

CONCEPTS:

The main objective of a business is profit maximisation (to make as much profit as possible).

Profit can be:

- the difference between the cost of production and its selling price
- the amount left over after all the production costs have been paid
- any additional income received by entrepreneurs.

Opportunity cost is the value of the next best alternative that is sacrificed so that something else can be achieved. As a consumer we all know that goods, services and money are scarce and we have to make choices as to what we do and don't buy with our money.

There are three ways in which profit can be expressed.

1 **Accounting profit.** Businesses incur explicit and implicit costs.

- Explicit costs are expenses easily accounted for such as wages, rent, etc.
- Implicit costs are intangible costs such as time and effort that goes into running a business.

The accounting profit only takes into account the explicit costs of running a business. The accounting profit is the amount left over after all these costs have been paid. This method creates the wrong impression as the implicit costs have been omitted.

2 **Economic profit (or loss)** is the difference between the revenue received from the sale of an output and the opportunity cost of the inputs used plus the explicit costs. It shows how well resources are being utilised relative to other options showing that the business is earning more than it could in another way.

The opportunity costs of using the resources for another purpose are deducted from revenues earned.

3 **Normal profit.** This is the minimum level of profit needed for a business to remain competitive in the market. This occurs when its resources are being efficiently used and could not be better used. It is different from accounting profit because opportunity cost is considered. It is the remaining profit after economic profit has been cleared. It forms part of the production cost.

Short run cost

The short run is the period of time during which at least one of the costs in the production process is a fixed factor and the output can only be changed by using more or less of a variable factor. For example, the size of a factory building is fixed in the short run until it can be enlarged or a new building found. The amount of labour used and electricity are examples of variable inputs.

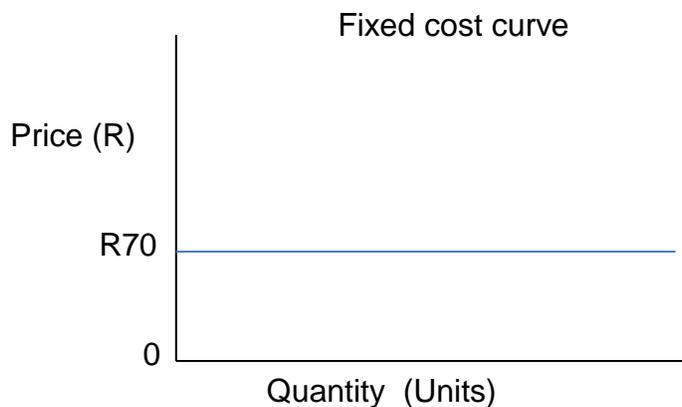
Variable costs are costs that vary directly with output.

Average variable cost (AVC) = total variable costs (TVC) divided by output (Q)

Fixed costs are costs that do not change when there are changes in production levels.

Average fixed costs fall as output increases because the total fixed costs are spread over a higher level of production.

Average fixed costs (AFC) = total fixed costs (rC) divided by output (Q)



Marginal costs are the additional costs of producing more than one item and the amount by which the total costs increase when that extra item is made. The marginal cost of production falls as output rises.

Total costs are the sum of all variable and fixed costs in production.

Total cost (TC) = fixed costs (FC) plus variable costs (VC)

Average total cost (ATC) = total cost (TC) divided by output (Q)

TABLE 7.1 Example of total costs of production for FG Fruit canners

Quantity of fruit cans in 1000s	Labour units	Fixed cost (R)	Variable cost (R)	Total cost
0	0	50 000	0	50 000
1	5	50 000	5 000	55 000
2	10	50 000	10 000	60 000
3	15	50 000	15 000	65 000
4	20	50 000	20 000	70 000
5	25	50 000	25 000	75 000
6	30	50 000	30 000	80 000

The law of **diminishing returns** states that as more of a variable input is used, whilst all the other inputs are kept the same, each additional unit of the variable input will eventually produce less and less output. Marginal product is the amount of extra output produced as the variable input increases.

In the table below, additional labour is used to produce more shoes in a shoe factory. Initially shoe production increases significantly but after the third extra worker production slows down because there is not enough other equipment for them all to work efficiently. Marginal product at first increases then decreases.

TABLE 7.2 Production of shoes in a factory

Amount of units of labour	Total product	Marginal product
1	10 pairs	
2	20 pairs	10 pairs
3	32 pairs	12 pairs
4	40 pairs	8 pairs
5	44 pairs	4 pairs

Average fixed, average variable, marginal and average total costs

Average fixed costs is the fixed costs divided by the number of units.

$$AFC = \frac{\text{fixed costs}}{\text{number of units}}$$

Average variable cost is the variable cost divided by the number of units.

$$AVC = \frac{\text{variable cost}}{\text{Number of units}}$$

Average total cost is the total cost divided by the number of units.

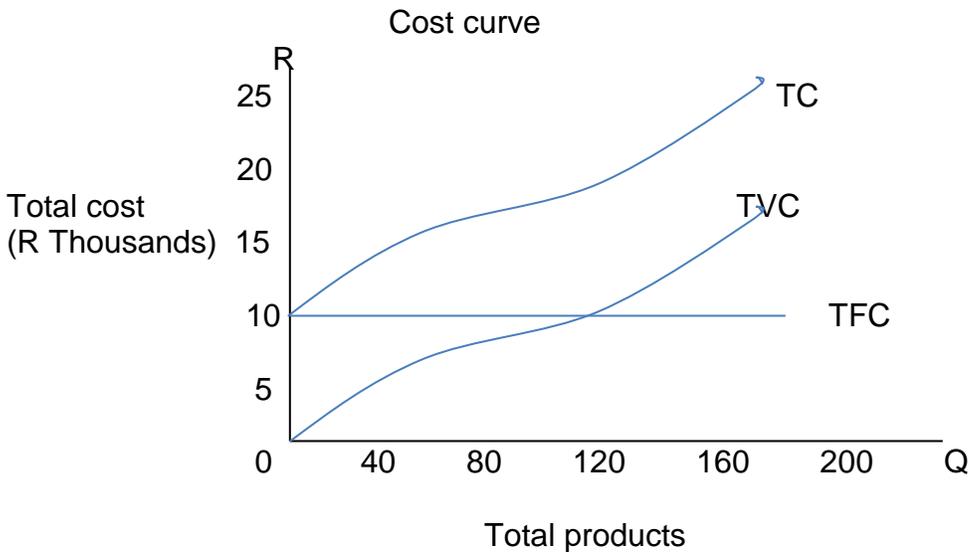
$$ATC = \frac{\text{total cost}}{\text{number of units}}$$

Marginal cost is the change in total cost resulting from one additional unit of output.

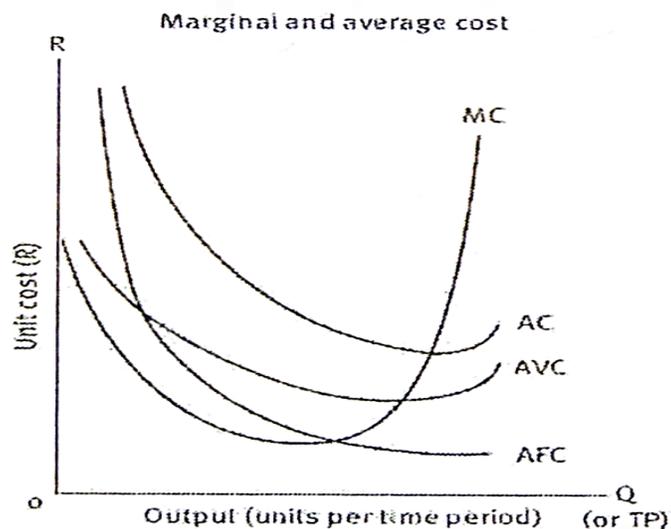
$$MC = \frac{\text{change in total cost}}{\text{change in units of output}}$$

Cost curves

A cost curve can be defined as a graphic illustration of the level of a specific cost compared to the level of output.



Marginal cost cuts through average total and average variable costs at their minimum values.

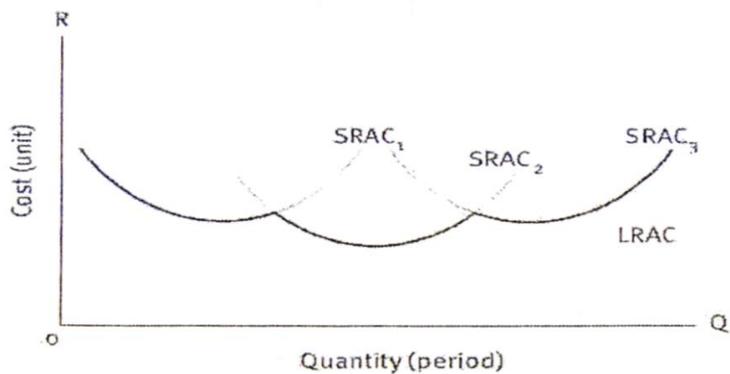


Long run costs

The **long run** is the period of time when all the inputs become variable as the business can:

- adapt its production methods
- expand its premises
- buy more capital equipment.
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A long run cost curve is created by putting together all the short run cost curves over the time period.



Long run cost curve

Returns to scale (Economies of scale)

This term describes the relationship between outputs and the cost of inputs in the long run and changes in production that occur as the scale of production increases. There are four different types of returns to scale.

1 10% increase in inputs

2 Constant returns to scale are when the percentage increase in inputs is the same as the increase in outputs.

10% increase in inputs \longrightarrow 10% increase in outputs

3 Increasing returns to scale are when the increase in inputs leads to a larger percentage increase in output.

10% increase in inputs \longrightarrow 20% increase in outputs

4 Decreasing returns to scale are when the percentage increase in inputs results in a smaller percentage increase in output.

10% increase in inputs \longrightarrow 5% increase in outputs

Economies of scale are:

- the cost advantages that a business can use by increasing their scale of production in the long run
- when there is an increasing return to scale as the cost of production drops in relation to the increase in output
- the advantages of large scale production that results in lower unit costs.

Factors that lead to economies of scale: (Reasons/ causes for economies of scale)

- the use of modern technology
- better production methods
- improved production organisation
- the use of bulk buying raw materials to lower costs.
- Better management / organization
- Fixed cost divided between more units
- Resources are used more effectively

Advantages to economies of scale

- More efficiency in production
- Average cost of production decreases
- Consumers gain as prices fall
- Greater competitive advantage over other suppliers
- Sales increase leading to higher profits

Revenue calculations

Total revenue

Total revenue is the total revenue the firm receives from sales of its products.

Total revenue (TR) = price (P) x quantity (Q)

Marginal revenue

Marginal revenue is the additional revenue gained from selling one more unit of output.

Marginal revenue = $\frac{\text{change in total revenue}}{\text{change in units sold}}$

Changes in revenue

Changes in the price or the quantity of output sold affect the revenue of the firm.

Profits and losses

Total profit = total revenue (TR) - total costs (TC)

If the firms' revenue exceeds its costs it makes a profit, and if its costs exceed its revenue it makes a loss.