 3,500,000 / \text{Rs } 20 = 175,000$ units.

This means that the FPO needs to sell at least 175,000 units to break even, indicating a no-profit, no-loss situation.



c. Cost Indifference Point

The cost indifference point is the level of activity at which the total cost (fixed and variable) of two alternatives is the same. In the context of Farmer Producer Organisations, this point helps determine when to shift from one production method to another.

For instance, let's consider an FPO with two production methods, A and B, and the choice depends on the level of activity. At the cost indifference point, the total cost of alternative A is equal to the total cost of alternative B. This point is where the FPO can make an informed decision about which method to choose.

d. Profitability Comparison

When evaluating profitability in Farmer Producer

Organisations, it's essential to consider the contribution per unit. Contribution is the difference between sales revenue and total variable costs. By calculating contribution, the FPO can determine the profitability of each product or prioritize products based on their profit potential.

For example, in an FPO producing two different types of articles, if the availability of labor is the limiting factor, the FPO can analyze the contribution per labor hour for each product. The product with the higher contribution per labor hour would be considered more profitable.

These simplified concepts and illustrations can help Farmer Producer Organisations evaluate costs, analyse profitability, determine break-even points, and make informed decisions regarding production methods and resource allocation.

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