

Foundations of Accounting & Finance

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Week - 06

Lecture - 24

Classification of Costs

Different kinds of cost

There are four kinds of cost:

- Notional Cost
- Opportunity Cost
- Sunk Cost
- Relevant Cost

1) Notional Cost

I explained what is notional cost in the previous session, cost that is attributable, cost that can be assigned in the process. For example, if I have to add a factory shed, I may have to hire a watchman and clerical staff. Then, all those become notional costs that I have to add when I have to arrive at the cost - the notional cost of clerical staff, notional cost of a watchman, and so forth. If you add all that, the cost will be very high. Therefore, I have to know what is the true cost.

Now, when I have to get 10,000 pieces, supposing if we do not add all the notional cost. Will you be able to sell it at 99? No, you will not be able to, because when you expand, all these costs will basically be added. So, we have to consider the notional costs also in the calculation of total costs.

2) Opportunity Cost

What is then the opportunity cost? The opportunity cost is different; it comes in only if there is an opportunity loss. So, what is that opportunity? Let me take the same example of the toy. I do not sit in the courtyard and then make the toy; I manufacture the toy in the garage in my house, which is unused. I manufacture the toy and sell it. Now, when I calculate the cost, I will consider attributable cost, that is notional cost, of the space for making the toy, any shared industrial shed, or whatever space is used. That is what I will consider as the notional cost.

Opportunity loss of rent

Now, suppose in that same example, I am twisting a little bit. I have a neighbour, my neighbour has the best possible Lamborghini, and they say, "I want to park the Lamborghini in your garage because there is no space in my house to park the tenth car that I have bought." Now, I have a choice. I can use that space for manufacturing the toy or let it out to my neighbour for parking their tenth Lamborghini and charge some rent for it.

By deciding to manufacture the toy in the garage, I am losing out on the rent that I could have earned from my neighbour for parking their Lamborghini there. So, what is happening? There is an opportunity loss because I am utilizing that space.

You can argue, " why not take the shared space in the industrial shed? It will be cheaper than the garage." agreed. That is if I am a businessman, and if I am getting more rent from my neighbour, and the rent is going to be higher than if I had hired a space for manufacturing the toy in the industrial shed, then what would I do? I would move the manufacturing of the toy to the industrial shed and collect the rent from my neighbour because I would make more money in the process.

So, hypothetically, if I would have to pay almost the same rent for the shared space in the industrial shed as for the garage, what happens? Here, I am losing an opportunity to earn some money by utilizing this particular space for manufacturing the toy. Then there is an opportunity cost.

One can still argue that the shared space in the industrial shed will be at one-tenth the cost of the garage. If it is indeed at one-tenth the cost, then I should be a fool if I am losing out on the rent and still continuing to manufacture the toy in my garage, thereby losing out on the rent, which is ten times the amount that I would have paid had I hired the space for manufacturing the toy.

In such a case, only the notional cost will be considered. If there is a clear opportunity loss, if I have foregone the rent that I would have earned by deciding to manufacture the toy in that space, then there is an opportunity cost. Then, I will consider the opportunity cost. Otherwise, I will consider only the notional cost.

Opportunity loss of labour

Suppose in the earlier example, as I mentioned, I have quit my job and am now relaxing in my sea-facing house, with no intention of manufacturing the toy when I left my job.

Now, if I had quit my job specifically to start this toy manufacturing business, what would be the labour cost? The cost of labour, the notional cost of labour in this case, would be the opportunity cost. Why? Because by quitting my job, I have forfeited the opportunity to earn money while I am now engaged in manufacturing this toy. Thus, I am experiencing an opportunity loss. In such a scenario, opportunity cost comes into play, and notional cost does not. Opportunity cost is relevant only when there is an opportunity loss; if there is no opportunity loss, then opportunity cost does not apply.

3) Sunk Cost

Sunk cost is essentially money that has been spent and cannot be recovered. Once incurred, it is irrelevant for future decision-making. For instance, in oil exploration, companies invest heavily in search of oil reserves. However, if they discover dry wells or reserves with insufficient oil to justify extraction costs, the money spent on exploration becomes irrecoverable. Similarly, consider purchasing machinery for ₹5 lakhs, only to find the technology becomes outdated shortly after installation. The money invested in the machinery becomes a sunk cost—it's gone and cannot be recouped. The same applies to outdated technologies in diagnostic equipment. For example, if a facility was set up to process x-ray films, but technology now favors digital formats, the money spent on the outdated setup becomes a sunk cost. It's money that's been spent and cannot be reclaimed, serving as a lesson for future decision-making.

4) Relevant Cost

Relevant cost pertains primarily to the future and must differ between alternatives. Let us illustrate this with an example. Suppose you have completed a semester at a certain institution, having paid a fee of approximately ₹5 lakhs with the total fee being ₹22 lakhs. Now, at the end of the semester, you receive an offer from another institution, which you find appealing. The fee at this new place is ₹15 lakhs, whereas at your current institution, it totals around ₹22 lakhs, with ₹5 lakhs being already paid.

If we were to base our decision solely on fees, we might compare ₹22 lakhs to ₹15 lakhs. However, this comparison overlooks the ₹5 lakhs already paid at the current institution—a sunk cost that cannot be recovered. The crucial consideration is the additional cost you'll incur going forward.

Staying at your current institution entails an additional expense of ₹17 lakhs, whereas moving to the new one incurs an extra ₹15 lakhs. This difference in future costs between the alternatives is what truly matters—₹17 lakhs versus ₹15 lakhs.

So, for decision-making purposes, we focus on these two relevant figures: an additional ₹17 lakhs at the current institution versus an additional ₹15 lakhs at the new one. Both these costs pertain to the future and differ between the alternatives, making them the relevant factors to consider.

The ₹5 lakhs already paid is considered a sunk cost—it is a past expense that doesn't influence future decisions.

In summary, relevant cost, is crucial for decision-making, pertains to future and differs between alternatives. Sunk costs, once incurred, are irrecoverable and don't affect future decisions.

Two Important Classification of Costs

Two important classifications of costs are fixed cost and variable cost, and direct cost and indirect cost. Let us explain each of these classifications to gain a better understanding.

- Fixed cost and variable cost
- Direct cost and indirect cost

1) Fixed cost

Fixed cost is a type of cost that remains fixed and is incurred regardless of the level of output or production. It has no direct relationship with the quantity of goods or services produced. For instance, consider rent expenses. Whether you produce 5 units, 50,000 units, 500,000 units, or no units at all during a month, the rent amount remains unchanged. Similarly, think about salaried employees during times of lockdown, like the COVID-19 pandemic. Even when employees were unable to work due to lockdown measures, they continued to receive their fixed salaries. This illustrates those fixed costs, such as rent and salaries, remain static irrespective of production levels or activity.

2) Variable cost

Variable cost refers to costs that fluctuate in relation to changes in the level of output or activity. Unlike fixed costs, variable costs are not constant and can vary depending on the production volume or activity level. However, it is important to note that variable costs may or may not have a direct relationship with output. For instance, consider power consumption. While the power consumed by machinery may directly correlate with the level of production, general power consumption for lighting in the factory may remain unchanged regardless of output. Therefore, variable costs can vary, but their relationship with output may vary as well.

3) Direct cost

Now, when I explain what is called as direct cost, I am referring to a linear relationship with the output. Direct costs can be variable; approximately 90-95 percent of direct cost are variable.

Direct costs are those that can be traced back to the product. For example, if I need 5 granules of plastic to manufacture a pen, and each granule costs about 10 rupees, the total cost can be calculated based on the quantity of plastic purchased. This direct relationship between input and output defines direct costs.

In contrast, indirect costs, such as general factory lighting, may vary but have no direct correlation with the output. For instance, if there are holidays, the generic lights in the factory may be on, leading to power consumption.

Direct costs exhibit a linear relationship with output, unlike variable costs, which can vary independently. While most direct costs are variable, not all variable costs are direct costs. Therefore, understanding the distinction between variable and direct costs is crucial for effective cost management.

4) Indirect cost

Indirect cost can be variables or it can be fixed. But how can it be variable, and how can it be fixed? Let us consider some examples.

Take the expenditure of the canteen in a factory, for instance. It varies from month to month, making it a variable cost. However, it doesn't have a direct linear relationship with the output. Therefore, it qualifies as an indirect cost.

Now, consider a scenario where I pay a fixed amount of salary to my security staff in the factory every month. This fixed amount remains constant month after month, making it a fixed cost. Yet, it is not directly related to the output of the factory. The security staff's activities are unrelated to the production process.

Indirect costs, whether fixed or variable, are those that cannot be directly traced to the output. They are expenses that don't vary directly with production levels. In summary, indirect costs encompass those expenses that lack a direct, linear relationship with output. They may vary in nature, but they do not fluctuate in direct proportion to production levels.

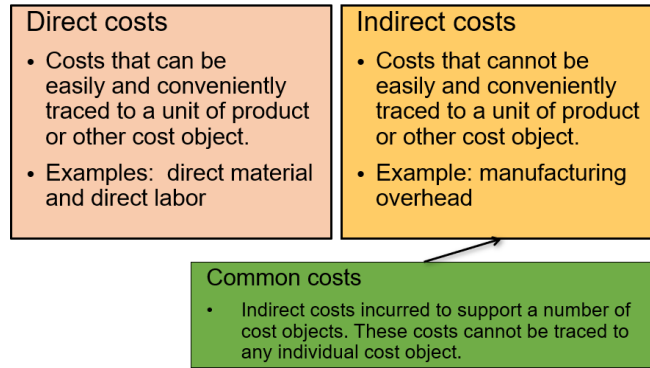
Assigning Costs to Cost Objects

Assigning costs to cost objects involves categorizing expenses based on their relationship to the unit of the project. Costs that can be easily and directly traced to the unit of production are termed direct costs. Direct costs may include direct materials, such as the 5 granules of plastic required to manufacture a pen, and direct labour, where payment is made per unit manufactured.

For instance, if a labourer is paid \$10 per unit produced, and the total payment for the day is \$100, it means they have manufactured 10 units ($\$100 \div \10 per unit). Similarly, if a labourer is paid Rs. 10 per piece and earns Rs. 150 for the day, it indicates they have produced 15 units ($\text{Rs. } 150 \div \text{Rs. } 10$ per unit).

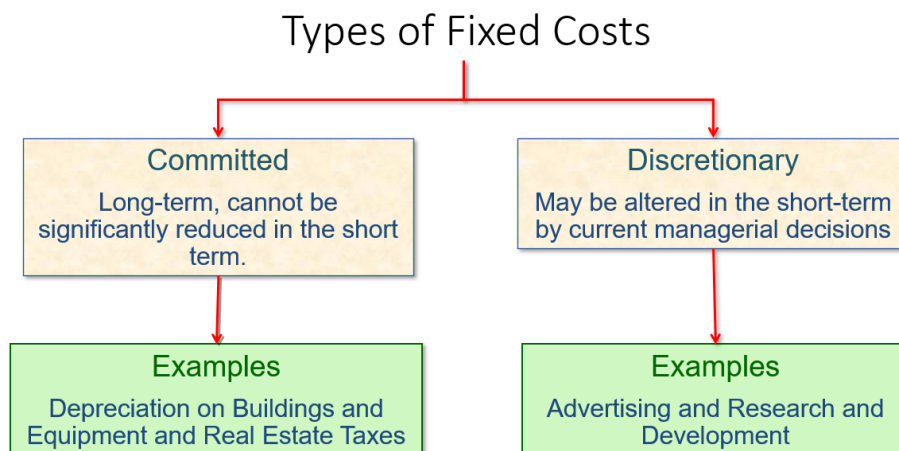
On the contrary, indirect costs cannot be easily allocated to the unit of production. Examples include manufacturing overheads such as power consumption or the wages of shop floor assistants, which lack a direct relationship with the output. These expenses are commonly referred to as overheads.

Additionally, there are common costs incurred to support multiple cost objects. For instance, if a factory incurs rent for producing five different products, this expense needs to be shared among all five products. Such costs are known as common costs.



Types of Fixed Costs

When discussing fixed costs, there are typically two types: discretionary fixed costs and committed fixed costs.



1) Discretionary fixed costs

Discretionary fixed costs are expenses over which management has discretion or control. These costs are optional, and the decision to incur them lies with the management. Examples include expenses related to research and development (R&D) or sales campaigns. Management can choose whether to allocate resources to these activities based on strategic priorities and available funds.

2) Committed fixed costs

On the other hand, committed fixed costs are expenses that a company is obligated to pay and cannot easily change in the short term. These costs are typically incurred as a result of past decisions or contractual agreements. Examples of committed fixed costs include rent for the shop floor and depreciation on buildings and machinery. Once these commitments are made, they are difficult to alter in the short term, as they are often tied to long-term contracts or investments.

Fixed Costs and the Relevant Range

Fixed costs can also be semi-variable, meaning they can vary within a certain range. Let us illustrate this concept with an example:

Imagine you rent office space at a rate of \$30,000 per year for 1000 square feet. This space can accommodate about 100 people. However, if 5 more people join, you realize you cannot fit them within the existing 1000 square feet. In this scenario, you decide to rent additional space, but only in increments of 1000 square feet. As a result, your annual rent increases from \$30,000 to \$60,000. This demonstrates how the fixed cost remains constant within a relevant range but increases when the capacity exceeds that range.

Another example is in packaging and transporting goods. If you can pack and transport 100 units in one truck, but when production increases to 110 units, you need to hire a second truck to transport the additional units. In this case, your transportation cost effectively doubles, showcasing a step-up fixed cost pattern where the cost increases in discrete steps as production exceeds certain thresholds.

Multiple Classifications of Costs

Costs can have various combinations of classifications. Let us explore some examples:

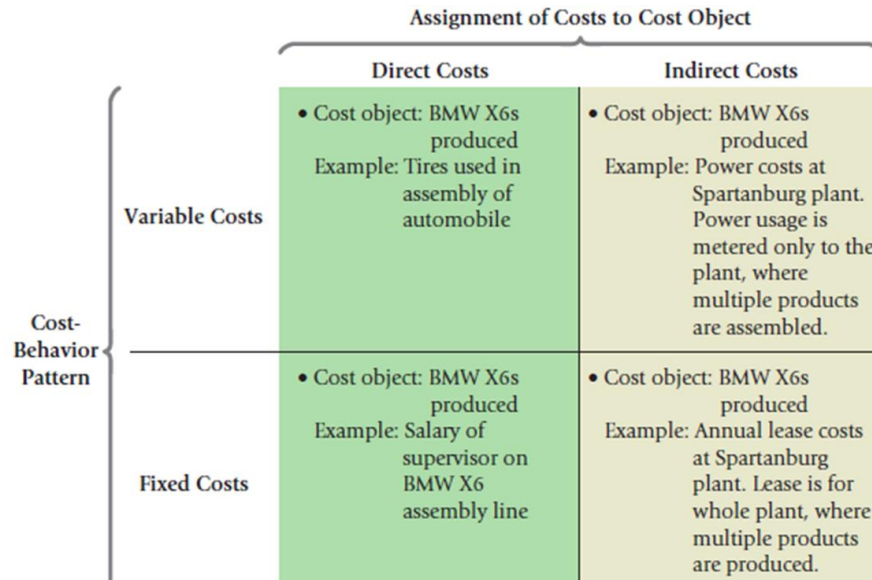
- Costs may be classified as:
 - Direct/Indirect, and
 - Variable/Fixed

These multiple classifications give rise to important cost combinations:

- Direct and variable
- Direct and fixed
- Indirect and variable
- Indirect and fixed

Examples of the Multiple Classifications of Costs

In this example taken from a textbook, we examine the costs associated with manufacturing a BMW X6. Let us break down the various combinations of direct and indirect costs:



1. Direct Variable Cost:

- Example: The tires used in the assembly line for each BMW X6 produced. As each car requires four tires, the cost of tires is directly proportional to the number of cars manufactured.

2. Indirect Variable Cost:

- Example: Power usage at the manufacturing plant, which is metered and shared among multiple products, including the BMW X6. The power consumption varies based on production activities but is not directly attributable to individual cars.

3. Indirect Fixed Cost:

- Example: Lease cost for the factory space, shared by all products manufactured at the plant, including the BMW X6. The lease cost remains constant regardless of the number of X6 cars produced.

4. Direct Fixed Cost:

- Example: Salary paid to a supervisor solely dedicated to overseeing the production of BMW X6. The supervisor's salary is directly attributable to the production of X6 cars and remains fixed over time.

This example illustrates how costs can be classified based on their relationship to production output and their traceability to specific cost objects. By understanding these classifications, businesses can better analyse and manage their costs effectively.