COST CONCEPTS

Length of run: The length of time period considered for a production decision to affect the cost structure of a business firm.

Short run: A period of time sufficiently long to allow the firm to change its output level but not long enough to change its plant size or output capacity. One or a small number of factors can be varied but not all the factors of production can be changed.

Long run: A period of time long enough for all factors to vary. Therefore all the factors of production can be varied, including plant size or output capacity.

Variable input: Factor of production in which the quantity used in the production process could be varied in the short run. In the short run a factor quantity that varies directly with output from the production process.

Fixed input: Factor of production in which the quantity used in the production process CANNOT be varied in the short run. In the short run a factor quantity that does NOT vary with output from the production process.

Accounting costs (explicit costs): Value of a production factor as measured by the actual physical outlay of money to acquire the use of the factor.

Opportunity cost (implicit cost): Value of a production factor as measured by the value of the benefit that is forgone by choosing to use the factor in one alternative production process rather than its next best alternative use. When making production decisions, we use opportunity cost to value production factors that do not require physical cash outlays for their acquisition and allocation to the production process.

Economic cost (explicit + implicit costs): Cost that includes both accounting costs and opportunity costs. When making production decisions, relevant accounting costs and relevant opportunity costs are used in the decision-making process. Therefore:

\[ \text{Economic cost} = \text{accounting costs + opportunity costs} \]

Variable cost: A cost that varies with the level of output over a given period of time. These costs would not be incurred if the production process is not started. Costs associated with variable inputs. Important costs to consider for short run production decisions.

Fixed cost: A cost that does not vary with the level of output over a given time period. These costs remain constant whether we choose to begin the production process or not. Costs associated with fixed inputs. These costs are not relevant to short run production decisions.
Relevant cost: Any cost classification is relevant to decision making IF the cost has not yet been incurred. If you still have opportunities available for allocating resources, then the cost associated with acquisition and allocation are relevant for economic decision making procedures.

Sunk cost: Any cost classification becomes sunk when you incur a cost (accounting or opportunity cost) as a result of allocating a production factor to the production process. Economic decision making procedures do not recognize sunk costs as being relevant for making production decisions.

Marginal cost: The change in variable costs (or total costs) associated with a one unit change in output.

\[ MC = \frac{\Delta VC}{\Delta Q_{\text{output}}} \]

Total variable cost: sum of all costs incurred by the firm for all variable inputs. (TVC)

Total fixed cost: sum of all costs incurred by the firm for all fixed inputs. (TFC)

Total cost: TVC + TFC = TC

Average variable cost: TVC / Q_{\text{output}} = AVC

Average fixed cost: TFC / Q_{\text{output}} = AFC

Average total cost: TC / Q_{\text{output}} = ATC = (AVC + AFC)