Chapter 2.

COST: CLASSIFICATIONS AND CONCEPTS

Chapter Goals:

After the study, you should understand:

(1) Cost objectives.
(2) Product cost or manufacturing cost.
(3) Period cost or nonmanufacturing cost.
(4) Fixed cost and variable cost.
(5) Controllable cost and uncontrollable cost.
(6) Differential costs.
(7) Opportunity cost.
(8) Standard cost.
(9) Sunk cost.

COST IN COST ACCOUNTING

Generally speaking by cost we mean total amount of money or other resources foregone or sacrificed to procure something or to achieve some objective. Word expense is also used to denote almost the same meaning. The difference between these two is that when benefit of resources given up can be realized in future, we refer to them as cost. But where resources given up have no future potential benefit we call them as expense. "A cost is an unexpired expense and an expense is an expired cost" is a simple and common way to distinguish between these two. This distinction between cost and expense is most commonly applied in financial accounting. What does the term cost means in cost accounting and in management accounting is explained in the

following pages.

In cost and management accounting word cost is used in such a variety of ways that it has become extremely difficult to give it a precise meaning without some adjective or qualifying phrase. We speak of direct cost, prime cost, fixed cost, controllable cost, joint cost, standard cost, marginal cost etc. etc. Keeping in view such diverse uses of the word cost, The Committee on Cost Concepts and Standards of American Accounting Association has given a broad definition of cost, so that it may cover all of the various types of costs as are used by the accountants. The committee defines cost as:

> Cost is foregoing measured in monetary terms, incurred or potentially to be incurred to achieve a specific cost object or cost objective.

What does this definition implies is that the expression cost has meaning only when it is related to an object. The cost object may be a product or service, it may be an activity or operation, cost object may be a department or process and so on. Cost object or cost objective means an item or activity or division for which we make a separate measurement of costs. Cost objectives are developed to guide the decision makers and to form the bases of classification of cost e.g. manufacturing costs of a product, or direct and indirect costs of a department.

CLASSIFICATION OF COST

There are different measures of costs for different purposes. Therefore, costs are classified in a number of ways. An organization does not record costs by all possible classifications. However, in this modern age, computers have made it possible to record costs on multiple classification bases without much additional clerical work and expense. This has facilitated ready availability of cost data for all decision making situations. Following are the principal classifications:

Product Cost or Manufacturing Cost

Product cost includes costs incurred for manufacturing or for purchasing goods. In case of manufacturing business product cost consists of direct materials, direct labour and factory overhead. In case of trading business, product cost involves purchase price plus transportation in plus other costs associated

with receiving.

Product cost is said to be "attached to the units produced". It is also called inventoriable cost. Product cost is, in the first instance, recorded as assets in inventory accounts as raw materials or parts or stores, then transformed through work in process into finished goods inventory. Product cost is treated as expense when the goods are sold (i.e. cost of goods sold). Following is a brief description of three main items included in product cost:

Direct Materials. Various substances that become an integral part of finished product and that can be conveniently and economically identified with it are called direct materials. Examples of direct materials include cloth for a shirt, leather for a pair of shoes, paper for a book etc.

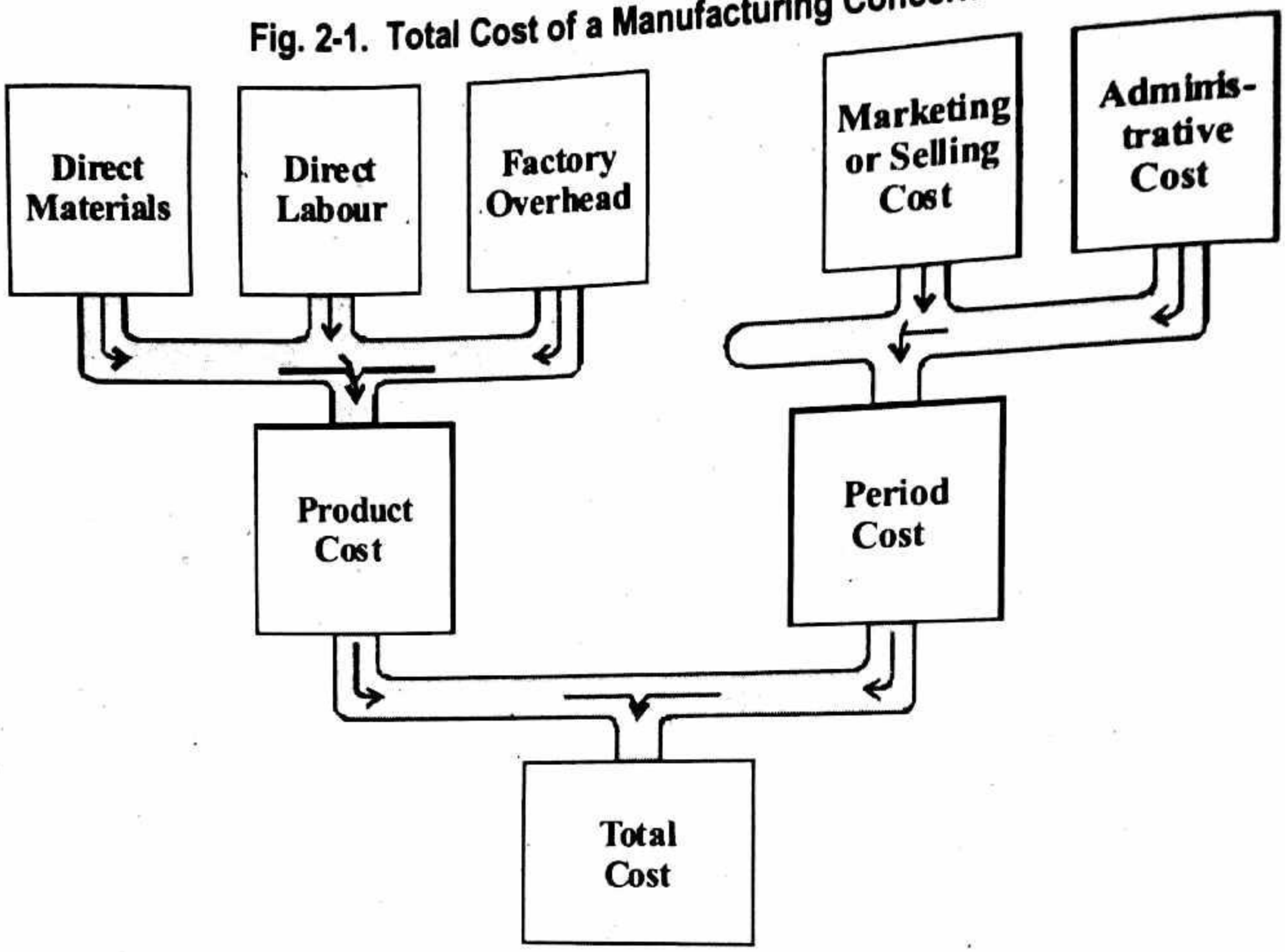
Direct Labour. Direct labour is the labour cost of workers working on materials to convert them into finished products and the cost can be traced with units of output without undue cost or inconvenience. Examples include labour cost of workers working on a production conveyer, labour cost of carpenter or tailor.

Factory Overhead. All manufacturing costs other than direct materials and direct labour are collectively termed as factory overhead. These costs are also described by such names as manufacturing overhead, indirect manufacturing expenses, factory burden. This classification includes such costs as indirect materials, indirect labour, power, light, depreciation, repairs, cleaning and maintenance etc.

The term **indirect materials** is used for those items of materials which may become part of finished product but may be traceable into the product only at unreasonably high cost or inconvenience. For example, welding material used in the production of a bicycle or the cost of thread used for binding this book.

Similarly, labour cost which either cannot be directly associated with units of finished goods or which can be so associated only at unreasonably high cost and inconvenience is termed as **indirect labour**. Examples include labour cost of security guards, material handlers, cleaners, supervisors, engineers etc.

Fig. 2-1. Total Cost of a Manufacturing Concern.



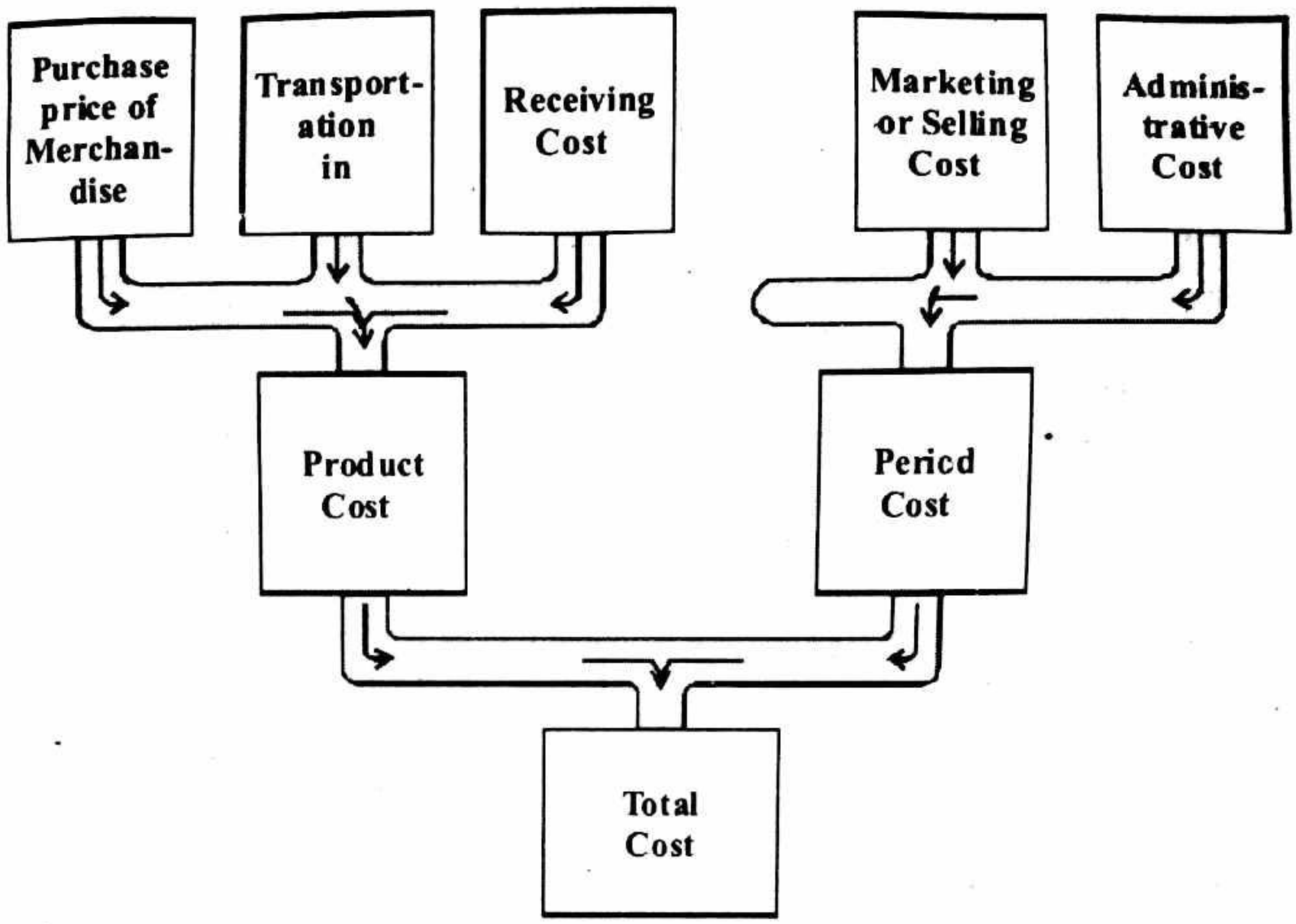
As direct relationship exists between finished product and direct materials and direct labour, these two costs are jointly called **prime cost.**

Direct labour and factory overhead costs are incurred to convert raw materials into finished products, therefore, these two costs are jointly called as **conversion cost.**

Period Cost or Nonmanufac-turig Cost

Cost which is not related to production and is matched against revenues on a time period basis is called period cost, nonmanufacturing cost or non-inventoriable cost. Period cost includes marketing or selling cost and administrative cost.

Fig. 2-2. Total Cost of a Trading Concern.



Marketing or Selling Cost. Marketing or selling cost include all costs of marketing research, getting orders and distribution of finished products to consumers. Advertising, sales travel, sales commission and salaries, cost of warehousing finished goods and distribution expenses are examples of these costs.

Administrative Cost. All those costs which cannot be logically included in under either production cost or marketing cost are grouped as administrative cost. Administrative cost includes cost of planning, policy making and controlling operations of enterprise. Examples of these costs include fees of board of directors, general accounting, public relations and other similar costs concerning overall administration of the organization.

Direct Cost and Indirect Cost

This classification of costs is particularly related to cost objective.

Direct Cost. A direct cost is one that can be conveniently and

economically identified with a cost objective or can be so associated with a particular segment under consideration.

Indirect Cost. An indirect cost is one that cannot be conveniently and economically identified with a cost objective and must be apportioned to the cost objective or segment under consideration on some equitable basis.

From the above it is clear that the terms direct cost and indirect cost are meaningless unless we have identified the segment for which the cost is being calculated. For example, direct departmental cost and direct cost of a product are the terms that give clear meaning.

A cost may be direct and indirect at the same time depending upon the cost object. For example, salary of a production supervisor and depreciation of a machine are indirect costs with reference to product and are classified as factory overheads. But the same salary and depreciation are direct costs when our cost object is the department where the supervisor works and the machine is installed.

Fixed Cost and Variable Cost

This classification is based on cost behavior. It is one of the most useful classifications for the purpose of cost planning and control. Cost behavior means how a cost will react or respond to changes in the level of business activity.

Fixed Cost. A fixed cost does not respond to changes in activity level within a limited range, called the relevant range. A fixed cost remains constant in total regardless of changes in activity; therefore, when measured on per unit basis it will react inversely to changes in activity. Depreciation of factory building, salary of plant manager, insurance of plant and machinery are examples of fixed costs.

Following table illustrates this idea. Assume that annual depreciation of factory building of an automobile manufacturer is Rs.100,000 and he can produce 10,000 automobiles per year.

Annual Depreciation	Number of Automobiles Produced	Average Fixed Cost Per Unit
Rs. 100,000	100	Rs. 1,000
Rs. 100,000	1,000	Rs. 100
Rs. 100,000	10,000	Rs. 10

As the production increases average fixed cost per unit decreases because the same total amount is now spread over more units.

Variable Cost. A variable cost is one the total of which changes in direct proportion to changes in activity level. If production increases by ten percent, total variable costs will also increases by ten percent. It is important to note that the total amount of variable cost increases or decreases with activity level, but per unit variable cost is a constant amount. Direct materials and direct labour are good examples of variable costs.

This idea is illustrated by the following table. Assume that production of one bag of flour requires ten kilograms of wheat costing Rs.100. Total and per unit cost of wheat under various output levels is as below:

Number of Bags of Floor Produced	Cost of Wheat Per Bag	Total Cost of Wheat (Variable Cost)
10	Rs. 100	Rs. 1,000
100	Rs. 100	Rs. 100
1,000	Rs. 100	Rs. 10

Variable cost per unit is a fixed amount, therefore, when activity level increases or decreases, the total variable cost also increases or decreases accordingly.

Semivariable Cost. A semivariable cost is composed of both fixed cost and variable cost. Semivariable cost respond to changes in activity level, but due to the presence of fixed cost it does not change indirect proportion to production volume.

Cost of electricity consumed in factory is an example of semivariable cost. Cost of electricity consumed for lighting and air conditioning purposes represents fixed portion of total cost of electricity. Electricity consumed for driving machines is variable component as it changes with the changes in activity level.

With an increase in the level of output semivariable cost per unit decreases but the negative slop of unit cost curve is not as steep as it is in case of variable cost.

Controllable and Uncontrollable Costs

This cost concept is designed to fix responsibility of cost control for various levels of management. Therefore, it is always associated with a designated level in organizational hierarchy.

Controllability of a cost means the degree of influence that a

Fig. 2-3. Behaviour of Total Fixed Cost and Per Unit Fixed Cost.

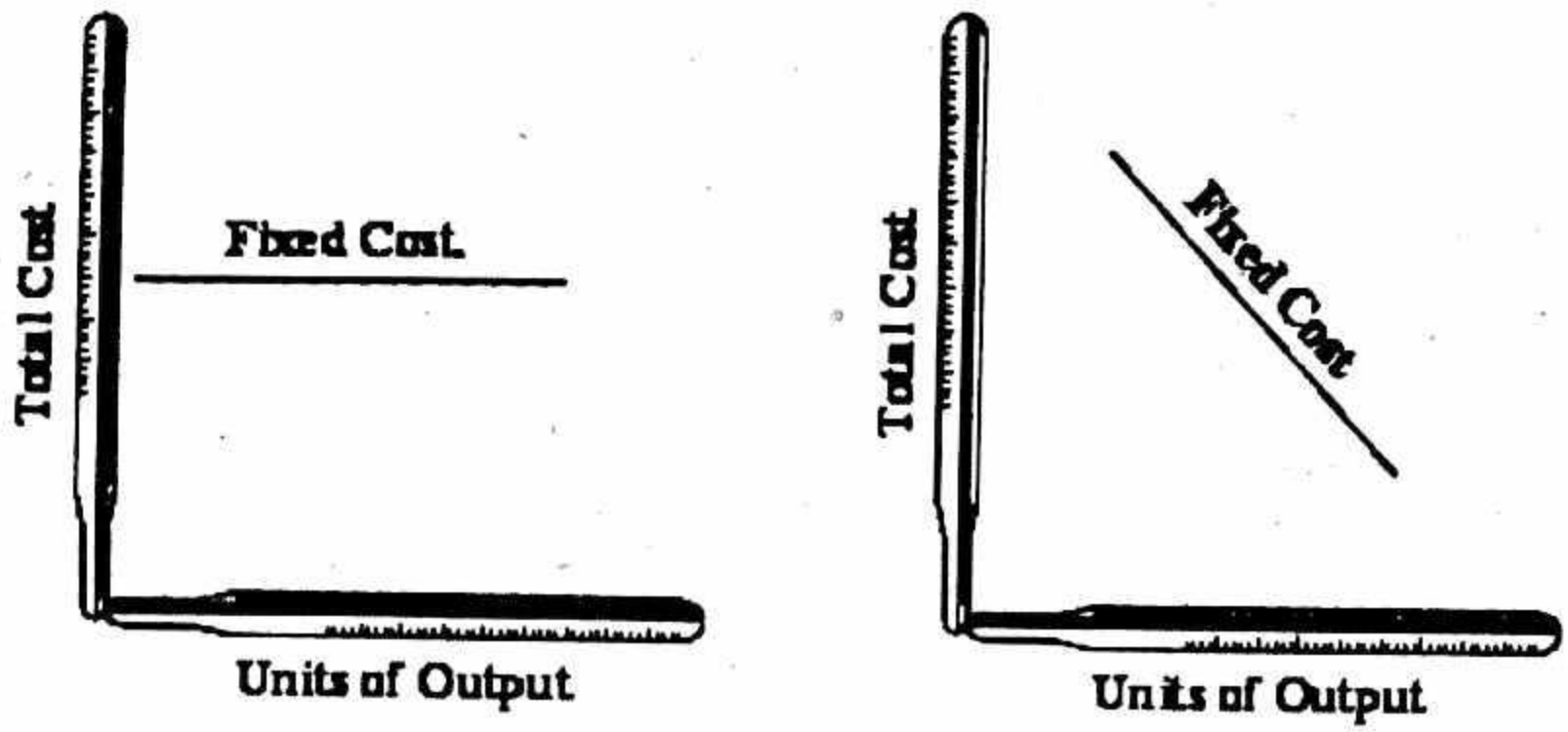


Fig. 2-5. Behaviour of Total Variable Cost and Per Unit Variable Cost.

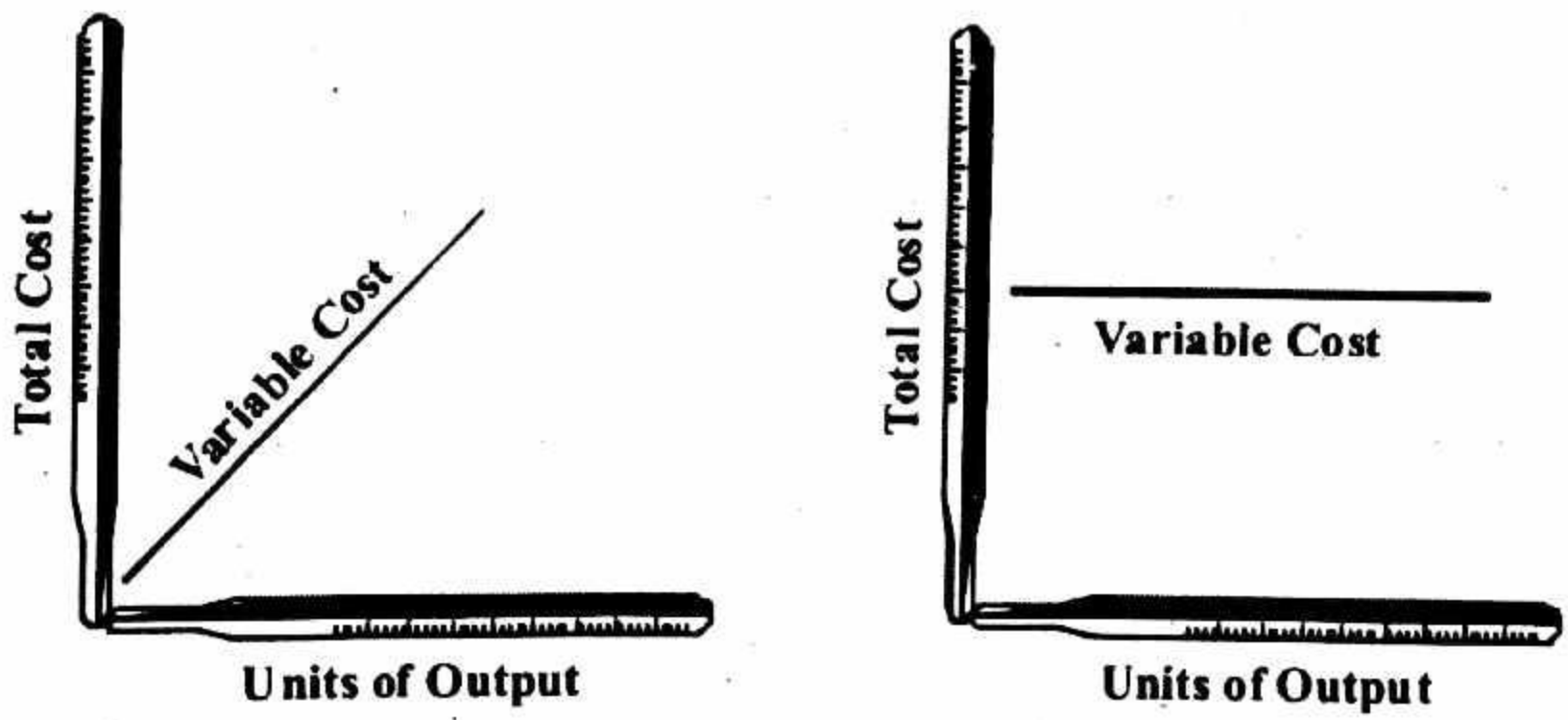
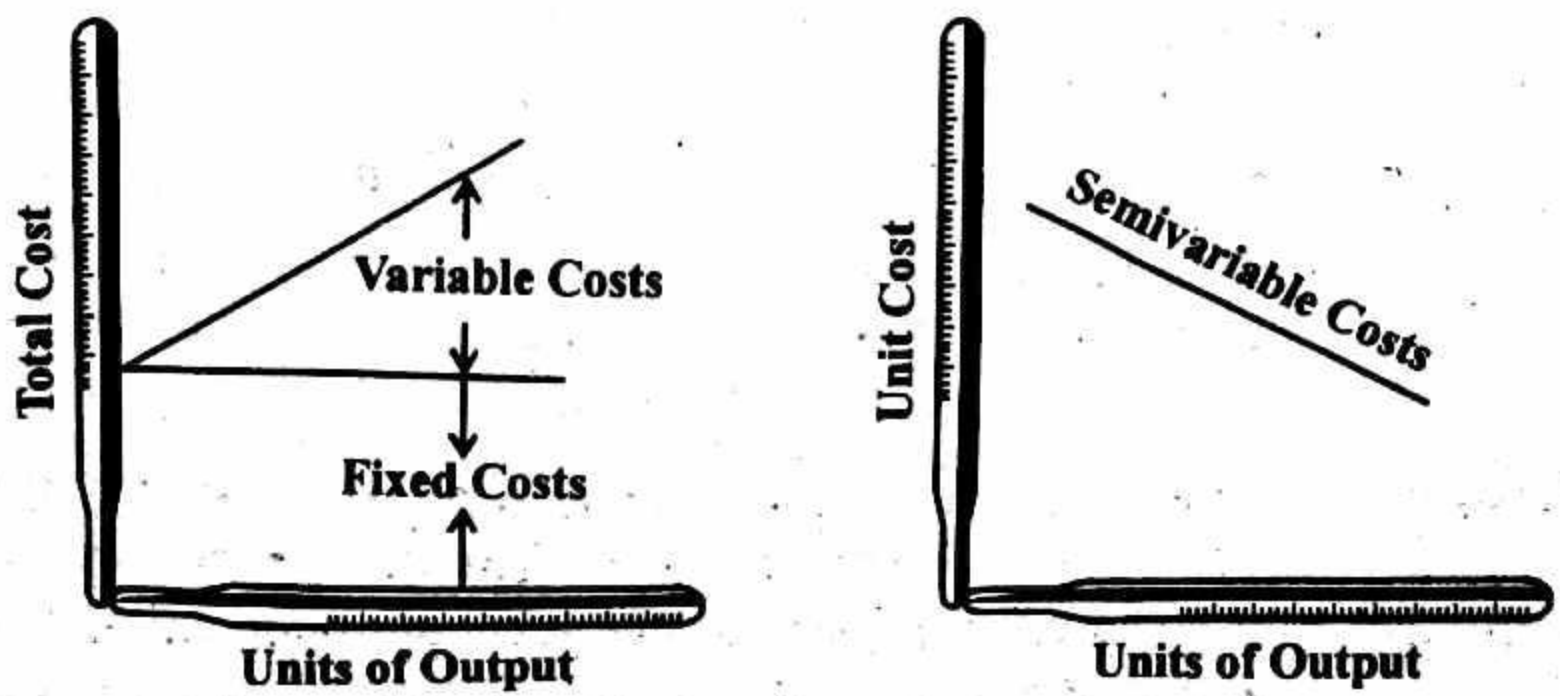


Fig. 2-4. Behaviour of Total Semivariable Cost and Per Unit Semivariable Cost.



specific manager can exert over the cost item. As we move upwards in organizational hierarchy more and more costs become controllable, and for the chief executive there is no uncontrollable cost. Whereas, for managers at lower levels there are fewer controllable costs.

A controllable cost for a specified manager is one over which he has the influence as the power to authorize it is vested in him. An uncontrollable cost is one which is out of the sphere of influence of a specified manager by virtue of limited authority given to him. For example, for a production supervisor costs of direct materials and direct labour used in his department are controllable costs but cost of depreciation of plant is uncontrollable for him. For production manager, who authorizes purchase of plant and equipments, depreciation of plant is a controllable cost.

Some Other Cost Concepts

There are number of other cost concepts used for planning, control and other decision making purposes. Following is a brief description of some of the more important among them.

Differential Costs. Differential costs assist decision makers while making a choice between different alternatives. Differential costs are those items of total costs of two or more alternatives which have different magnitude under each alternative. Items of differential costs may be variable cost items or fixed cost items. Following table illustrates the concept of differential costs in case of a decision to choose between two alternative methods of production.

Cost Items	Nature of Cost	Capital Intensive Method Rs.(000)	Labour Intensive Method Rs.(000)	Differential Cost Rs.(000)
Direct materials	Variable	2,000	2,000	---
Direct labour	Variable	825	1,750	+ 925
Superintendence	Fixed	150	250	+ 100
Plant depreciation	Fixed	600	350	− 250
Light and air conditioning	Fixed	25	25	---
Power	Variable	450	325	− 125
Net differential cost				**+ 650**

For evaluation of alternatives on the basis of cost data only the differential costs are important for consideration; therefore, these costs are also called **relevant costs**. Net differential cost represents the extra cost of the rejected alternative; therefore, it is also referred to as **incremental cost**.

Opportunity Cost. Opportunity cost is a concept used for evaluation of alternative uses of resources. Decision makers select that alternative use of resources from which they expect the maximum net return. Opportunity cost is the net return that could be obtained from the second best alternative that has been rejected.

Suppose a trader of agricultural inputs has one million rupees to invest. Different avenues of investment available to him are as under:

Alternative 1: Investment in the purchase of pesticides, expected return Rs.250,000.

Alternative 2: Investment in the purchase of fertilizers, expected return Rs.200,000.

Alternative 3: Lend out the money to a fellow trader, expected return Rs.100,000.

The trader will choose the alternative 1 as its expected return is maximum. His opportunity cost will be Rs200,000 i.e. the expected revenue from second best alternative.

Suppose, due to some emergency the trader is unable to invest the money in alternative 1 or 2 and has lent it out for a return of Rs.100,000. The difference of net return between the best alternative and the alternative chosen is called **opportunity loss**. In this case Rs.150,000 (i.e. Rs.250,000 — Rs. 100, 000.

A well known example of opportunity cost is interest on capital debited in profit and loss account. Most of the times opportunity cost is not recorded in books of accounts but it is always relevant to decisions.

Standard Cost. Standard cost means what the cost should be. Standard cost is predetermined cost of a unit of product, or an operation or a department or a process. Standard cost is the cost target to be achieved. Such cost targets are scientifically determined after consultation with engineers, production

supervisors other front line managers, purchase people etc. Historical cost data after due adjustment for changes in products, production efficiency and technology etc. is also used for setting standard cost.

Actual cost incurred is compared against the predetermined standard cost and investigation into deviations is made by means of variance analysis. Standard cost also forms the basis of budgets and sales price determination decisions.

Sunk Cost. Sunk cost is the term used for a cost that has already been incurred and now cannot be avoided or changed and consequently it is irrelevant for the current decision making situation. For example, a company has bought a building for its showroom at a cost of fifty million rupees. The company is considering a change in its product mix. Cost of the building and its depreciation will be the same whatever may be the composition of company's product mix. So this cost being unavoidable has no relevance to the current decision making situation and is referred to as sunk cost.

SUMMARY.

What does the term cost precisely means depends upon the object for which the cost is being computed. Cost objectives also form the basis of cost classification.

When our cost objective is product, cost is called product cost and is subdivided into direct materials, direct labour and factory overhead. For a trading concern, product cost includes purchase price plus transportation in and receiving expenses.

Costs which are not directly related to manufacturing or acquisition of products are classified as marketing or selling costs and administrative costs. These costs are charged against revenues on the basis of accounting period, therefore, these are called period costs.

When a cost can be economically identified with a cost objective it is termed as direct cost otherwise as indirect cost. Fixed, variable and semivariable are the terms given to costs with reference to their tendency to change in response to changes in production volume.

Costs are also classified as controllable and uncontrollable. A controllable cost is one that can be controlled by a specified manager in the organization. Where a specified manager cannot control a particular item of cost, it is an uncontrollable cost for him.

Term differential cost implies the difference of costs of two alternative. Opportunity cost is the cost of losing an opportunity. Standard cost represents the standard where the cost should be. Sunk cost is the term used for a cost that has already been incurred and now cannot be changed.

QUESTIONS FOR DISCUSSION AND REVIEW.

1. Differentiate between "cost" and "expenses" also explain the term "cost" as it is used in cost accounting.
2. Explain the term "cost objective".
3. Explain the three subdivisions of product costs. Explain also prime cost and conversion cost.
4. Discuss the term "marketing cost" and "administrative cost". Why these are termed as period costs.
5. Explain the difference between product cost and period cost.
6. "A cost may be direct cost as well as indirect cost at the same time". Discuss the statement.

7. What do you understand by the term "cost behavior"?
8. Explain the cost behavior of fixed cost, variable cost and semivariable cost with the help of diagrams.
9. "Controllable cost and uncontrollable cost are cost concepts always associated with a designated level of management". Discuss.
10. "Differential Costs" are considered as relevant, whereas, "Sunk Costs" as considered as irrelevant for decision making purposes. Explain.
11. Opportunity cost is a concept used for evaluating alternative uses of resources". Discuss.
12. How does standard costs assist in cost control and budgeting?

EXERCISES.

2-1. Cost Classification: Product Costs and Period Costs. Classify the costs using the following classes:

(a) Direct materials.
(b) Direct labour.
(c) Manufacturing overhead.
(d) Marketing expenses.
(e) Administrative expenses.

1. Clay used in ceramics.
2. Depreciation of furniture in administrative office.
3. Insurance of factory building.
4. Salary of programmer in software development firm.
5. Free samples.
6. Wages of quality inspector.
7. Advertising.
8. Lubricating oil for machines.
9. Audit fee.
10. Cloth for ladies fashion wear.
11. Finished goods warehouse expenses.
12. Wages of machine operators engaged in production.
13. Repair of machinery.
14. Expenses of accounting department.
15. Loose tools.

2-2. Cost Classification: Direct and Indirect. Following costs are charged to cutting department of a readymade garments manufacturer. Classify them as direct

and indirect costs with reference to both product and department.

1. Cloth for shirts.
2. Cutting blades used.
3. Salary of production manager.
4. Salary of foreman.
5. Depreciation of factory building.
6. Departmental electricity bill.

Write your answer in the form of following table:

Cost Item	Product		Department	
	Direct	Indirect	Direct	Indirect
Example: Cloth of shirts	X		X	

2-3. Cost Classification: Controllable and Uncontrollable. Mr. Hussain is assistant manager in National Ceramics Industries. His current assignment is supervision of operations in mixing department. He reports to production manager who is responsible for production operations of entire factory and reports to the managing director. Following are some of the cost items of mixing department:

1. Clay powder.
2. Mixing fluid.
3. Direct labour.
4. Depreciation of machinery.
5. Assistant manager's salary.
6. Production manager's salary.
7. Rent of factory building.

Required: Classify the costs as controllable and uncontrollable. Prepare your answer sheet as shown below:

Cost Items	Assistant Manager		Production Manager		Managing Director	
	Contro-llable	Uncont-rollable	Contro-llable	Uncont-rollable	Contro-llable	Uncont-rollable
Example: Clay powder	X		X		X	

2-4. Differential Cost. Gull Carpet Industry sells its carpets to carpet dealers at wholesale prices and the dealers sell them to consumers. Management of Gull Carpets industry expects annual net increase of Rs.900,000 in sales (differential revenue) if the company starts selling carpets directly to consumers through its own

showrooms, to be setup at different suitable places. Cost data for the two alternatives is presented below:

Cost Items	Variable or Fixed	Present Distribution Method	Proposed Distribution Method	Differential Costs
Rent of showrooms		—	Rs.300,000	
Lighting & airconditioning		—	110,000	
Sales staff salary		Rs.100,000	275,000	
Sales commission		250,000	50,000	
Transportation		35,000	45,000	
Packing materials		10,000	35,000	
Net differential cost				

Required: (1) Compute net differential cost.
Note: Reproduce the above table on your answer sheet and fill in the columns left blank.

(2) Recommend whether the company should adopt the proposed method of distribution.

Check figure: (1) Rs.420,000

2-5. Opportunity Cost. Mr. Zahid received Rs.1,000,000 as his gratuity at the time of retirement. He is considering to invest the money in some profitable avenue. While going through Sunday newspaper he saw prospectus of two companies offering shares at face value.

Company A is a well established company and has a steady record of declaring 35% dividend for past many years.

Company B is also a sound company. Dividends declared by it average 25% for the past many years.

Mr. Zahid applied for shares having face value of Rs.1,000,000 of Company A. His application was accepted for full amount and the shares were allotted to him.

Required: (1) Compute opportunity cost of Mr. Zahid.

(2) Suppose, the application of Mr. Zahid was not accepted and no share was allotted to him. He deposited the amount in "fixed deposit account" with UBL at 15% rate of profit. Compute the amount of opportunity loss.

2-6. Multiple Cost Classification. T.M. Footwear industry manufacture high quality leather shoes. Following are some of cost items of the company:

1. Leather used Rs.400 per pair.
2. P.V.C. soles Rs.100 per pair.
3. Wages of workers engaged in manufacturing operations Rs.45 per pair.
4. Salary of factory supervisors Rs.80,000 per year.
5. Depreciation of machinery Rs.20,000 per year.
6. Depreciation of factory building Rs.10,000 per year.
7. Advertising expenses Rs.70,000 per year.
8. Commission of salesmen 3% of sales price.
9. Salary of salesmen Rs.120,000 per year.
10. Interest on capital invested in the business by the partners Rs.350,000 per year.

Required: Classify the above costs in the form of following tabulation:

Cost Item No.	Fixed Cost	Variable Cost	Product Cost			Period Cost	To Unit of Product		Opportunity Cost	Sunk Cost
			Direct Materials	Direct Labour	Factory Overhead		Direct	Indirect		
1		X	X				X			