1. INTRODUCTION TO MARKET STRUCTURES

This learning module covers the following concepts:

- **Demand concepts:** Own-price elasticity of demand, cross-price elasticity of demand, and income elasticity of demand.
- **Supply concepts**: Total, average, and marginal product of labor; total, variable, and marginal cost of labor; and total and marginal revenue.
- **Market structures:** Economists classify market structures based on the number of sellers, the degree of differentiation of their products, and the barriers to entry.

These concepts are used to calculate the breakeven and shutdown points of production, and to understand demand and supply relations, optimal price and output, and the factors affecting long-run profitability in different market structures.

2. PROFIT MAXIMIZATION: PRODUCTION BREAKEVEN, SHUTDOWN AND ECONOMIES OF SCALE

Revenue under Conditions of Perfect and Imperfect Competition

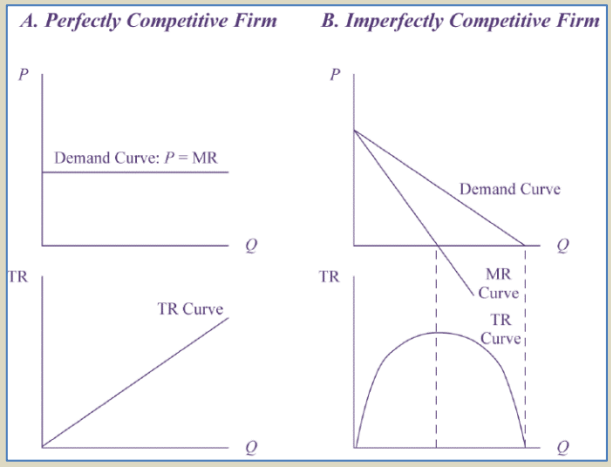
Perfectly competitive market: If a market is perfectly competitive, the firm must take the market price of its output as given, so it faces a perfectly elastic, horizontal demand curve. In this case, the firm's will be equal to price of its product.

Additionally, the firm's average revenue (AR), or revenue per unit, is also equal to price per unit. Under conditions of perfect competition, TR (as always) is equal to price times quantity.

- However, a firm that faces a negatively sloped demand curve must lower its price to sell an additional unit, so its MR is less than price (P).
- The TR curve for the firm under conditions of perfect competition is linear, with a slope equal to price per unit.

Imperfect Competition: Under conditions of imperfect competition (e.g. monopoly), price is a function of quantity: P = f(Q), and TR = f(Q) × Q.

- Initially, a decrease in price increases total expenditure by buyers and TR to the firm because the decrease in price is outweighed by the increase in units sold. But as price continues to fall, the decrease in price outweighed the increase in quantity, and total expenditure (revenue) falls.
- The TR curve for the monopolist first rises (in the range where MR is positive, and demand is elastic) and then falls (in the range where MR is negative and demand is inelastic) with output.

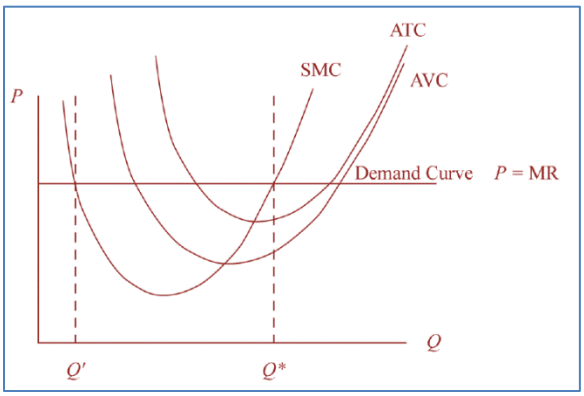


Profit-Maximization, Breakeven, and Shutdown Points of Production

Demand and Average and Marginal Cost Curves for the Firm under Conditions of Perfect Competition

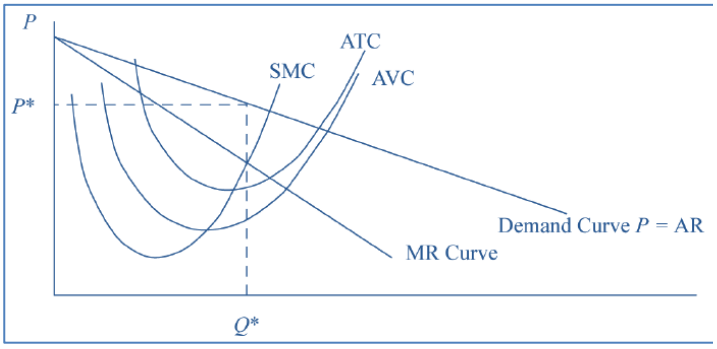
- The following graph shows that the firm is maximizing profit by producing Q*, where price is equal to SMC and SMC is rising.
- Note that at output level, Q", where P = SMC, but at that point, SMC is still falling, so this cannot be a profit-maximizing output.
- If market price rises, the firm's demand and MR curve would simply shift upward, and the firm would reach a new profit-maximizing output level to the right of Q*.

- If market price falls, the firm's demand and MR curve would shift downward, resulting in a new and lower level of profit-maximizing output.
- In following case, this firm is currently earning a positive economic profit because market price exceeds ATC at output level Q*. This profit is possible in the short run, but in the long run, competitors would enter the market to capture some of those profits and would drive the market price down to a level equal to each firm's ATC.



Demand and Average and Marginal Cost Curves for the Monopolistic Firm

Refer to the graph below. Q* is the level of output where SMC is equal to MR. At this output, the optimal price to charge is given by the firm's demand curve at P*. This monopolist is earning positive economic profit because its price exceeds its ATC. Due to monopolistic power of this firm, the outside competitors would not be able to compete away this firm's profits.

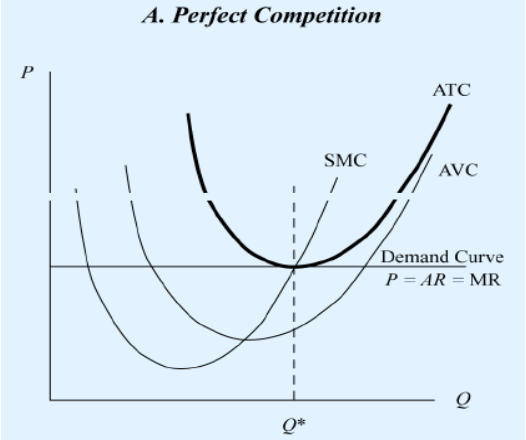


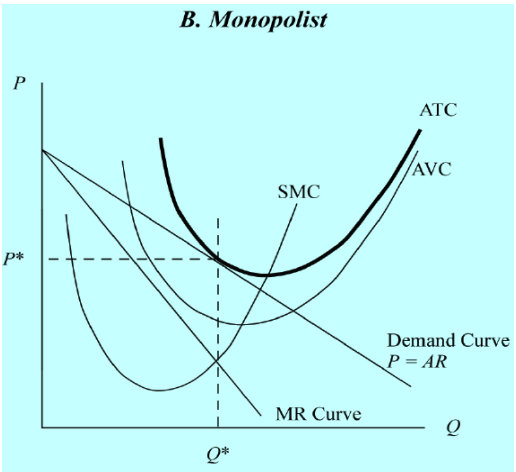
Breakeven Analysis and Shutdown Decision

Break-even price: It refers to a price where economic profit is zero i.e. P = ATC. It is the output level where P = AR = MR = ATC or where TR = TC.

Economic costs = Total accounting costs + Implicit opportunity costs

- When a firm's revenue is equal to its economic costs, it means it is covering the opportunity cost of all of its factors of production, including capital. Such a firm is earning normal profit, but not positive economic profit.
- A firm that operates in a very competitive environment with no barriers to entry from other competitors cannot earn a positive economic profit because the excess rate of return would attract entrants who would produce more output – pushing downward pressure on price. However, this situation does not imply that the firm is earning zero accounting profit.





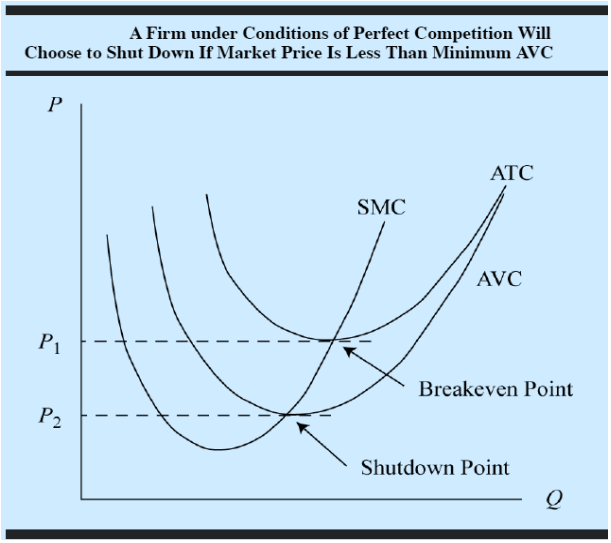
In figure 'B' above, the level of output at which SMC is equal to MR, price is just equal to ATC. This shows that a firm is breaking even and earning economic profit.

The Shutdown Decision

The Shutdown Point: The firm will shut down if total revenues generated by a firm are not enough to cover average variable costs.

- A firm should continue to produce as long as Price > Average variable cost. However, it should be noted that that at that price, firm incurs losses. Sunk costs must be ignored in the decision to continue to operate in the short run.
- When Price < AVC, it is preferable for a firm to shut down temporarily in order to save the variable costs. However, firm still has to pay fixed costs.
- If price is greater than AVC, the firm is not only covering all of its variable cost but also a portion of fixed cost.
- If all fixed costs are sunk costs, then the shutdown point is when the market price falls below minimum average variable cost. At this price, the firm incurs only fixed cost and loses less money than when operating at a price that does not cover variable cost.

Refer to the graph next: At any price above P_1, the firm can earn a positive profit and clearly should continue to operate. At a price below P_2, the minimum AVC, the firm could not even cover its variable cost and should shut down. At prices between P_2 and P_1, the firm should continue to operate in the short run because it is able to cover all of its variable cost as well as some of its fixed costs. The **shutdown point** is the minimum AVC point and the minimum ATC point is the **breakeven point**.



In the long-run (under perfect competition), profit is maximized at the level of output where the firm's long-run average total cost is at minimum level i.e. minimum point of the firm's long-run average total cost curve. In the short-run, supply curve of a competitive firm is that part of MC curve that lies above the Average Variable Cost. However, in the long run, a firm must have its MC > AC in order to remain in the industry. If MC < AC, firm will exit the industry in the long run.

Summary:

- The firm must cover its variable cost to remain in business in the short run; if TR cannot cover TVC, the firm shuts down production to minimize loss.

Loss = Amount of fixed cost

- If TVC exceeds TR in the long run, the firm will exit the market to avoid the loss associated with fixed cost at zero production.
- When TR is enough to cover TVC but not all of TFC, the firm can continue to produce in the short run but will be unable to maintain financial solvency in the long run.

Short run & Long run Decisions to Operate or Not

	Revenue-Cost relationship		
	TR = TC	TR = TVC but < TC	TR< TVC
Short run	stay in market	stay in market	shut down production
Long run	stay in market	exit market	exit market

Practice: Example 1 & 2 from the CFA Institute's Curriculum.

Economies and Diseconomies of Scale with Short-Run and Long-Run Cost Analysis

The firm selects an operating size or scale that maximizes profit over any time frame. The short run is the time period during which at least one of the factors of production, such as technology, physical capital, and plant size, is fixed.

The long run is the time period during which all factors of production are variable. In addition, in the long-run, firms

can enter or exit the market based on decisions regarding profitability.

The long run is also referred to as the "***planning horizon***" in which the firm can choose the short-run position or optimal operating size that maximizes profit over time. The firm always operates in the short run but plans in the long-run.

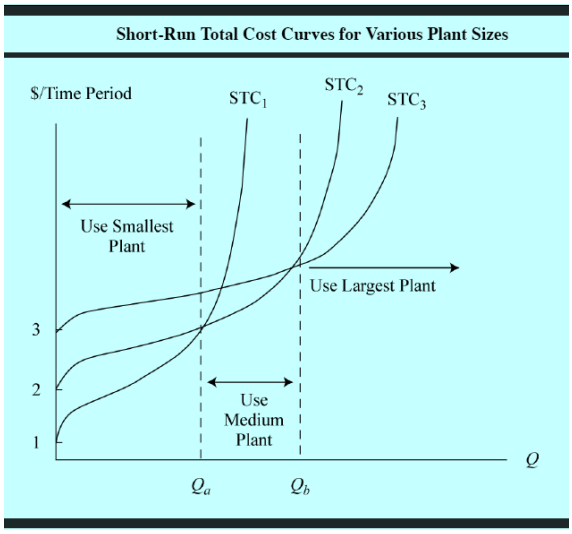
The time required for long-run adjustments varies by industry. For example, for a small business, the long-run may be less than a year, whereas, for a capital-intensive firm, the long run may be more than a decade. Costs and profits would differ between the short run and the long run.

Short- and Long-Run Cost Curves

The short-run total cost includes all the inputs (i.e., labor and capital) the firm is using to produce output.

Typically, a short-run total cost (STC) curve tends to rise with output, first at a decreasing rate because of specialization economies and then at an increasing rate, reflecting the law of diminishing marginal returns to labor.

Vertical intercept of the STC curve is determined by total fixed cost (the quantity of capital input multiplied by the rental rate on capital). At higher levels of fixed input, both TFC and production capacity of the firm are greater.



- In the above graph, Plant Size 1 is the smallest and has the lowest fixed cost; hence, its STC_1 curve has the lowest vertical intercept. It is important to note that STC_1 begins to rise more steeply with output, reflecting the lower plant capacity.
- Plant Size 3 is the largest of the three and has both a higher fixed cost and a lower slope at any level of output. If a firm decided to produce an output between zero and Qa, it would plan on building Plant Size 1 because for any output level in that range, its cost is less than it would be for Plant Size 2 or 3. Accordingly, if the firm were planning to produce output greater than Qb, it would choose Plant Size 3 because its cost for any of those levels of output would be lower than for Plant Size 1 or 2. In this case, Plant Size 2 would be chosen for output levels between Qa and Qb.
- The long-run total cost curve is derived from the lowest level of STC for each level of output because in the long run, the firm is free to choose which plant size it will operate. This curve is called an "***envelope curve***."

Note: For each STC curve, there is also a corresponding short-run average total cost (SATC) curve and a corresponding long-run average total cost (LRAC) curve, the envelope curve of all possible short-run average total cost curves.

Defining Economies of Scale and Diseconomies of Scale

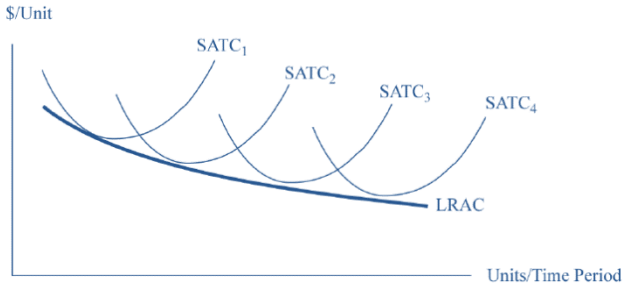
Economies of scale or Increasing returns to scale: It occurs when the % change in output > % change in inputs. E.g. a 20% rise in factor inputs leads to a 35% rise in output.

- When an industry/firm enjoys external economies i.e. has increasing returns to scale, its long-run average total cost decreases as the quantity of output increases i.e. long-run supply curve is downward sloping. Such an industry is called a decreasing-cost industry.
- However, it should be noted that individual firm's supply curve is still upward sloping when industry's long-run supply curve is negatively sloped i.e. in the long-run, when industry costs ↓, firm supply curve shifts rightward and it results in decrease in price charged by a firm for each quantity.
- ***Sources of economies of scale:*** These include specialization due to greater production, workers become more efficient due to specialization, better use of market information, discounted prices on resources when bought in large quantities etc.
- When a firm faces economies of scale, costs can be lowered, and profit can be increased by increasing production capacity.

Scale-up production: It involves increasing all of inputs in order to increase the level of output in the long-run.

Scaling down: It involves decreasing all of the inputs in order to produce less in the long run.

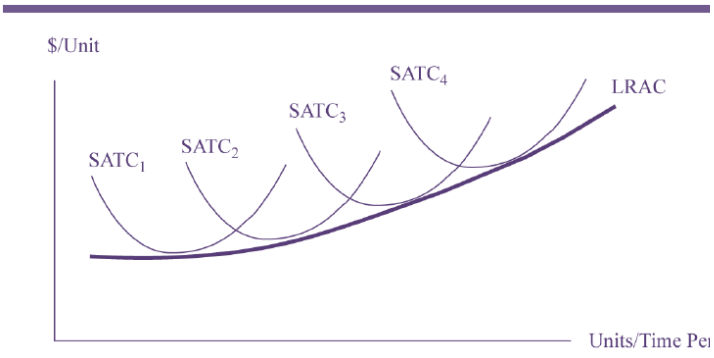
Short-run Average Total Cost Curves for Various Plant Sizes and Their Envelope Curve, LRAC: Economies of Scale



Diseconomies of scale or Decreasing returns to scale: It occurs when the % change in output < % change in inputs. E.g. a 50% rise in factor inputs raises output by only 25%.

- When an industry/firm has decreasing returns to scale, its long-run average total cost increases as the quantity of output increases i.e. long-run supply curve is upward sloping. Such an industry is called Increasing-cost industry.
- Sources: problems associated with large organizations e.g. Problems of management, maintaining effective communication, coordinating activities – often across the globe, De-motivation and alienation of staff, Divorce of ownership, and control etc.
- When a firm faces diseconomies of scale, costs can be lowered and profit can be increased by downsizing and becoming more competitive.

Short-run Average Total Cost Curves for Various Plant Sizes and Their Envelope Curve, LRAC: Diseconomies of Scale



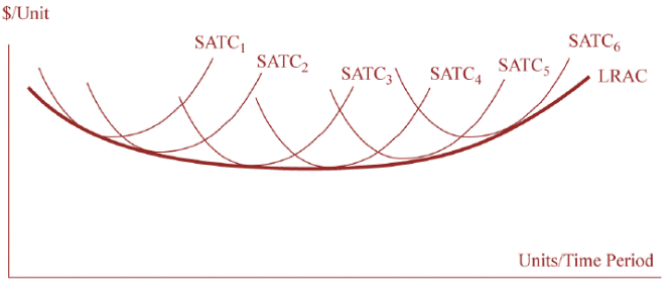
As the firm's size increases, it benefits from economies of scale and a lower ATC owing to following factors:

a) Increasing returns to scale, which occurs when a production process allows for increases in output that are proportionately larger than the increase in inputs.
b) Having a division of labor and management in a large firm with numerous workers, which allows each worker to specialize in one task rather than perform many duties.
c) Using more expensive & efficient equipment and adapting the latest in technology that increases productivity.
d) Effectively reducing waste and lowering costs through marketable byproducts, less energy consumption, and enhanced quality control.
e) Using market information and knowledge in a better way for more effective managerial decision making.
f) Obtaining discounted prices on resources when buying in larger quantities.

The factors that can lead to diseconomies of scale, inefficiencies, and rising costs when a firm increases in size include the following:

a) Decreasing returns to scale, which occurs when a production process leads to increases in output that are proportionately smaller than the increase in inputs.
b) Difficulty in managing the firm properly owing to its large size.
c) Overlapping and duplication of business functions and product lines.
d) Higher resource prices due to supply constraints when buying inputs in large quantities.

Economies and diseconomies of scale can occur at the same time. If economies of scale dominate diseconomies of scale, LRAC decreases with increases in output. Opposite is true if diseconomies of scale dominate. We can see in the graph below that there is certain range of output over which LRAC falls (economies of scale) and then a range over which LRAC is constant, followed by a range over which diseconomies of scale prevail



Minimum efficient scale: The minimum point on the LRAC curve is referred to as the minimum efficient scale. The minimum efficient scale is the optimal firm size under perfect competition over the long run. Theoretically, under perfect competition, the firm should operate at

this level over the long-run in order to maintain its viability.

Practice: Example 3 and Question-set from the CFA Institute's Curriculum.

3. INTRODUCTION TO MARKET STRUCTURES

Characteristics: In the long run, the forces associated with the market structure within which the firm operates determine the profitability of the firm.

- In a highly competitive market, long-run profits are decreased by the forces of competition.
- In less competitive markets, large profits can persist in the long-run.
- In the short-run, any outcome is possible.

Analysis of Market Structure

Economists' Four Types of Structure

Market: A market is a group of buyers and sellers that are aware of each other and are able to agree on a price for the exchange of goods and services.

Some markets are highly concentrated i.e. sales generated from a small number of firms represent the majority of total sales; whereas some markets are very fragmented.

There are four types of market structure:

1) Perfect competition
2) Monopolistic competition
3) Oligopoly
4) Monopoly

Factors That Determine Market Structure

Following five factors determine market structure.

1) The **number and relative size of firms supplying the product** i.e., greater the number of firms supplying the product, greater will be the competition.
2) The **degree of product differentiation**: Higher product differentiation provides pricing leverage i.e., control over pricing decisions.
3) The **power of the seller over pricing decisions**.
4) The **relative strength of the barriers to market entry and exit**: Barriers can result from large capital investment requirements, patents, high exit costs etc. Smaller the barriers to entry and exit, greater will be the competition.
5) The **degree of non-price competition**: Non-price competition refers to product differentiation through marketing. It prevails in market structures where product differentiation is essential e.g. monopolistic competition.

Market Structure	Number of Sellers	Degree of Product Differentiation	Barriers to Entry	Pricing Power of Firm	Non-Price Competition
Perfect Competition	Many	Homogeneous/ Standardized	Very Low	None	None
Monopolistic Competition	Many	Differentiated	Low	Some	Advertising and Product Differentiation
Oligopoly	Few	Homogeneous/ Standardized	High	Some or Considerable	Advertising and Product Differentiation
Monopoly	One	Unique Product	Very High	Considerable	Advertising

- From the consumers' perspective, the most desirable market structure is the one with the greatest degree of competition, due to low prices.
- From the perspective of producers the most desirable market structure is the one in which the seller has the most control over prices.

Porter's Five Forces and Market Structure

A financial analyst should evaluate the following factors when analyzing market conditions in which firm operates and its profitability:

1. Threat of substitutes i.e. evaluate whether the product is differentiated or not.
2. Threat of entry
3. Intensity of competition among incumbents i.e. evaluate how many sellers are there in the industry.
4. Bargaining power of customers
5. Bargaining power of suppliers

Practice: Question-set from the CFA Institute's Curriculum.

4. MONOPOLISTIC COMPETITION

Monopolistic competition is a hybrid market because each firm may have a tiny 'monopoly' due to differentiation of their product and each firm generates zero economic profit in the long-run.

Characteristics:

1. Many buyers and sellers
2. Products differentiated i.e. each firm produces a product that is at least slightly different from those of other firms. The products represent close substitutes for products offered by other firms.
3. Entry and Exit possible with fairly low costs.
4. Firm has some control over price.
5. Suppliers differentiate their products through advertising and other non-price strategies.

Demand Analysis in Monopolistically Competitive Markets

Monopolistic competition firm has a downward sloping demand curve due to its product differentiation.

Along the demand curve, at higher prices, demand is elastic and at lower prices, demand is inelastic.

Like monopoly, price exceeds marginal cost.

Like competitive market, price equals average total cost in the long-run.

Due to downward-sloping demand curve, marginal revenue is less than price.

The Monopolistically Competitive Firm in the Short Run:

In the short-run, Profit is maximized where MR = MC.

There is no well-defined supply schedule in monopolistic competition i.e. supply curve is neither represented by MC nor AC curve.

Output level is determined at a point where MR = MC and price is charged on the basis of market demand.

Short-run economic profits encourage new firms to enter the market. This leads to:

- Increase in the number of products offered.
- Reduction in demand faced by firms already in the market.
- Incumbent firms' demand curves shift to the left.
- Demand for the incumbent firms' products fall, and their profits decline.

Short-run economic losses encourage firms to exit the market. This leads to:

- Decrease in the number of products offered.
- Increase in the demand faced by the remaining firms.
- Shifts the remaining firms' demand curves to the right.
- Increase in the remaining firms' profits.

Long-Run Equilibrium in Monopolistic Competition

Like in case of perfect competition, free entry and exit drive economic profit to zero.

Differences between Monopolistic Competition and Perfect Competition:

In perfect competition, there is no excess capacity in the long run. Due to free entry, competitive firms produce at

the point where average total cost is minimized, which is the efficient scale of the firm.

But in monopolistic competition, equilibrium occurs at a higher level of average cost instead of output level where AC is the minimized.

In monopolistic competition, output is less than the efficient scale of perfect competition.

For a competitive firm, P = MC; whereas for a monopolistically competitive firm, P > MC. Consequently, an extra unit sold at the posted price indicates greater profit for the monopolistically competitive firm. This results in deadweight loss.

Unlike perfect competition, in monopolistic competition, economic costs include advertising or marketing costs.

Practice: Question-set from the CFA Institute's Curriculum.

5. OLIGOPOLY

Oligopoly and Pricing Strategies in

Characteristics:

1. Few sellers offering similar or identical products.
2. Industry dominated by small number of large firms.
3. Products offered by each seller are close substitutes of products offered by other firms.
4. Interdependent firms i.e. their price decisions are interdependent on each other.
5. Barriers to entry and exist are high i.e. fairly high costs.
6. Firms have substantial control over price.
7. Products are differentiated through advertising and other non-price strategies.

Duopoly: A duopoly is an oligopoly with only ***two*** firms. It is the simplest type of oligopoly.

Price Collusion: Price collusion refers to agreement among firms on the quantity to produce and price to charge. However, even in absence of price collusion, a ***dominant firm*** can easily become a price maker in the market. When firms collude:

- Profit increases.
- Uncertainty of cash flows reduces.
- Provide opportunities to create barriers to entry.

Cartel: Cartel refers to collusive agreements that are made openly and formally e.g. OPEC cartel.

Oligopoly firms can generate higher profits by ***cooperating*** / **joining** together and acting like a monopolist i.e. by producing a small quantity of output and charging a price above marginal cost.

Factors necessary for a collusion to be successful:

1) There is small number of firms in the industry.
2) Product produced by the firms is identical / similar.
3) Firms have similar cost structure.
4) Orders received by firms are small in size and are frequent i.e. receive on a regular basis.
5) Firms face severe threat of retaliation by other firms in the market; therefore, there are few opportunities to keep actions secret.
6) The degree of external competition.

Demand Analysis and Pricing Strategies in Oligopoly

In oligopoly, demand depends on the degree of price interdependence.

In case of price collusion, aggregate market demand curve is composed of individual sellers.

In case of non-collusion, each firm faces an individual demand curve. In non-colluding oligopoly, market demand depends on the pricing strategies of the firms. There are three basic pricing strategies.

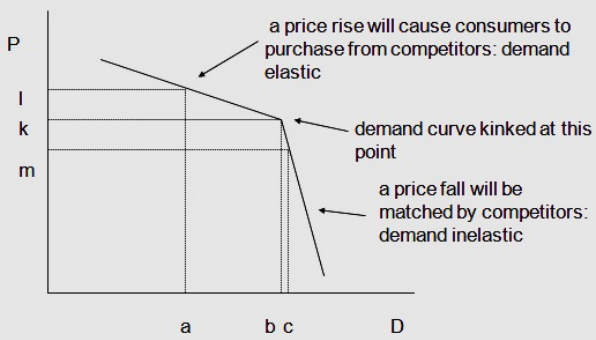
1) **Pricing Interdependence:** In this strategy, firm's pricing decisions depend on each other. This strategy is used in the market where there are price wars e.g. Commercial Airline industries.

   In this strategy, when a firm reduces its price, the competitor follows the same and ignores price increase. This implies that firms face two demand structures i.e. one related to price increase and other related to price decrease. It is referred to as **kinked demand curve** i.e.

   - When one firm increases price, competitor firm's market share increases, when other does not match price increase.

- When one firm reduces price, there is no change in competitor firm's market share, when other matches price decrease.

Reason: Price elasticity of demand is greater at higher prices because firm's rivals have lower prices; whereas price elasticity of demand is lower at lower prices because firm's rivals will match decrease in price.



This implies that in case of a kinked demand curve, individual firms are disadvantaged by reducing prices. Therefore, these markets tend to be characterized by price rigidities.

NOTE:

In case of Kinked demand curve, each demand curve will have its own marginal revenue structure.

- Demand function (DP ↑) and Marginal revenue structure (MRP ↑) associated with higher prices.
- Demand function (DP ↓) and Marginal revenue structure (MRP ↓) associated with lower prices.

The two demand structures intersect at the prevailing price i.e. where price increase = price decrease = 0.

See: Exhibit 16 & 17 form the CFA Institute's Curriculum.

In oligopoly, firm's demand curve is represented by relevant portion of demand schedule when price increases and relevant portion of demand schedule when price decreases.

Overall Demand = DP ↓+ DP ↑
= Demand segment associated with price decrease + Demand segment associated with price increase

- Due to kinked demand curve, oligopoly markets have stable and rigid pricing structure.

The Cournot Assumption

Cournot Assumption: In a Cournot model, it is assumed that firms make pricing and output decisions *simultaneously*. In Cournot assumption, profit maximizing output by each firm is determined by assuming no change in other firm's output i.e. there is no retaliation by other firms.

In this strategy, this pattern continues until each firm reaches its long-run equilibrium position. In the long-run, both price and output are stable and change in either price or output will not increase profits for any firm.

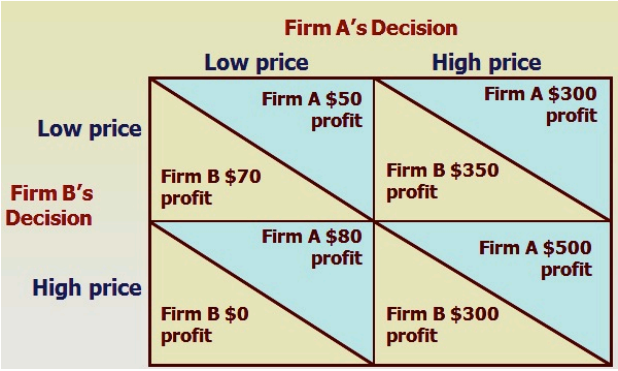
- Compared to perfect price competition, Cournot equilibrium price will be higher and equilibrium output level will be lower.
- Compared to monopoly, Cournot equilibrium price will be lower and equilibrium output level will be higher. This implies that total profits are less than the monopoly profit. **See exhibit 14.**
- As the number of sellers in an oligopoly grows larger, an oligopolistic market looks more and more like a competitive market. The price approaches marginal cost, and the quantity produced approaches the socially efficient level.

The Nash Equilibrium

Nash Equilibrium: Game theory refers to the study of how people behave in strategic situations. It is used by decision makers to analyze responses by rival decision makers.

In game theory, a Nash equilibrium is a situation in which different firms in oligopoly interacting with one another, choose their best strategy, given the strategies that all the others have chosen (i.e. Dominant Strategy). In oligopoly, this implies that in Nash equilibrium, no firm can increase its profits by independently changing its pricing strategy. Thus,

- Firms have interdependent actions because their profit depends not only on how much they produce but also on how much the other firms produces.
- These actions are non-cooperative i.e. each firm's decisions are made to maximize its own profits.
- Firms do not collude to maximize joint profits.
- Equilibrium occurs when all firms choose their best strategy given the actions of their rivals.



- Joint profit is maximized when both firms charge higher prices for their products i.e. joint profit = $500 + $300 = $800.

Stackelberg Model: In a Stackelberg model, it is assumed that firms make pricing and output decisions sequentially i.e.

- The leader firm chooses its output first because it has the first mover advantage.
- After observing the leader's output, the follower firm chooses its output.
- To force the follower firm to reduce production or to exit the market, the leader firm may aggressively overproduce. It is referred to as "Top Dog" strategy.
- Compared to Cournot model, the leader firm earns more while the follower firm earns less in a Stackelberg model.

Practice: Question-set from the CFA Institute's Curriculum.

6. DETERMINING MARKET STRUCTURE

Econometric Approaches

Measures to estimate market power:

1) Market power can be measured by estimating the elasticity of demand and supply in a market.

- When demand is highly elastic → it indicates that market is close to perfect competition.
- When demand is inelastic → it indicates that firms may have market power.

Limitations:

i. This analysis has endogeneity problem i.e. the equilibrium price and output are jointly determined by the interaction of demand and supply.
Thus, a model with two separate equations (i.e. one equation for Quantity demanded and one for Quantity supplied) is needed to correctly estimate the demand and supply.
ii. Elasticity can be computed using regression analysis but it requires large number of observations.
iii. The regression analysis is based on historical data, which is not necessarily a good predictor of future.

2) Using cross-sectional regression analysis instead of time-series analysis. In this analysis, sales from different firms in the market are analyzed during the same year or for single transactions from many buyers & companies.

Limitations:

i. This method is complex.
ii. Different specifications of explanatory variables e.g. using total GDP instead of per-capita GDP to use as a proxy for income will provide different estimates.

Simple Measures

1) Concentration Ratio: It is the sum of the market shares of the N largest firms. It is computed as follows:

CR = Sum of sales values of the largest 10 firms / Total market sales

- CR is always between 0% and 100%.
- CR = 100% for monopoly.
- CR ≈ 0% for a perfectly competitive industry.

Advantage: It is simple and easy to compute.
Disadvantages:

i. It is not a direct measure of market power i.e. a high CR does not necessarily indicate a monopoly power; because when barriers to entry are low, even a single firm in the industry behaves like a firm in perfect competition.

ii. It ignores the affect of mergers among the top market players i.e. CR does not change much when the largest and second-largest incumbents merge; they are likely to have greater pricing power after merger.

Practice: Example 'Calculating The Concentration Ratio ', CFA Institute's Curriculum.

2) Herfindahl-Hirschman index (HHI): The Herfindahl-Hirschman Index equals the sum of the square market share of the top N companies in an industry.

$$\textbf{HHI} = \sum X_i^2$$

where,

X_i^2 is squared market share of the i^{th} firm.
HHI = 1 for monopoly.
HHI ≈ 0 for a perfectly competitive industry.

When there are M firms in the market with *equal market share*, then

$$\textbf{HHI} = (1 / M)$$

Interpretation: For example, HHI of 0.20 means that market is shared equally by five firms in the market.

Disadvantages:

i. Like CR, it is not a direct measure of market power i.e. a high HHI does not necessarily indicate a monopoly power; because when barriers to entry are low, even a single firm in the industry behaves like a firm in perfect competition.
ii. It is less useful for financial analyst estimating potential profitability of firm or group of firms because it ignores elasticity of demand.

Practice: Example 4 and Question-set from the CFA Institute's Curriculum.

Practice: CFA Institute's End of Chapter Practice Problems and Questions from FinQuiz Question Bank.