Criteria	Number of sellers/ firms relative to market size	Nature of product (Pdt.)	Knowledge of product/market	Extent of BTE (Barriers to Entry)
Perfect Competition	Large number of small firms relative to market size	Homogeneous	Perfect information	BTE absent
Monopolistic Competition	Large number of small firms	Similar but differentiated products	Imperfect information	Low BTE
Oligopoly	Market dominated by a few large firms (where market conc. is high)	Can produce both homogeneous or differentiated products	Imperfect knowledge	High BTE
Monopoly	Dominant firm in the market (<100% MCR)	Unique pdt. w/ no close substitutes	Imperfect information	Complete BTE

2. Perfect Competition (Only used w/ comparison to Monopoly)

- Highly unrealistic and no real-world market follows PC structure (closest substitutes are stock mkt./ produce mkt.)
    - Lack of BTE $\Rightarrow$ new firms face no restrictions (financial - low start-up costs OR legal - no licensing and patents)
    - Large no. of of firms $\Rightarrow$ lack of BTE, each firm w/ insignificant share of total mkt. output w/ independent mkt. decisions
    - Homogenous pdt. $\Rightarrow$ perfect substitutes, PC firm $\Rightarrow$ **price taker**
    - Complete info. about prices, costs and technology
        - PC firm is a **price taker** $\Rightarrow$ follows mkt. price (due to mkt. demand and supply)
            - Dd of PC firm is **perfectly price elastic** (P=AR=MR)
        - PC firm determines its own output $\Rightarrow$ follows profit-maximizing output
            - At profit-maximizing output, **MR = MC, MC is rising**

- PC firms always make **LR normal profits** due to lack of BTE
    - SR SPN profits $\Rightarrow$ incentive for new firms to enter, MAP occurs $\Rightarrow$ price falls
    - SR SBN profits $\Rightarrow$ firms must decide whether to continue production (TR > TVC) or shut down and produce 0 output (TR < TVC)
        - Lack of BTE $\Rightarrow$ firms enter/exit and MAP occurs $\Rightarrow$ LR normal profits

4. Monopolistic Competition- Overview

- Highly common market structure (hawker stalls, fast food outlets & convenience stores)
    - No mkt. demand curve for MPC market structure (no single equilibrium price in the mkt.)
        - Low BTE $\Rightarrow$ relatively low start-up costs, relatively easy to copy technology, relatively mobile FOP $\Rightarrow$ LR normal profits
        - Large no. of of firms $\Rightarrow$ low BTE, relatively share of total mkt. output w/ limited ability to set price above its marginal cost (independent decisions)
        - Differentiated pdt. $\Rightarrow$ product are slightly differentiated (many close substitutes available $\Rightarrow$ imaginary differences [design, branding, promotion] OR physical differences [product development + innovation $\Rightarrow$ quality] OR differences in condition of sale [customer service, ambience]
        - Imperfect knowledge about prices, costs and technology
    - Many close substitutes for products $\Rightarrow$ Dd for MPC output more price elastic $\Rightarrow$ AR, MR curves of MPC are gentler

- MPC firms always make **LR normal profits** due to low BTE
  - SR SPN/SBN profits $\implies$ firms enter/exit $\implies$ Dd for firm's pdt. falls / rises
    - Lack of BTE $\implies$ firms enter/exit and MAP occurs $\implies$ LR normal profits
  - X-efficient $\implies$ To retain LR normal profits, MPC firm must produce output at lowest possible cost (unlike monopoly where firm can afford to produce at any cost)
  - Productively-inefficient from society's POV $\implies$ At profit maximizing output OQ, MPC firm is operating w/ **excess capacity** and **spare resources** are available (cost of production can still be lowered to MES of LRAC)
  - Allocatively-inefficient $\implies$ Price setter (P>MR), produces at MR = MC, thus P>MC
    - P = consumers' value of last unit of output, MC = opp cost of producing last unit of output
    - Hence, allocatively efficient output is Q1 where P = MC and no deadweight loss occurs
      - Society's welfare can be improved if firm increased output to Q1

3. Monopoly- Overview
- Single producer
  - only dominant firm in the market→ no competition→ price setter
- Unique product
  - Lack of close substitutes (low CED)→ greater price-setting ability→ price inelastic demand
- Complete BTE: Protects monopoly power by charging high price above MC→ retain SPN profits in the LR. Usually temporary because potential entrants can devise strategies & develop technologies to help break into the market.

  - Artificial
    - Strategic: involves any move by incumbent firm to keep potential firms out of the market. May be deemed illegal.
      - Intensive advertising: raise awareness to boost demand & persuade customers that there are no close substitutes→ induces customer loyalty (making it difficult for potential entrants to break into the market) + demand becomes less elastic (charge higher prices)
      - Gaining control over supplies of essential raw materials: firm can acquire resources to reduce market supply, effectively controlling supply and keeping prices high
      - Hostile takeovers and acquisitions: dominant company buys up/ takes a stake in a rival firm
      - R&D: Due to BTE, monopoly can use LR SPN profits to finance R&D→ develop new products/ improve current production processes to lower costs (downward movement on LRAC curve) → *But firms may be complacent due to lack of existing competition and not do this*
      - Capacity expansions: exploit iEOS→ achieve lower unit COP→ incumbent firm more cost efficient + price competitive→ deters firms that operate on a smaller scale from entering the market

    - Statutory: Given by force of law. Incumbent firm attains legal protection (exclusive rights e.g. patents, copyrights, market franchises, licenses)
      - Regulation of intellectual property rights: government means of creating/supporting monopolies.
      - Patents and copyrights: exclusive right to sell an original product for a period of time→ keeps demand high and relatively less price elastic→ keeps prices high (act as temporary monopolists)

  - Natural/structural: Arise from differences in production & costs between incumbent and potential entrant
    - Incumbent operates on relatively large SOP→ able to more fully exploit available iEOS→ lower on LRAC than potential entrant. If the incumbent firm can price its product such that it is at least making normal profits but its price is lower than the unit COP of the potential entrant, the potential entrant cannot match the incumbent's price.
    - Natural monopoly: market in which the market demand is large enough to support only one large firm operating at/near its MES.

  - Barriers to exit

- - - ■ Financial implications of leaving an industry act as a BTE→ increase the risk of making huge losses if firms decide to leave a market.
      - ■ Sunk costs: costs that cannot be recovered→ arise because some activities require specialized assets that cannot readily be diverted to other uses
        - ● Capital inputs specific to an industry/ with no resale value
        - ● Money spent on advertising, marketing and R&D projects that cannot be transferred to other markets
        - ● Money spent on building complex and expensive IT systems that are ditched when they become unworkable
  - ● Imperfect knowledge
    - ○ E.g. consumers not fully aware of costs, tech used is closely guarded (patents)
    - ○ Further increase price-setting ability

  - ● P-max and pricing decisions
    - ○ Characteristics of graph
      - ■ D/AR curve downward-sloping
      - ■ MR curve also downward-sloping
      - ■ AR always greater than MR.
      - ■ MR= price received from sale of last additional unit- loss of rev from selling all other units at a lower price
      - ■ When MR is greater than MC→ profits increased→ firm should expand output
      - ■ If firm expands output beyond eq output level, MC is greater than MR→ profit reduced→ firm should reduce output
      - ■ At output eq level, MR=MC→ p-max
    - ○ SR
      - ■ P-max at MR=MC. When SR SBN profits made→ will continue to produce if rev can cover at least TVC and some TFC→ loss-minimising
    - ○ LR
      - ■ P-max when LRMC=MR. Able to retain SPN profits by erecting BTE. Remain in business only if TR=TC/ normal profits made
    - ○ Allocatively inefficient
    - ○ Productively inefficient (society's POV)
      - ■ P-max output lower than MES
    - ○ Productively inefficient (firm's POV)
      - ■ X-inefficient→ little incentive to control costs due to lack of actual competition. BTE enables the retention of SPN profits in the LR. Incurs a cost higher than lowest possible LRAC

  - ● Natural monopolies
    - ○ Market in which market demand is large enough to support only one large firm operating near/at its MES.
    - ○ One firm fully exploits available iEOS: spread costs over a larger output level→ firm can achieve a lower LR cost per unit than a firm producing on a smaller scale. Lowered costs allow incumbent to price products more competitively (ward off potential entrants).

4. Oligopoly- Overview

- Most common market structure (most industries have markets w/ a few large firms and many other smaller firms)
  - High BTE $\Rightarrow$ Artificial/Natural BTE exist
    - Artificial
      - Strategic: involves any move by incumbent firm to keep potential firms out of the market. May be deemed illegal.
        - Limit and predatory pricing: More common in oligopolies than monopolies due to presence of competitors (only works due to high MCR of firms)
          - Limit pricing $\Rightarrow$ charging price lower than profit-maximizing price $\Rightarrow$ rivals operating on smaller SOP incur higher long-run unit costs and cannot match lower price without incurring a loss
          - Predatory pricing $\Rightarrow$ prices lowered below costs to completely drive out competitors
        - Intensive advertising and branding: Like the monopoly, huge brand loyalty for firms (impt. Factor for oligopolies)
        - **All other artificial barriers found in monopolies like statutory barriers, control of raw materials, R&D for cost advantage, hostile takeovers, mergers, licensing, patents also exist**

    - Natural BTE: arise from differences in production & costs between incumbent and potential entrant
      - Few dominant firms $\Rightarrow$ substantial iEOS $\Rightarrow$ LRAC falls continuously over very large output $\Rightarrow$ market is only large enough for few firms operating at MES $\Rightarrow$ new entrant cannot produce at low unit cost due to lower SOP
        - Differentiated pdt. $\Rightarrow$ greater diff. Than MPC due to R&D
        - Homogenous product $\Rightarrow$ each firm is a price setter
    - Imperfect knowledge about production methods and prices $\Rightarrow$ barrier to entry for new firms

- Success of firms in oligopolies determined by actions of rivals $\Rightarrow$ firms are mutually interdependent
  - Collusive oligopoly (e.g. Cartel)$\Rightarrow$ Formal/informal agreement to reduce uncertainty by fixing prices/limits on product promotion/agreements to maintain MC/output quotas
    - E.g. OPEC $\Rightarrow$ Output is determined for each country (production quota depending on current market share of each member)
      - Risks and uncertainty $\Rightarrow$ incentive to overturn agreement to increase profits as current output is productively inefficient from firm's POV
      - Collusion is easier when
        $\Rightarrow$ smaller no. of dominant firms (totaly supply controlled easily)
        $\Rightarrow$ significant BTE, lower probability of disruption due to new firm
        $\Rightarrow$ homogenous product = similar cost conditions
        $\Rightarrow$ stable market demand = excess supply/demand doesn't occur and changes to individual firm output does not have to be made

6. Assessing Performance/Desirability
- I. Economic efficiency $\Longrightarrow$ allocative efficiency and productive efficiency
    - A. Allocative efficiency $\Longrightarrow$ P = MC of good (value that society places on the consumption of the last unit of good is equal to opportunity cost of producing it
    - B. Productive efficiency $\Longrightarrow$ complete utility of resources, no spare resources are used to maximum capacity
        1. Society's POV: Firm's LRAC is at its minimum $\Longrightarrow$ firm is operating at MES and all iEOS have been exploited (only minimum pt. Is p-eff)
        2. Firm's POV: All points on the LRAC are productively efficient $\Longrightarrow$ lowest average cost of producing each level of output
- II. Dynamic efficiency
    - A. Refers to innovation arising from investment of scarce resources into R&D $\Longrightarrow$ dynamic (takes place over time)
    - B. Improvement in level of tech $\Longrightarrow$ more and better quality output $\Longrightarrow$ fall in unit cost and expand product range of firm
- III. Equity
    - A. Value judgement on distribution of wealth due to the type of market structure
- IV. Consumer choice $\Longrightarrow$ freedom to choose from a variety of goods and services

Contestable markets
- Perfectly contestable when entry/exit into market is costless & done rapidly.
- Possible to make SPN profits→ new firms enter→ N profits made
    - Threat ensures incumbent firms keep prices down to the extent of only making N profits + produce as efficiently as possible (moving towards X-efficiency)

- Conditions
    1. No exit/sunk costs→ reduces risk of entering/ leaving market. Costless exits allow unsuccessful firms to easily exit an industry & transfer the necessary capital equipment elsewhere.
    2. Perfect information → suppliers can utilise best production methods/ tech in the market
    3. Low consumer loyalty→ reduces risks of entering market

Hit and run competition:
- Enter a market quickly then withdraw (take advantage of seasonal increase in demand)

Predictions made based on theory
- As long as a market is contestable, firms will act competitively (SPN profits may not be large).
- Inefficient firms cannot survive in contestable markets (adapt/ leave in LR)
- Rather than directly interfere in firm decisions, govts should try and make markets more contestable (e.g. lowering entry/exit costs, grant licenses for ease of entry, etc.)

7. Pricing strategies

Refer to the firm's plan for setting the price of its product given the market conditions it faces and its desire to achieve a specific aim/objective.

7.1 Uniform pricing

Pursuit of aims other than profit-maximization (e.g. increasing market share/ profit-satisficing)
- To maximize profits, price is set where MR=MC
- To maximize TR, price is set where MR=0

7.2 Price Discrimination

Definition: producer sells the same good at different prices whereby price diff does not reflect differences in cost of supplying the customer.

Objective: allow monopolists to capture CS and earn higher total rev + total profits. Firms that price discriminate can earn more profits than firms that charge uniform price.

Monopoly power + prevention of arbitrage make price discrimination possible. Ability to segment markets makes it profitable.

Conditions:
1. Seller must have market power.
   a. Allows for price-setting
   b. Monopolists: larger market power= main supplier of product= better position to price discriminate
   c. MPC

2. Must be able to identify and segment market into separate grps⇒ profitable price discrimination
   a. Only applicable if different consumer groups place different value on the same product (some willing to pay more than others)
   b. Identify consumers with different PEDs and charge the less price sensitive group a higher price
   c. Examples
      i. Early-bird discounts: segment market by time. If planning is done beforehand, substitutes available; last-minute purchasing⇒ higher prices as PinED ⇒ fewer substitutes/ less time to look for substitutes
      ii. Peak & off-peak pricing strategies: segment market by time. Price-sensitive consumers choose off-peak hours (demand relatively more price elastic)

3. Firm needs to prevent resale and arbitrage
   a. Arbitrage: buying a gd at a lower price then reselling it at a higher price⇒ low-price consumers make a profit on resale; high-price consumers still attain gd at lower price than firm's
   b. Firms would need to drive prices down⇒ back to traditional system of uniform prices

First degree price discrimination

Definition: different prices for every consumer for the same good⇒ according to individual willingness and ability to pay

Condition: firms need to be able to identify its customers' demand beforehand + have complete information on every customer's willingness and ability to pay

Description: firm segregates market⇒ charges indiv consumers the price they are willing to pay⇒ firm can extract all CS under the demand curve and turn it into extra rev= increased total profits

Graph
- Market demand curve reflects value different consumers place on a gd
- Assumes MC is constant

- With effective price disc:
    1. D curve becomes new MR curve.
    2. Firm could possibly capture entire CS.
    3. No DW loss⇒ firms producing at perfectly competitive market output level, (assuming no externalities/ other sources of market failure)
    4. Social welfare maximised⇒ only PS because CS completely captured by firm

Examples:
- Few⇒ firms usually have imperfect knowledge
- Online auctions (bidding for tenders) ⇒ max price w&a to pay are revealed by bidders so sellers charge max price⇒ capture CS

Third degree price discrimination

Definition: different prices for different groups of customers⇒ segmenting market based on identifiable characteristics

Condition: firms need to directly identify specific groups of customers with different price sensitivities⇒ purchases based on identifiable characteristics
- Customer characteristics (diff needs)
- Location (affects accessibility/ lack of knowledge of better alternatives in other regions)
- By past purchase behaviour (special discounts to new customers, existing customers PED<1

Description: price-setting firm can extract part of CS and increase TR + total profits

Graph:
- Identify consumer groups w different demand curves (diff PED, treat as separate markets)
-
- Segmentation⇒ firm can charge higher prices to sub-market with PED<1⇒ capture more CS, earn more TR and TP
- MC assumed to be constant⇒ with sub-markets A and B, firm's overall profit-max point is $MR_{A+B}=MC$

Examples:

- Transport industry, cinemas, nightclub discounts for women

Second-degree price discrimination

Definition: firm charges a different price to different grps of customers by offering different pricing choices and allowing them to choose among the different options

Condition: firms are unable to segregate customers based on observable characteristics.

Description: price-setting firms extract part of CS by charging higher prices to consumers with PED<1⇒ TR and TP increase.

Examples:
- NTUC Fairprice provides discounts when consumers buy a larger quantity of a particular good (those who buy larger qts usually have PED>1 due to larger proportion of income) ⇒ cannot predict who will buy in large quantities, so offers pricing choices
- First class, business class, economy class

Costs and benefits of price discrimination

	Cost	Benefit
Consumer POV	**Less equitable:** PS increases at expense of CS.	**Benefits low-income consumers:** ⇒ tend to be more price-sensitive. PDisc allows them to consume a gd/service they otherwise could not afford. E.g. legal services: third degree PDisc. ⇒ same legal advice at lower prices for low-income clients (larger proportion of income= PED>1) E.g. drug companies: sell products at inflated prices in high-income countries. Profits made in one market cross-subsidises loss-making activities w impt social benefits.
Firm POV	**Unfair strategy to keep potential entrants out:** Use profits to set up strategic BTE.	**Allows price-setting firm to survive a recession:** recession causes D to fall below av COP⇒ AC higher than price consumers w&a to pay. Gd can only be sold w first degree PDisc.
Society POV		First degree PDisc⇒ **allocatively efficient** + higher output than uniform pricing PDisc= producers extract CS + add to rev⇒ higher profits⇒ benefit society when reinvested into **R&D**⇒ improvements & cost-reduction

Predatory Pricing

Definition: strategy of driving competitors out of the market + scaring off potential entrants by setting low prices/ selling below AVC⇒ allows incumbent to raise prices to profit-max levels

Limitation: illegal + difficult to prove

Price war: suppliers attempt to undercut each other's prices⇒ trying to achieve greater market share

Limit pricing: pricing by incumbent to deter entry/ expansion of fringe firms
⇒ price set below profit-max price but above competitive price level
⇒ refers to SR departure from profit-max
⇒ if successful, firms can maintain market power & attain higher profits in LR

7.2 Non-Pricing strategies

Motivated by
- Rev and costs
- Competitors' actions
- Business risks + uncertainty considerations

Advertising and promotion
- Overall: increases demand⇒ increases TR
- Perceived differences created
- Product placed in better light compared to rivals'
- Creation of brand image⇒ brand loyalty⇒ decreased substitutability⇒ PED<1⇒ firm can charge higher prices w/out fear of loss of market share
- Graph
  - D (AR) curve PED<1⇒ AR curve shifts⇒ MR curve shifts⇒ new profit-max at MR=MC, with increased profits for firm (instead of N profits, firm is now earning SPN profits)
- MPC
  - Do not earn SPN profits in LR due to absence of BTE⇒ advertising done on smaller scale (e.g. flyers, brochures, banners, changing packaging)
- Oligopoly + monopoly
  - Can earn SPN profits in LR due to BTE⇒ substantial funds for large-scale advertising (e.g. TV advertising, social media, print media, joint-campaigns)

R&D
- Overall: creates real diff to allow firm to capture larger market share
- Tech improvements⇒ lowered costs⇒ higher profits⇒ better ability to withstand price war/competition
- MPC
  - Cannot retain LR SPN profits because of low BTE (allows entrants to erode SPN profits so LR only N profits)⇒ simpler nature of product differentiation
  - E.g. refurbishing products, improve sales conditions by relocating/ offering better service (later opening hours, personalised services)
- Oligopoly + monopoly
  - Can use LR SPN profits for R&D⇒ product rejuvenation (e.g. new features or products)
  - Oligopolist's incentive: desire to attain market share
  - Monopolist's incentive: maintain/increase BTE to enjoy dominant position

7.3 Growth Strategies

1. Mergers and acquisitions
   - Horizontal integration: firm combines/ takes over another firm at the same stage of production.
     - Motive: market share dominance
     - Decreased number of firms⇒ reduction of competition= increased market power⇒ increased price-setting ability
     - Joint production capacity⇒ firm can fully exploit available iEOS⇒ enables firm to lower LR COP
   - Vertical integration: firm combines/ takes over another firm at a different stage of production
     - Motive: lower uncertainty w regard to access to markets/ securing FOPs⇒ improves supply chain coordination. Firms can also fully exploit available iEOS
     - Forward
       - Firm moves into succeeding stages of production⇒ gains ownership of companies that were once customers (e.g. breweries and pubs)
       - Motive: lower uncertainty by controlling distribution & reducing dependency on middleman/ distributors who might be unreliable/ charge high fees (e.g. tour operators owning hotels)
       - Allows greater ability to allocate more funds to R&D⇒ generate new products⇒ increased competitiveness & profitability in LR
       - Enlarged firm can fully exploit marketing EOS (larger size⇒ greater bargaining power)
     - Backward
       - Firm merges with another firm involved in earlier stages of production⇒ gain ownership of companies that were once suppliers (e.g. oil refineries buy up oil wells)
       - Motive: gain greater control over qt and quality of scarce FOPs and ensure greater security w regards to their delivery⇒ less likely to face disruptions from unreliable suppliers/ labour strikes/ labour disputes

- ■ Allows entry deterrence by restricting crucial FOPs
  - ■ Reduces costs by producing factor input directly
- Conglomerates
  - ○ Companies that sell gds/services not directly related to one another (e.g. General Electric, insurance companies)
  - ○ Motivation: diversification⇒ revenue not affected by a decreased demand for one of its gds/services⇒ reduced uncertainty & risks

2. Franchising

Definition: selling the right to use a firm's successful business model & brand for a period of time⇒ allows for internal growth (e.g. McDonalds)

Benefits:
- Expansion of chain while avoiding the risk of investing significant amounts of capital
- Builds brand presence, reducing search costs for consumers + increasing rev for firm
- Firm can reap marketing EOS, spreading advertising costs over many franchises & bargaining for lower FOP price

3. Cost-reduction strategies

Basically iEOS and eEOS.

Alternative pricing models
- Arise from real-world considerations that firms have imperfect knowledge on demand/ rev curves/ cost structure
- Mark-up pricing
  - ○ Allows firm to estimate gross profit-margin⇒ firm considers fixed & variable costs⇒ mark prices up by a certain number times the COP
  - ○ Usually in retail
- Considerations
  - ○ Objectives
  - ○ Costs
  - ○ Unintended consequences
  - ○ Diff povs + impacts (consumer, firm, society)
  - ○ Govt intervention required?