Market Structure

Characteristics, Behavior, Performance

Market Structure refers to the features or characteristics of a particular market that may affect the behavior and performance of other firms in that industry.

Market Concentration Ratio is defined as the percentage of total sales/ production accounted for by some specified number of the largest firms in an industry (can be used to appx market structure and measure market power)

Low CR_4	Medium CR_4	High CR_4
0 to 50%	50 to 80%	80 to 100%
Perfect Competition to Oligopoly	Oligopoly	Oligopoly/ Monopoly

Barriers to entry refer to any impediment that prevents new firms from competing on an **equal** basis with existing firms in an industry.

Monopoly as a market structure is characterized by a lack of competition (depends on how narrowly the industry is defined).

Natural monopoly occurs when a single firm can supply a good or service to an entire market at a lower cost than two or more firms can.

Causes of Barriers to Entry

1. Cost Barrier (IDOS)
2. Control of factor i/p or key distribution outlets
3. Legal Barriers (IP)
4. Financial Barriers (advertising expd)
5. Strategic Barriers (limit/ predatory pricing)

TR = P X Q, AR=TR/Q, MR = $TR_n - TR_{n-1}$

Types of Market Structure

Perfect/ Monopolistic Competition, Monopoly, Oligopoly

Implications

- Market share → extent market power (price setter/ taker)
- Rival consciousness
- Type of DD curve
- Type of profit → ability for R&D
- Availability of information → incentive for R&D

Performance Criteria

P roductive efficiency

A llovative efficiency

C onsumer choice

E quity

D ynamic efficiency

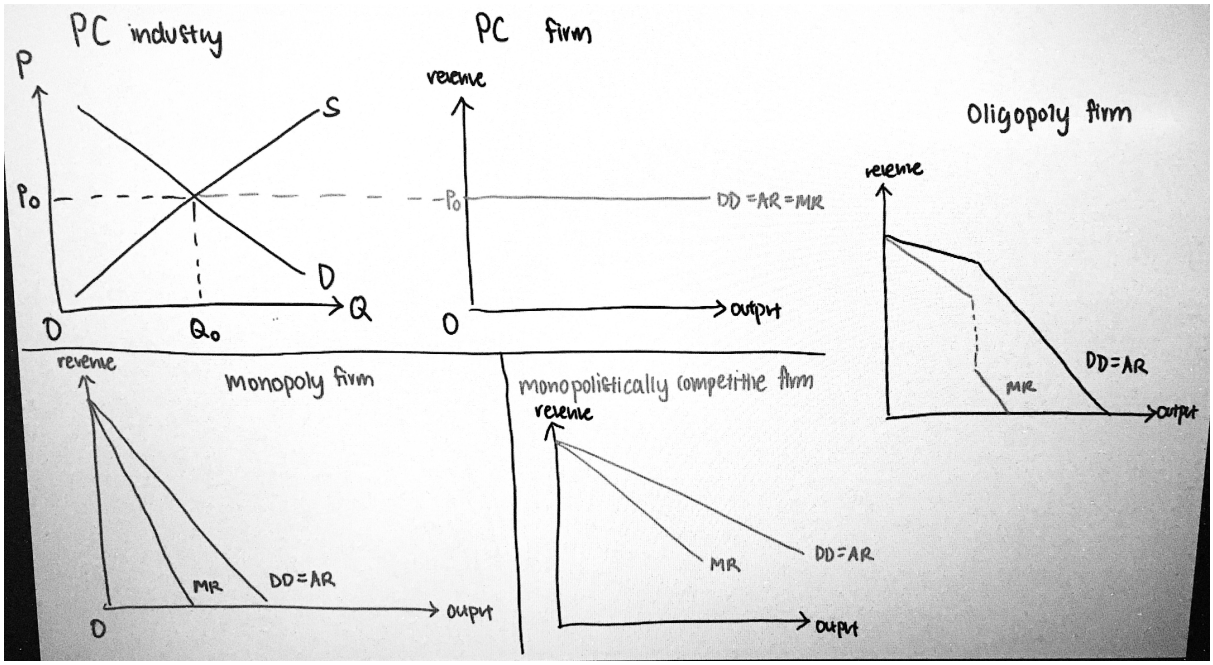
Profits

SR may not equal LR profits (based on MS), SR to LR profit adjustment usually req working bwd

Key for showing profit on diagram: Relative position of AC and AR curve at MR = MC

Shut down Condition: if firm's AR < AVC, it will / should shut down and cease production

	Perfect Competition (Agricultural Products)	Monopolistic Competition (Bubble Tea Shop)	Oligopoly (SG Telco Provider)	Monopoly (PUB)
No. of sellers*	Infinite/ Many	Many	Few dom firm	One
Nature of Product*	Homogenous/ Perfect Substitutes	Slightly Differentiated	Homogenous/ Differentiated	-
Ease of Entry/ Exit*	No BTE	No/ Low BTE	High BTE	High BTE
Availability of Information	Perfect Information	Imperfect Information	Imperfect Information	Imperfect Information



- More market power, greater price firm can set (above MC).

- Monopoly can influence price/ quantity but is constrained by demand curve: in order to sell an extra unit, monopolist has to lower the price it charges on all units, even those that were previously selling at higher P, explains why MR < AR

- Availability of information and incentive to engage in R&D

Imperfect information → assured that potential competitors will not have full access to improvements in technology or skills arising from successful R&D → ensure benefit from R&D will be solely enjoyed by the firm investing in it → incentive to engage in R&D

- BTE and degree of competition

Higher barriers to entry → firms have decreased ease of entering the market → decreasing the number of firms in the market → decreased degree of competition

Types of barriers to entry:

1. Cost Barrier (IEOS) (e.g. PUB)

When there are extensive IEOS such that **MES for a typical firm is a relatively large percentage of the market**, a large firm suppling a large percentage of the market will have **lower cost per unit o/p of than a smaller firm**. This gives large firms a cost advantage over smaller firms, as established large firm is able to **sell o/p at much lower price**, which **new firms are unable to match**.

Furthermore, new firms do not have the **customer base to warrant a high o/p level needed to experience the IEOS enjoyed by an established large firm**. Hence, smaller scale of production would incur a much **higher AC of production**, **deterring** new firms from entering the industry.

2. Control of key resources/ distribution outlet (e.g. OPEC)

Exclusive ownership of FOP crucial to production process → rivals can be denied entry to i/ps

Control outlet through which products are sold → prevent rivals from gaining access to consumers

3. Legal Barriers to Entry (e.g. Apple's force sensitive fingerprint technology)

A firm's monopoly position may be **protected by law or granted by the government** through patents, copyrights, licenses. Competitors who want to sell/ adopt products under such IP rights protection can only do so at a **high cost**, resulting in their **inability to compete in the market on equal basis**.

4. Financial Barriers (e.g. Ferrari evokes notion of luxury and high quality)

Brand name is often established through **aggressive product differentiation** (product promotion/ development). Potential competitors will find it **difficult to match up to the expenditure** (advertising) required to **build up an equally strong brand name** and **compete** with the established brand. (require long period of high advertising cost and low revenue).

5. Strategic Entry Barriers

To avoid erosion of market share to potential new entrants, firms might **deliberate charge lower than profit maximising prices** as an entry deterrence at the expense of making temporary losses (e.g. Limit pricing → reduce size of profits → make it **unprofitable** for potential entrants to enter the market AND Predatory pricing → force exist firms into making subnormal profits → drive competitors out of the market, given monopoly has sufficient reserves to sustain itself earning subnormal profit in LR).

Characteristics	Perfect Competition	Monopoly	Monopolistic Competition	Oligopoly
Number of Firms	Large no. of small firms - Firm's output is an insignificant proportion of total industry output - unable to influence market price by changing output - price taker	Sole Seller - single seller in the industry → firm's DD curve = industry's DD curve - high market power to influence price → price setter	Large no. of small firms - each firm has insignificant market power: do not have much influence on actions of other firms - price setter - not rival conscious: each firm functions independently of others and do not take into account possible reactions of rivals - difficult to collude and set monopoly price	Few dominant firms - Firm's output is a significant proportion of market output - high market power - price setter - firms are mutually interdependent: one firm's action has a significant impact on rival firms' sales - Exhibit rival consciousness - Price and output determined based on firm's assumptions of rival firm's actions
Nature of Product	Homogeneous Products - products identical and standardised - products of firms are perfect substitutes: DD price elastic - no preference for any firms (no need for branding / advertising) → agricultural products	Unique Products - no close substitutes: DD price inelastic; able to ↑ price to ↑ TR - ↑ production differentiation, less substitutable the goods, ↑ market power (note: can be homogeneous products too)	Slightly differentiated products - products of other firms not perfect substitutes → able to raise prices without losing all customers (unlike PC) - products of other firms are close substitutes: DD relatively price elastic → weak ability to raise prices → hawker meals, bread sold in bakeries	Differentiated - Type of product determines method of product differentiation (i.e. for homogeneous, collude. For differentiated, non-price competition) → homogeneous: raw materials like petroleum, steel, oil → differentiated: automobiles, computers
Ease of entry and exit **i.e. Barriers To Entry (BTE)** restrictions strong enough to prevent rival firms from competing on equal basis	No BTE - Free entry into and exit from industry - only earn normal profits in LR as supernormal profits in SR eroded away by new entrants	High BTE - basis for monopoly power - able to reap significant EOS - earn supernormal profits in LR	No BTE - Free entry into and exit from industry - only earn normal profits in LR as supernormal profits in SR eroded away by new entrants (note: in reality, low BTE)	High BTE - able to reap significant EOS - earn supernormal profits in LR
Availability of Information	Perfect Information - firms aware of price charges, costs and tech adopted by other sellers - consumers have complete knowledge of price and quality of goods by different firms	Imperfect Information - high degree of imperfect info - able to withhold info from both consumers and potential competitors	Imperfect Information - rivals not fully aware of technology or skills needed to produce and sell product - consumers lack info on products (e.g. price, quality, availability)	Imperfect Information - producers unaware of tech. or skills needed to produce and sell product - consumers unaware of different prices oligopolist may charge

Refer to Unit 9c for more details on Collusion and Competition among oligopolies i.e. cartel, dominant firm price leadership theory, kinked DD curve theory

Types of Profits: Supernormal, normal[1], subnormal profit

Profit Maximization:

Conditions (regardless of MS)
1. MR = MC 2. MC cut MR from below

Explanation:

- If any unit of production adds more to revenue than it does to cost (MR > MC), e.g. at ___ unit (between N and M), then producing and selling that additional unit will increase total profits.
- But if any unit of production adds more to cost than it does to revenue (MR < MC), e.g. at ___ unit (after M), then not producing that unit will increase profits.
- Thus firms will produce up to the point where MR = MC, that is the revenue from the last unit of output is the same as the cost.

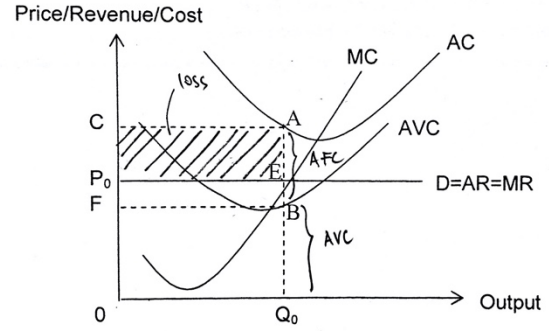
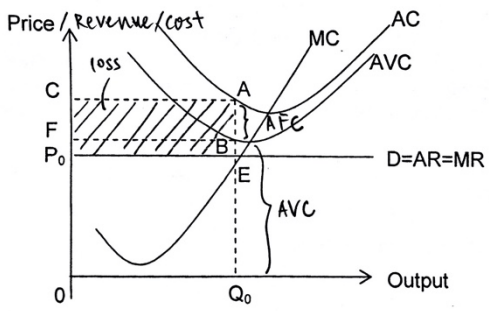
Shut down Condition (regardless of MS):

When a firm is making subnormal profits, it could either shut down or continue with its production.

→ **Shut down**: incur loss that is <u>equal to fixed cost</u>

→ **Continue production**: incur <u>variable cost</u>

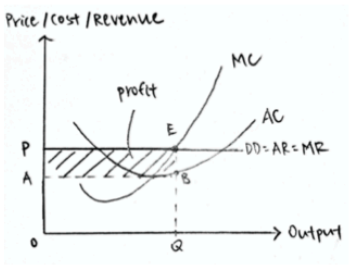
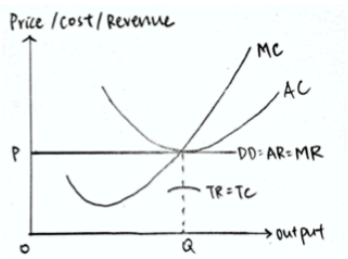
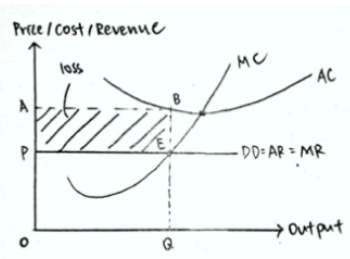
Therefore, if firm's <u>AR < AVC</u>, it will / should shut down and cease production. However, in **LR**, firm will <u>exit industry if TR < TC or AR < ATC</u>.

 **Figure 8: A perfectly competitive firm making subnormal profits (AR > AVC)**	With reference to fig 8, since AR > AVC, the firm actually loses less by producing. If firm continues production, will lose area P_0CAE which is smaller compared to area FCAE (fixed cost).
 **Figure 9: A perfectly competitive firm making subnormal profits (AR < AVC)**	With reference to fig 9, since AR < AVC, the firm actually loses more by producing. If firm continues production, will lose area P_0CAE which is larger compared to area FCAB (fixed cost).

[1] Normal profit is the <u>minimum amount</u> that must be made to <u>persuade owner to stay in current industry</u>.

Profits of PC firm:

In the SR, PC firm can earn:

Supernormal Profits (TR > TC)	Normal Profits (TR = TC)	Subnormal Profits (TR < TC)
		
Profit maximisation: E (MC = MR) TR = OPEQ TC = OABQ Supernormal profits = APEB	Profit maximisation: E (MC = MR) TR = TC = OPEQ	Profit maximisation: E (MC = MR) TR = OPEQ TC = OABQ Subnormal profits = PABE

Adjustment to LR eqm (supernormal to normal profits):

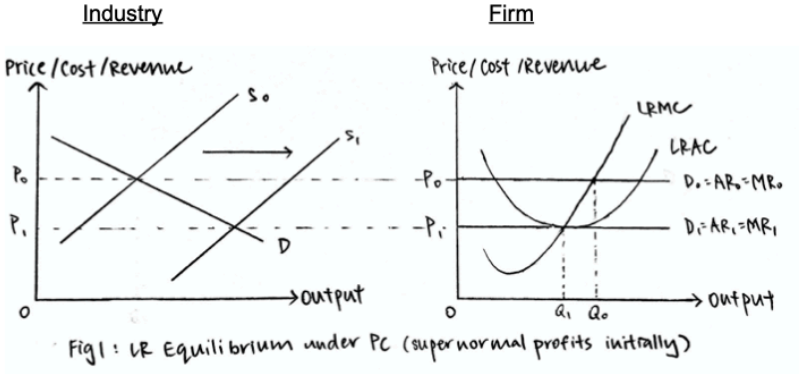


Fig 1 : LR Equilibrium under PC (supernormal profits initially)

- Fig 1 shows the LR adjustment of a PC firm which is initially earning supernormal profits at price P_0.
- Since there is free entry and exit into the PC industry, new firms will be attracted by the supernormal profits and reallocate resources to enter industry
- This increases market SS from S_0 to S_1. If DD remains unchanged, the equilibrium price falls from P_0 to P_1, eroding supernormal profits until all firms only earn normal profits in LR

If PC firm is making normal profits in SR, normal profits will continue to be made in LR.

Adjustment to LR eqm (subnormal to normal profits):

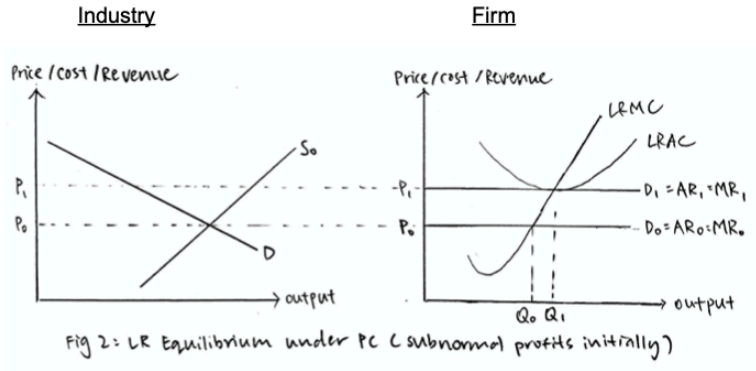
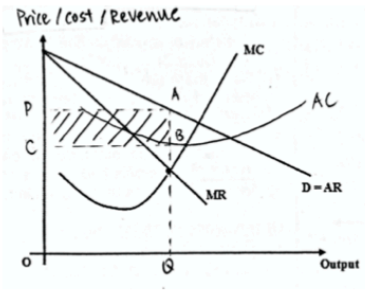
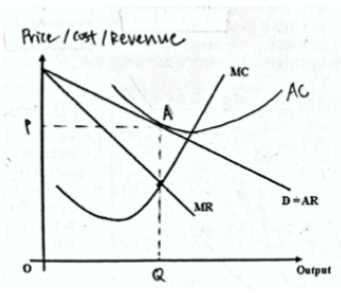
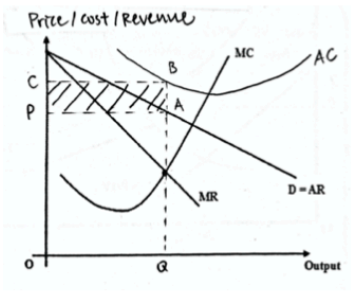


Fig 2: LR Equilibrium under PC (subnormal profits initially)

- Fig 1 shows the LR adjustment of a PC firm which is initially earning subnormal profits at price P_0.
- Since there is free entry and exit into the PC industry, some existing firms leave the industry and no new firms enter to reallocate resources to more profitable industries
- This decreases SS from S_0 to S_1. If DD remains unchanged, equilibrium price increases from P_0 to P_1
- When all firms make only normal profits, there is no incentive for new firms to enter

Profits of MC firm:

Short run:

Supernormal Profits (TR > TC)	**Normal Profits (TR = TC)**	**Subnormal Profits (TR < TC)**
		
TR = OPAQ TC = OCBQ	TR = TC = OPAQ	TR = OPAQ TC = PCBA

Adjustment to LR eqm (supernormal to normal profits):

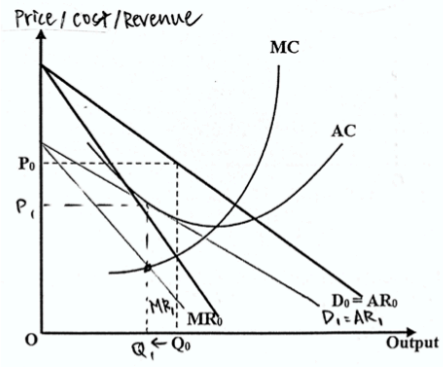


Fig 1: LR equilibrium of a MC firm

- With reference to fig 1, MC firm makes supernormal profits initially in SR.
- Due to low BTE, other firms are attracted to enter industry, resulting in an increase in number of firms
- Assuming no change in market DD for the product, this diverts market share away from an existing firm, depicted by a shift in the firm's DD from D_0 to D_1
- Since there are more substitutes, the DD curve will also become relatively more price elastic
- This adjustment process continues until all firms in the industry only earn normal profits and there is no longer incentive for firms to enter the industry
- * Price and output decreased to P_1 and Q_1 respectively (compared to SR)

If MC firm is making normal profits in SR, normal profits will continue to be made in LR.

Adjustment to LR eqm (subnormal to normal profits):

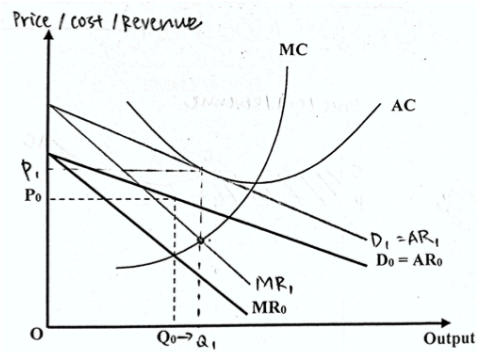


Fig 2: LR equilibrium of MC firm

- With reference to fig 2, MC firm makes subnormal profits initially in SR
- Due to low BTE, the less competitive firms will exit the industry, resulting in a decrease in the number of firms
- Assuming no change in market DD for the product, the remaining firms will experience an increase in demand and market share, depicted by a shift in the firm's DD from from D_0 to D_1
- Since there are fewer substitutes, the DD curve will also become relatively less price elastic
- This adjustment process continues until all firms in the industry only earn normal profits and there is no longer incentive for firms to leave the industry
- * Price and output increased to P_1 and Q_1 respectively (compared to SR)

Product Differentiation

Since PC/ MC firms can only make normal profits in the LR, they tend to avoid price competition and instead engage in nonprice competition strategies through product differentiation, as they do not have much reserves to lower cost.

Threat of competition may force firms to innovate (M/ Oli[2]) to improve pdt quality and raise BTE for potential entrants.

Aim:

1. **Change t/p to pdt**: Increase DD, increase P/Q, increase TR
2. **Make product less subs**: DD more px inelastic, allow firm to charge higher prices, increase TR

Means:

1. **Product development**: create real differences in inherent characteristics of pdt/ svc which are different from that of rival firms through
   a. Product quality: function, chemical composition, qly of materials used
   b. Improve svc: operation hours, availability of delivery service, quantity oof service, location of outlet
2. **Product promotion**: create perceived differences through branding and advertisement

Conditions:

1. **Ability** (supernormal profits)
2. **Incentive** (imperfect information)

[2] N.B. Brand proliferation firm flooding the market with multiple brands (many similar ones that seem to compete with each other) to saturate the market, so that any new brand from rival firm would stand low chances of getting attention and succeeding commercially.

(3rd Degree) Price Discrimination (no need to know diagram, rather explanation):

Price discrimination is defined as the practice of charging different consumers different prices for the same product. The different prices must not be due to cost differences.

Objective: Increase Profit

Conditions necessary for price discrimination (answers whether pricing policy can be considered an example of price discrimination):

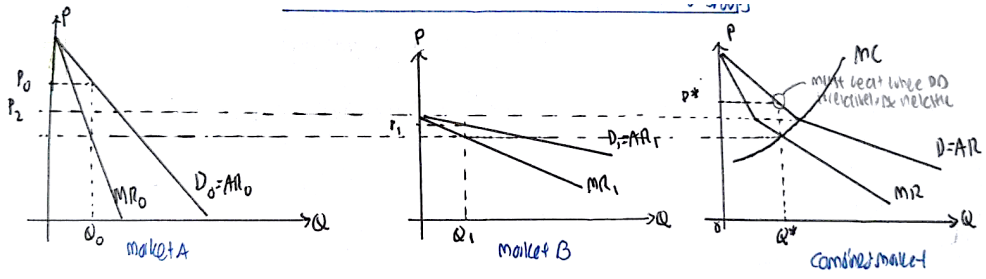
1. **Firm has market power**
   Price setter: consumers **cannot** simply switch to a substitute from rival firm to avoid high prices (explain why in context)

2. **Firm able to segment market**
   Consumers' responsiveness to changes in price (PED) must be **different in each market** (explain why in context) → e.g. travelling can be classified into different time periods: peak periods vs non peak periods

3. **No resale between markets**
   Arbitrage must be prevented: buyers in low-priced market must not be able to resell good to higher priced market → e.g. restrict location gd can be used, pdt warranty tied to customer identity, contractual clauses forbidding resale

Explanation of how it works:

- Firm separates market into two or more groups and charges different prices based on PED
- Increase price for those PED<1 (inelastic) and decrease price for those PED>1 (elastic)



- Demand of firm given by D and is obtained by horizontal summation of D_0 and D_1
- MR obtained in the same manner
- Output level is at Q* where MC = MR
- To know how much of the output is to be divided among the two markets, the monopolist will equate firm's MC with individual MR curves i.e. equate MC with MR_0 and MR_1 in markets A and B respectively
- Based on this, he will sell Q_0 at P_0 in Market A and Q_1 at P_1 in Market B

- As DD for the good is more price inelastic in A, firm discriminates by charging higher price in market A and lower price in B where DD is relatively more price elastic
- If firm does not price discriminate and charges a single price P*, there will be little DD in market B
- If firm price discriminates, can sell in both markets and enjoy higher TR → TC of producing Q* units is the same whether or not there is price discrimination → monopolist's profit has increased with price discrimination.

→ movie theatres charge different prices based on time of consumption and age (availability of close substitutes and proportion of income spent)

→ some theme parks, such as Disneyland, offer residents different prices from nonstate residents (degree of necessity)

→ bus company charges different prices for students, adults, senior citizens (proportion of income spent)

→ airline company sells tickets purchased two weeks in advance for a lower price compared to only a day or two before the flight (degree of necessity)

Impact of Price Discrimination:

1. On producers

- Cost of separating market and preventing resale of good must be less than extra revenue for profitability
- In reality: firms gather info about consumer base via surveys and questionnaires (but sample size may not be representative of whole market)

2. On consumers

a) *Effect on consumer surplus*

- **Price elastic** mkt: **CS increase** as they pay a lower px than if firm charged single px
- **Price inelastic** mkt: **CS decrease** as they pay higher px than if firm charged single px
- **Likely that consumers lose overall** as firms only engage in price discrimination if they can earn more profits (decrease CS)
- However, if monopolist ploughs back profit in terms of innovation and produces **improved products**, then consumers will benefit.

b) *Goods available in more markets*

Profits earned from price discrimination can allow firms to **provide services deemed to be making a loss** → e.g. profits from consumer services allow railway companies to operate lossmaking rural or night services

c) *Others*
   - **Reducing inequalities in SOL**: charging higher income groups more and lower income groups less
   - **Increase tax revenue** of govt when firms that earn higher profits pay more taxes

Possible reasons why particular contexts might NOT be pure price discrimination:

Higher prices during peak periods

- Peak Load Pricing is a pricing strategy that implies price will be set at the highest level during times when demand is at a peak.
- The pricing strategy is an attempt to shift demand to accommodate supply.

Cost differences

→ wages during peak vs. nonpeak periods: wages higher during peak periods (variable costs increase)

→ economy class vs business class in airplanes/ quality of concert seats: more leg room, better meals, high quality seats etc

Product differences

→ concerts: experience derived by audience sitting near stage likely to be very different from those sitting away from the stage

Glossary of EQ

(NO9) A very popular band is due to play one concert at a 5000 capacity venue. The plan is to charge different prices according to the area in which the seat is located. Explain whether this pricing policy could be considered an example of price discrimination (10m).

2 POV (less HOT than 'Discuss whether')

Examiner Comments: Best answers showed good knowledge of price discrimination and were able to apply this knowledge in an analytical manner to the context.

Thesis: Yes, it is an example of PD, b/c it meets the 3 conditions.

Anti-thesis: No, it is not an example of PD, because px diff stems from cost diffs.

Standard conclusion: As such, more info is needed before we can conclude if the pricing policy is PD.

N.B. Question context can be varied for airlines/ train operator/ theme parks but technique to answer is the same

Behavior of Oligopolistic Firms

Price rigidity: Tendency for prices to remain stable and unchanged for an extended period of time as the dominant firms have little incentive to change prices in fear of a price war

Factors allowing for/ preventing collusion:

- Legislation that prohibits cartel unless firms prove its in public interest (e.g. Britian's Restrictive Trade Practices Act)
- Few firms well known to each other → easy to enforce compliance/ agree
- Similar production methods, average cost, likely want to change px at same time by same extent
- Produce similar pdt → easier to agree
- Significant BTE → little fear of disruption by new firm
- Stable mkt → DD / pdt cost don't fluctuate greatly → easy to predict, don't have to amend agreement

Collusive behavior: prevents aggressive competition that affects profits earned

1. Cartel

- A <u>formal collusive agreement</u>, where producers <u>explicitly agree</u> to cooperate in <u>setting prices and o/p levels</u>.
- Condition to work: Enough Pr adhere to agreement and DD sufficiently px inelastic
- Act as a monopoly → capture maximum combined profits → output can be divided based on quota or non-px competition to each member
- Breaks down when firms try to cheat by increasing output to increase profits at the expense of other firms e.g. when business is poor → firms cut price → price wars in SR

2. Dominant firm px leadership theory

- Usually largest firm leads changes, but may be smaller firms also
- Dominant firm estimates its own DD, fix px which maximises profit where MR = MC, other firms follow, producing where MC = this price (also = MR for these firms)
- A way for oligopoly to deal with reluctance to change px due to fear of being undercut/ 'rocking the boat' by signalling when and how much price should change as <u>cost/DD condition change</u>
- Large firm's immense size and efficiency, which could be due to large scale production (substantial EOS) → smaller firms unable to undercut the prices set by price leaders → accepting its leadership

Non-collusive behavior: Kinked DD curve theory

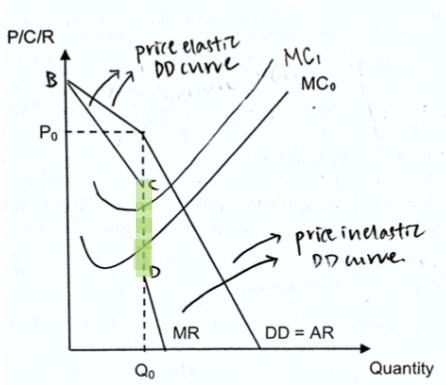


Figure 3: Kinked demand facing the oligopolist

- With reference to fig 3, if the firm raises price above P_0, rival firms will not match it. As such, quantity demanded falls more than proportionately. In short, DD for firm above P_0 is price elastic as consumers turn to cheaper substitutes
- If the firm decreases price below P_0, rival firms will match price drop. As such, quantity demanded increases less than proportionately. In short, DD for firm is more price inelastic below P_0 since oligopolist unable to lure customers away from rivals
- All firms retain market power but gain lower profits than before due to lower prices
- So oligopolist reluctant to change prices → price rigidity: produce at quantity MR=MC to maximise profits → MR curve discontinuous at output Q_0
- In this case, an increase in MC from MC_0 to MC_1 will not lead to a change in qty or price
- MC must vary substantially before output and price change (there'll be a new kink at that px)

Limitations of the Kinked Demand Curve Theory

- Fails to explain why DD curve is kinked at that particular point
- Assumption that competing firms will follow price cuts but not price increase is overly simple
- Price rigidity may be due to other factors
- Prices do ↑ during inflation or recession or affected by global market (e.g. petrol prices ↑ due to ↑ in oil prices)

Theory of Contestable Markets

Some product markets (vs factor markets) will exhibit higher levels of contestability than others. Explain the factors that determine the contestability of the market (10m ≈ 3 pts).

*Key to such comparison questions: **vary the factor**

General structure adopted in the EQ below: Explanation of factor then vary the factor with PEEL and contrasting view

Introduction

In contrast to **actual** competition, contestability focuses more on the **threat** of competition and thus is more applicable to the **monopoly** and **oligopoly** where high BTEs exist. In theory, a perfectly contestable market is one into which entry is absolutely free and exit is absolutely costless. In reality, contestability is a matter of **degree.** As such, any factor that influences the ease of entry/ exit from an industry will affect contestability. 3 factors that determine contestability are: (i) level of sunk cost (ii) accessibility to the same level of tech and (iii) how restrictive BTEs are.

Level of sunk costs

The level of sunk costs affects a firm's decision to enter an industry, thereby affecting how contestable a market will be. Sunk costs are costs that have already been incurred by firms and cannot be recovered even if firms choose to leave the industry. These include expenses on R&D, marketing and physical assets. E.g. spending on machinery specific to an industry constitute sunk costs because these have little/ no resale value outside the industry i.e. cannot easily be transferred for use in another industry.

When sunk costs are high, a market becomes less contestable because this constitutes a BTE which deters potential entrants. In markets such as telecommunications, air and rail transport, or the distribution of electricity, high sunk cost exist in the form of setting up the infrastructure such as electricity cables, generators or buying of trains, airplanes, etc. If firms were to fail and exit these industries, they suffer huge losses because these physical assets are not easily transferrable. As such, these markets tend to be relatively less contestable i.e. lower threat of competition since potential entrants will think twice before entering the market. In contrast, for industries with lower sunk costs, there is more contestability i.e. greater threat of competition since BTEs are significantly reduced.

Accessibility to same level of tech

Having access to the same level of tech required for production directly affects the cost of entering an industry, thereby affecting how contestable a market will be. For entry to be absolutely free, a potential entrant must be able to tap on the best available production technology, without suffering any disadvantage in terms of production technique compared to incumbents. For this to happen, potential entrants must have perfect information of available tech, and also the legal rights to access that tech.

If the same level of tech is accessible to all firms, this reduces entry costs significantly because potential entrants do not need to incur excessive costs to obtain the tech required for pdtn. E.g. in the case of video-on-demand streaming svs, the technology required to stream high quality videos via the Internet to reach millions of customers is widely known. Furthermore, infrastructure needed (such as content delivery networks/ cloud svs) are also readily offered by third party providers. As such, potential entrants who wish to offer video-on-demand streaming will not find themselves disadvantaged against incumbents because they do not need to incur high costs to come up with the tech to stream videos. Such markets will thus be more contestable. In contrast, if the same tech weren't accessible, potential entrants will not be able to contest the market since they have to incur high cost to acquire relevant tech before pdtn takes place.

Nature of BTEs

Besides sunk cost and access to same tech, there exist other BTEs- govt licenses, high capital outlay, branding, economies of scale and control of key resource, etc. As such, the contestability of a market also depends on the ability of potential entrants in overcoming these BTEs. This in turn hinges on how restrictive each type of BTEs are. Generally, BTEs by protected by law or granted by the government (e.g. patents and operating licenses) are the hardest to overcome. This is evident in markets such as telecommunications, bus and rail transport, postal, banking and broadcasting where the number of firms allowed in markets depends crucially on the number of licenses awarded by the government. E.g. without an operating license, potential entrants are not allowed to provide public bus service or set up a bank in SG. That being said, changes in legislation can influence the contestability of the market. in SG's public bus transport market, under the new Bus Contracting Model, the govt owns all bus infrastructure and requires operators to re-tender every 5-7 years for bus routes packages. Doing this results in greater contestability of the market.

In contrast, BTEs such as strong branding are less restrictive and thus easier to overcome. This in turn makes the market more contestable. Traditionally, brand loyalty is established via product differentiation, and this can deter potential entrants since they find it difficult to match the expenditure required to build an equally strong brand name. However, increasingly, in many markets, new entrants can tap on social media platforms (e.g. Instagram) as a low cost advertising medium to build up their brand name too.

N.B. In markets for homogenous pdts, consumers tend not to have strong attachment to branding: circumvent this by focusing on price instead of branding for potential entrants

(Alternatively, explain how tech advancements can make BTEs less restrictive over time: eliminate the need for high capital outlay by matching ppl with resources to ppl with needs such as AirBnB and Grab)

Conclusion

The lower the sunk cost, the more able potential entrants can access the same tech, and the less restrictive the BTEs are, the more contestable the market.

As long as the threat of competition exists, firms will make decisions as if they were in a competitive market.

Hit and Run Competition: If M/ Oli insist on high level of supernormal profit, in perfectly contestable market → incentive for new firms to entire market → increase SS → decrease P to where normal profit is made → firm can then leave industry → M/ Oli will behave as if they existed in PC

Summary Table for Performance of Firms

PACED Criterion	(Pareto) Efficiency		Innovation- Dynamic Efficiency[3]	Equity	Consumer choice
	Productive Efficiency[4]	Allocative Efficiency[5]			
Perfectly Competitive Industry	Capable.	P=AR=MR=MC	Know 2 arguments for and against: survival in intense competition and making supernormal π in SR **vs** normal profits and perfect info	More equitable distribution of income between firm owners/ managers and the rest of society compared to other MS	Homogenous pdt → lack pdt variety
Monopolistically Competitive Industry	Capable, and being competitive prevents firms from being forced out of industry by many other firms	At $\pi\, max, P > MC$.	SR: Ability (if earn supernormal π) and incentive (to avoid being the first few less efficient firms to leave industry in times of subnormal π and for LT survival to earn supernormal π) LR: Less/ no incentive and ability	Only normal profit in LR shared by many MC firms in industry → more equitable distribution of income	Wide range (slightly differentiated pdts) of improved (due to need to create brand name through advertising ensure high qly pdt) products that consumers can enjoy

[3] Dynamic efficiency is defined as the situation where firms are technologically progressive through investing in research and development for the purpose of **product and process innovation** in order to **reduce the average cost of production** and/or to **meet the changing needs and wants of consumers over time** (i.e. generate a wider range and better quality g/s for the market).

[4] Productive efficiency is achieved when a firm chooses the **least cost combination** of inputs to produce the **maximum level** of output possible from those inputs.

[5] Allocative efficiency is achieved when the current combination of goods and services produced and consumed **maximizes societal welfare**.

Oligopoly	Capable. Yet, typically P(i)E as BTEs restrict the level of competition → lax in cost control	At $\pi\ max, P > MC$.	Know 2 arguments for and against: strong incentive to solely reap rewards of R&D and higher profit, with ability through financial resource **vs** slow innovation from lack of competition in collusive/ entrenched oli	Supernormal profit concentrated in the hands of few dominant producers at expense of consumers who pay higher prices for limited Q of goods	Product differentiation (across firms) and multiple branding (by a firm) → wider range of choices
Monopoly	Capable. Yet, typically produce at pt above LRAC due to complacency from lack of competition → lack incentive to minimize cost → cost control become lax. (raise AC and MC curve)	At $\pi\ max, P > MC$. Greater the market power of monopoly, the greater the ability to restrict o/p and charge higher price, leading to greater deviation from position of AE.	Know 2 arguments for and against: solely enjoy fruit of R&D and higher profit due to strong BTE, contestability in market, decrease c.o.p to increase profit **vs** ability to retain supernormal profit by setting up effective BTE and complacency from lack of comp.	By restricting o/p and charging higher px (compared to PC industry), income is redistributed from Cr to Pr. Profits usually not evenly distributed→ corporate stock ownership tends to be concentrated in the hands of higher income groups/ profits redistributed to top management as bonus Problem depends on **size and degree of market power** of monopoly	No close substitutes → difficult to find alternatives

Allocative efficiency

Conditions for AE:

1. **MSB=MSC**
2. **P=MC**

- Contrast value consumers place on an additional unit of good with the opportunity cost of producing that unit of good → under/ optimal/ over allocation of resource → societal welfare is increased/ decreased by producing that unit of good → that unit of good should/ should not be produced

Productive efficiency

- **Any** point on the LRAC
- All profit driven firms will have incentive to produce on the LRAC curve

Dynamic efficiency

Condition:

1. **Ability** to engage in R&D (supernormal profit)
2. **Incentive** to engage in R&D (imperfect information/ supernormal π)

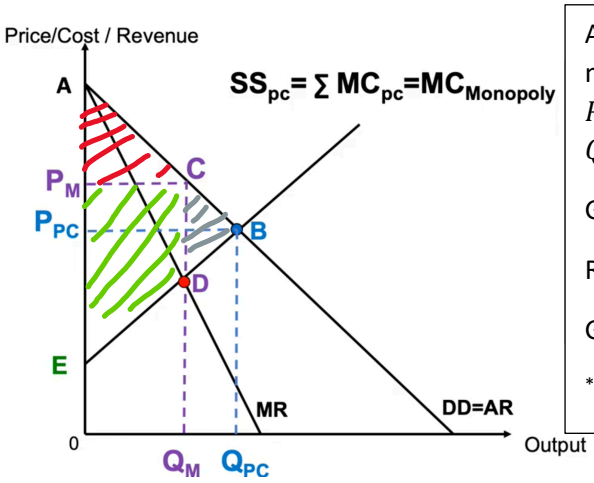
Details: Assessment of Monopolistic Competition

- Excess capacity: As MC firm is not producing at lowest point on LRAC/ MES (when you look at MC diagram for normal profits)
- Wastage of resource: Advertising wastes scarce resource because money is spent to create insignificant or even meaningless differences among products. Also, advertising may simply be psychological, to manipulate tastes and preference and create brand images without real value.

Details: Assessment of Oligopoly

- Wastage of resource: ①Oligopolistic firms engage in more extensive (competitive) advertising than monopoly → waste resource + cost might fall on consumer depending on PED ②Less scope for IEOS due to smaller scale of pdtn.

Details: Assessment of Monopoly



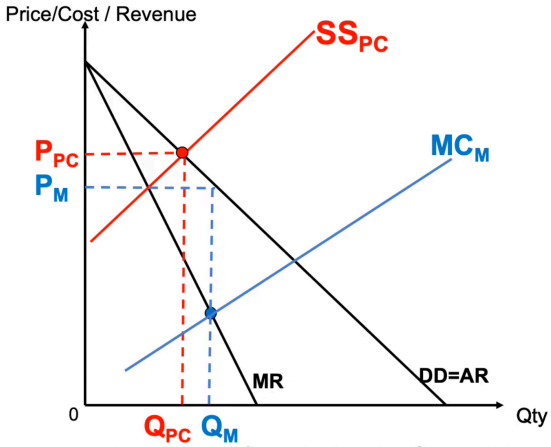
Assuming similar cost conditions, a monopoly charges higher prices $Pm > Ppc$ yet produces lower o/p $Qm < Qpc$ compared to PC industry.

Green: Pr surplus

Red: Cr surplus

Gray: DWL

*contrast with that of PC for effect



Now, assuming IEOS and large MES relative to market DD (i.e. natural monopoly), single firm can supply (more) good to entire market at lower cost and offer consumer a lower price → leads to consumers being better off.

*in this case, monopoly may be preferred over PC

Fig 4: Monopolist enjoying significant EOS

- Innovation on process method → more cost efficient production method → lower c.o.p → produce more o/p with same amt of resource → increase profit
- Innovation (i.e. development of improved products/ more cost efficient pdtn mthd) might improve Cr welfare → pass cost saving to Cr → fall in price
- Improvement in technology leads to greater productive capacity of economy → economic growth in LR

Government Intervention (Market Dominance)

Note that oligopoly and monopoly's dominance is not necessarily bad. It is only bad when they enjoy **excessive market power and there's loss of societal welfare**.

1. Competition Policies (e.g. CCCS)
   - Breaking up monopolies or the impositions of laws to prevent formation of monopolies
   - Prevent anti-competitive practices like agreement among competitors to fix price, undertake predatory pricing, mergers and acquisitions that attempt to drive competitors out of the market

2. Nationalization

	Privatization	Nationalization
Ownership	Private sector	Government
Objective	Profit maximize	Promote social objectives like equity

   - When government takes over ownership and production of a g/s, such as in the case of monopolies which produce g/s that are essential/ of strategic interest → addresses insufficient production and high prices → ensure essential services provided at reasonable price → poor have access to necessities → **promote equity**

3. Lump Sum Taxes

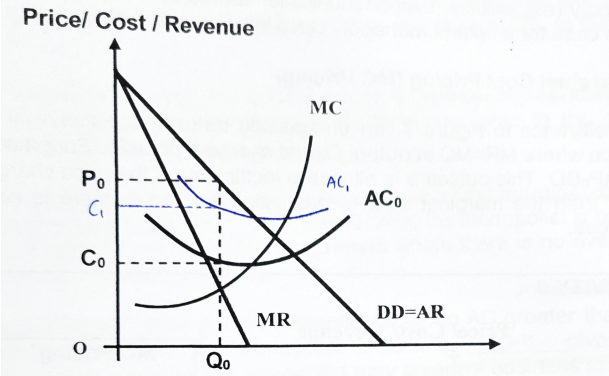


Figure 6: Effects of a lump sum tax on monopolist

   - Lump sum taxes fixed in amount and levied w/o regard to output or revenue of firm → FC.
   - AC curve shift up, MC, MR curve unaffected
   - Reduce excessive (supernormal) profit of monopoly → transfer some supernormal profit from monopolist to government → can then be redistributed to the population → **greater equity**
   - Equilibrium price and quantity unchanged → **consumers do not bear tax burden**

4. Price Regulation: MC Pricing

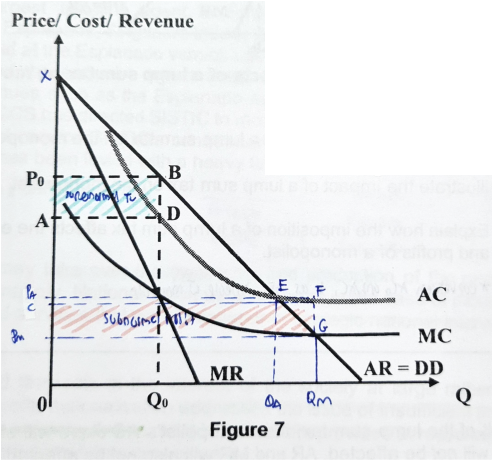


Figure 7

- Monopolist have to set price where DD(AR) cut MC
- **Higher quantity of goods at a lower price → increase consumer surplus**
- As P=MC, **allocative efficiency is achieved**, societal welfare maximized @ producing socially optimal o/p level
- Monopolist incurring **subnormal profit→** require subsidy to stay in business → taxes may have to be raised → tax burden on taxpayers/ forgo public spending in some areas
- Alternative: Two-part tariff which consists of a per unit charge to cover its marginal cost and a substantial fixed charge to cover the rest so firm can make normal profit. BUT, if fixed charge is high, some consumers will not be able to afford the g/s.

5. Price Regulation: AC Pricing
   - Monopolist will have to set price where DD(AR) cut AC
   - **Higher quantity of goods at a lower price → increase consumer surplus**
   - As $P \neq (but\ exceeds)$ MC, **allocative efficiency is not achieved**, societal welfare not maximized @ not socially optimal o/p level, under-allocation of resources
   - **Normal profits** enable monopolist to continue production in LR and **more equitable distribution of income** compared to the case of an unregulated (natural) monopoly
   - Price pegged to cost + monopolist earn normal profit in LR→ **no incentive to minimize cost → productive inefficiency**

N.B. Difficult to accurately estimate revenue and cost curve of monopolist → hard to implement in reality

Evaluation Points

1. Others

- Difficult to accurately estimate MC and MR as firms have insufficient/ imperfect information, DD can fluctuate due to non-px factors (MR/AR=DD), difficult to attach a monetary value to opp cost of producing add ut of gd (MC), and most modern businesses tend to sell a range of pdt while operating in a range of separate markets which makes calculation of MC difficult
- Firms may prefer other objectives besides profit maximising: e.g. market dominance, profit satisficing, sales maximisation

2. Monopoly

- Whether monopoly chooses to undertake R&D depends on degree of contestability of market
- Monopolist may not pass on cost savings to consumers; rational producers want to maximise profits → absorb cost savings to reap higher profits