

ANGLO-CHINESE JUNIOR COLLEGE JC1 Economics

H2

Firms and Decisions (2) MARKET STRUCTURE

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<u>Refer</u>	ence Text (Optional):	
1	Case Fair Oster Principles of Economics Special Edition for ACIC Pearson 2013 Cha	anters 17

- 1. Case, Fair, Oster. <u>Principles of Economics</u>, Special Edition for ACJC, Pearson, 2013. Chapters 12-15.
- 2. John Sloman, <u>Economics</u>, 8th Edition, Prentice Hall. Chapters 6-8.
- 3. Mankiw, Quah & Wilson. <u>Principles of Economics</u>, An Asian Edition, CENGAGE Learning. Chapters 14-17.

WHAT IS THIS TOPIC ABOUT?

In part 1 of this topic, "Firms and Decisions (1) - Production & Cost", we have learned that firms have a chief purpose of maximising profits. However, there are sometimes exceptions due to constraints or alternative objectives. Costs concepts are therefore an essential consideration for firms to achieve their objectives. Moving into the next part of Firms and Decisions, we will learn how firms in different industries face different level of competition, impacting the amount of revenue earned. Optimising both revenue and costs, firms will more likely achieve their overall aim of maximum profit.

In "Firms and Decisions (2) - Market Structure", we will examine the <u>characteristics</u>, the <u>behaviour</u> as well as evaluate the <u>performance of firms</u> in both perfect and imperfect markets. You will learn about these <u>four</u> <u>market structures</u>:

- **Perfect competition** (many small firms, each without market power/dominance)
- Imperfect markets:
 - Monopoly (one firm has huge market power)
 - **Oligopoly** (few big firms dominating the market, each with strong market power but firms are inter-dependent)
 - **Monopolistic competition** (many small firms, each with weak market power)

In understanding and evaluating the behaviour and performance of such firms, the focus will be on the following key questions:

- How do firms determine their equilibrium output and price?
- How do they compete with other firms in the same industry?
- What are the implications of their behaviour from society's point of view?

In evaluating their decisions, you may want to weigh the benefits and costs of their actions, not only to the firms themselves but to consumers, other firms, and the society at large.

LEARNING OUTCOMES

Enduring Understanding:

- The primary aim of firms is to maximise profit.
- The stronger the barriers to entry, the fewer the number of firms, and hence the stronger the market power possessed by existing firms in the industry.
- Firms make decisions by comparing the marginal benefits and marginal costs of their actions.
- The firm's performance is evaluated based its on efficiency and welfare impact on society.
- Where market dominance is present in industries producing essential goods and services, the concerns relating to inefficiency and inequity may prompt government to intervene through public policy measures.

Essential Questions

- Should firms use price or non-price competition strategies to achieve their objective of profit maximisation?
- What are the factors that influence a firms' price and output decision?
- Is it desirable to have more competition in all industries?
- Should government intervene to ensure greater competition?

PRE-LECTURE ACTIVITY

Article 1: The rise of ride-hailing apps

Through thick and thin (waitslines) - Singaporean's enduring love affair with fast food

When American burger joint Shake Shack opened its doors at Jewel Changi Airport in April, Mr Watt Zhong Qing, 29, was one of the first in line. He said that back in 2013, when Filipino fast food chain Jollibee first arrived here, he queued 3.5 hours just for a taste of it. "(It) was worth it," said the food enthusiast, whose affinity with fast food started when he was 10 and his aunt bought him McDonald's Happy Meal, which came with a toy.

These days, long queues could still be spotted whenever new fast food players came to town, as seen recently with the opening of Shake Shack and A&W at Jewel Changi Airport. New flavours introduced by the fast food chains also tend to generate much buzz, with offerings sometimes sold out in just weeks, such as McDonald's Nasi Lemak Burger.

Over the past decades, the major fast food chains have grown expanded rapidly in Singapore. For example, there are now 135 McDonald's outlets and 86 KFC joints scattered across the island. Burger King will be opening its 50th outlet in Singapore in July, its spokesperson said. Based on data from market research firm Euromonitor International, McDonald's had the largest market share (40 per cent) in Singapore last year — way ahead of its closest rival, KFC (13 per cent). In its report, the firm included convenience store chain 7-eleven, which came in jointthird with Subway, with both having 6 per cent of the market share, Next was Burger King (4 per cent), followed by Pizza Hut (3 per cent). The Soup Spoon, Pasta Mania and Long John Silver's each has a market share of about 2 per cent.

Adapted from: The Straits Times, 11 June 2019

Question

Question to consider before lecture:

Given the entry of new fast food chain - Shake Shack, A&W, and Jollibee in Singapore, consider the likely effects on the following economic agents.

- 1. Consumers
- 2. Incumbent firms like McDonald's

1. OBJECTIVES OF FIRMS (RECAP)

This section is a summary of what you have learnt in Firms and Decision (Part 1).

Primary Objective: Profit Maximisation

- **Profit** is the difference between Total Revenue (TR) and Total Cost (TC). Firms can increase profit by either raising total revenue or reducing total cost.
- The primary assumption is that all **firms aim to maximise profit**.
- By the marginal principle, total profit will be maximised at the output level where MR=MC.
- This output level is termed the **firm's equilibrium output** and the corresponding price is the **firm's price**.

Total Revenue (TR)	 Firm's earning from sale of total output Price x Output (P x Q) 	Total Cost (TC)	 Summation of the total fixed cost and total variable cost TC = TFC + TVC TC = AC x output produced
Average Revenue (AR)	 Earning per unit of output <u>Total Revenue (P x Q)</u> Total Output (Q) AR = P 	Average Cost (AC)	 Total cost of production per unit of output AC =AFC+AVC <u>Total Cost (TC)</u> Total Output (Q)
Marginal Revenue (MR)	 Increase in total revenue that results from production of one more unit of output <u>Change in TR (ΔTR)</u> Change in Output (ΔQ) 	Marginal Cost (MC)	 Increase in total cost that results from production of one more unit of output <u>Change in TC (ΔTC)</u> Change in Output (ΔQ)

1.1 REVENUE AND COST CONCEPTS

1.2 PROFIT CONCEPTS

Summary:

Profit	TR and TC relationship
Normal Profit	TR = TC, or TR - TC = 0
Supernormal Profit	TR > TC, or TR - TC > 0
Subnormal Profit (Losses)	TR < TC or TR - TC < 0

2. CHARACTERISTICS OF MARKET STRUCTURES

- There are 4 types of market structure which can be classified broadly into **perfect** (*i.e.* perfect competition) **and imperfect markets** (*i.e.* monopolistic competition, oligopoly and monopoly) based on the level of competition in the markets.
- In perfect completion, competition amongst firms is very high (many firms competing against each other). The level of competition falls as market becomes more imperfect (with fewer firms competing).
- The market structures can be differentiated in terms of the following characteristics:
 - (A) Barriers to entry
 - (B) Number and size of firms in the industry
 - (C) Nature of product (whether products are homogeneous or differentiated)
 - (D) Perfect/Imperfect information and knowledge

2.1 CHARACTERISTICS OF MARKET STRUCTURES

(A) Barriers To Entry

- Barriers to entry refer to restrictions or constraints that make entry of new firms into an industry difficult or impossible. The existence of barriers to entry makes the market less contestable and less competitive.
- The strength of the barriers to entry influences the number and size of firms in the market and hence the market power of each firm.
 - Strong barriers to entry protect incumbent firms by restricting entry of new firms \rightarrow fewer firms in industry \rightarrow presence of few large firms (oligopoly) or in the extreme case, a single firm (monopoly)
 - Absence or weak barriers to entry → many small firms (perfect competition & monopolistic competition)

Types of Barriers to Entry

A1. Cost barriers (economies of scale)

- In the previous set of notes, we described production techniques in which average costs fall with output increases. For example, high start-up or operating costs → existing firms enjoy very large economies of scale → cost savings arising from spreading its cost over a larger output (AC falls) → ability of these firms to price competitively → difficult for new firms to enter and compete with the existing firms.
- In situation where economies of scale are very large relative to overall market size such that cost is minimised with only one firm in the industry, we have a **natural monopoly**, where the cost barriers are the natural barriers for such industry.
 - A natural monopoly is the result of a situation where one firm can supply a market's entire demand (i.e. the whole domestic market) at a price lower than when two or more firms exist in the market.



SLS Lesson: "Characteristics of Market Structures"

- Such firm is likely to be highly capital-intensive with high fixed cost of production. As such, the firm will have large economies of scale, reaching its Minimum Efficient Scale (MES) at a very large output.
- In some essential industries such as water and electricity, the natural monopoly may be state-owned. In Singapore, PUB is a natural monopoly for water supply. Providing water requires laying extensive pipes throughout the country. Having one firm allows the cost of high capital outlay to be spread over a large quantity, resulting in lower average cost.



Figure 1: Cost and revenue curves of natural monopoly

One large-scale plant can produce 100 000 units at an average cost of \$1. If the industry was restructured into two firms, each producing 50 000 units, the industry could produce the same amount, but at a higher average cost of \$2 per unit.

A2. Financial barriers

- Financial barriers refer to the financial resources available as well as the ability to raise funds required for infrastructure, machinery, R&D and advertising.
- Companies which are limited by funds available and are restricted in its financial resources due to its inability to raise funds through selling of shares or saving its profits will find it harder to enter and compete in the industry.

A3. Legal barriers and Government Regulation

- Legal barriers are made by governments to grant exclusive (monopoly) rights to the innovator, ensuring that the firms have sufficient market size and power to recover costs and make profits. These barriers take the form of patents, trademarks, copyrights and licence to operate.
 - Example: A patent is an exclusive right given to a firm to use, sell, or market an invention for a specified period, usually a few years. This may act as an incentive to the firm to innovate, as well as allow it to reap some supernormal profits to cover its research costs.
 - Pharmaceuticals is an example of industry with the use of patents to encourage the discovery of new medical drugs or solutions.

- For telecommunications industry, the licence to operate is used to control the extent of competition in the industry where costs are an important consideration for firms to survive and innovate.
- Governments frequently restrict the entrance of new firms into certain public utilities industries such as electricity, telecommunication services, and garbage collection. The government has national interests in such industries, hence the need to restrict any foreign players entering into such industries.

In such cases, the government hopes that with limited competition, there will be desirable outcomes for the country, such as lower price and ongoing technological improvements that will benefit consumers and the economy (refer to section 5.2 for more details on how a larger firm is better able to achieve dynamic efficiency and charge a lower price).

A4. Anti-Competitive Strategies of incumbent firms

When existing dominant firms adopt strategies to strengthen their market presence and to deter new firms from entering, such deliberate restrictive practices are classified as contrived barriers.

Examples:

- Established firm may adopt **limit pricing** by lowering prices to a level that forces any new entrants to operate at a loss.
- Taking over other potential competitors (such as acquisition).
- Established firm may strengthen brand loyalty through aggressive marketing or product differentiation, making it difficult for new firms to penetrate into the market.
 - If a firm produces a clearly differentiated product, where the consumer associates the product with its brand, it will be very difficult for a new firm to break into that market.

In this case, the problem for new firms is not being unable to produce at lower enough costs, but being unable to produce a product sufficiently attractive to consumers who are loyal to a familiar brand.

 Examples of strong brand image include The Coca-Cola Company, Nescafe and Scotch tape

A5. Access to inputs and markets

- Owning scarce resources, which other firms could use, creates a considerable barrier to entry, such as an airline controlling access to an airport.
- Example: De Beers once had control over almost 90% of rough diamonds worldwide. It was one of the first companies to open mines and had a monopoly power over the diamond harvesting throughout Africa. They also buy diamonds directly from other companies allowing them to hold a huge share of the supply of raw diamonds.

Refer to section 3.5 for more information about limit pricing.

A6. Information Barriers

- Firms may require information before they enter a market. Firms need information about the consumers' preference, knowledge on the production process and source of factor input. The lack of such information may act as a barrier to potential firms wanting to enter the market.
- Producers are concerned about information regarding prices, costs and market conditions. Market conditions include production technology and behaviour of other firms, and behaviour of consumers.
- There are some production processes and technologies that are patented and hence are legally protected and owned by firms. This makes them unavailable to other firms, making it difficult for new firms to enter.
- Technical know-how, trade secrets and secret recipes of food and beverage markets are also examples of information barrier to enter a market.

Think!

How does the development of e-commerce, specifically the use of the internet, lower the barriers to entry in the traditional supermarket industry?

Hint: consider what enables firms such as Redmart compete in the market of groceries with established firms, like NTUC.

(B) Number and Size Of Firms

- There are many small firms in perfectly competitive and monopolistically competitive markets, each having an insignificantly small share of the market. Therefore, the actions of firms in these markets are unlikely to affect its rivals to any great extent. As a result, these firms are relatively independent.
- An oligopoly occurs when just a few firms share a large proportion of the market. While it is possible that there exists many small firms in an oligopolistic market, collectively, these small firms make up only a small proportion of the market. As there are only a few dominant firms in an oligopoly, each firm is affected by it rivals' actions. This implies that each firm has to take into account the action of other firms in an oligopoly. In other words, firms in an oligopoly are mutually dependent, or *interdependent*.
- A monopoly exists when there is only one firm in the market.

C Think!

Recall: Strength of barriers to entry \rightarrow influences the number and size of firms in the market \rightarrow level of competition

How accurate is this feature, 'number of firms', as a gauge of the <u>level of competition</u> and thus the type of market structure?

(C) Nature of Product

- The level of competition in the market is also influenced by the nature of products sold by the firms. When there are many firms selling similar products, there will be many substitutes available, thus the level of competition is high.
- Hence firms differ in terms of whether products sold are homogeneous (perfect substitutes) or differentiated (imperfect substitutes).
- Generally, the level of competition drops as products become more unique. However, there are exceptions such as oligopolies, that can produce either differentiated goods e.g. gaming consoles or homogeneous goods e.g. petrol, and still have a high level of competition.

(D) Imperfect Information / Knowledge

- Consumers are primarily concerned about information regarding price, quality and availability of the product.
- Where information pertaining to market conditions, such as type of products sold and price set, is known by all sellers and buyers (i.e. presence of perfect information), the market tends to be highly competitive e.g. online retailing.
- On the other hand, where information is imperfect between buyers, as well as between buyers and sellers, there exists differing prices and the market tends to be less competitive.

2.2 TYPES OF MARKET STRUCTURES AND THEIR CHARACTERISTICS

The characteristics of market structures determines the extent of a firm's market power within the industry it operates in.



	Perfect Competition	Monopolistic Competition	Oligopoly	Monopoly
Nature of product	Homogeneous products (perfect substitutes)	Slightly differentiated products	Homogenous products or extensively differentiated products	Product has few and poor or no substitutes
Imperfect information	Perfect information Producers are fully aware of prices, costs & market opportunities (incl. production technology and behaviours of		Imperfect Informatic	on
	and behaviours of other firms).		5	



- PC model predicts the efficiency outcomes (welfare effects) if the conditions assumed are present (this will be explained later on).
- It acts as a useful benchmark for the study of imperfect markets which are more representative of the real world.
- Market dominance is a source of market failure. The PC model is useful as a yardstick when considering government intervention to deal with this market failure.

2.3 DIFFERENCES BETWEEN PERFECT AND IMPERFECT MARKETS

2.3.1 Differences in market power

The discriminating characteristic between 'perfect' and 'imperfect' markets is the presence and strength of barriers to entry. The weaker the barriers to entry, the weaker the <u>market power</u> i.e. whether firms have the **ability to influence prices** of their goods.

- Perfectly competitive firms are the only ones described to being perfect market, having no barriers to entry and selling identical or homogeneous products, hence, **no market power to influence price**. It has to take the prevailing price given by the market, determined by forces of demand and supply.
- Firms in imperfect market, vary in their strength of barriers to entry, hence, vary in their ability to influence price (or output), with monopolistically competitive firms having the weakest barriers to entry hence, least market power and monopoly, with the strongest barriers of entry, hence, single dominant firm, having absolute market power to set prices or output.



SLS Lesson: "Perfectly vs Imperfectly Competitive Market Structures"

Perfect Markets	Imperfect Markets
• Firms do not possess market power.	• Firms possess <u>market power</u> and the extent of market power can vary, depending on the strength of barriers to entry.
	• Imperfect markets vary in the extent of market power, with
	 Monopolistic competition having the weakest market power.
	 Oligopoly having strong market power but not as strong as the monopoly.
	 Monopoly having the strongest market power.
• Firms are <u>price takers</u> . They have no power to influence the price. They have to take the price determined by market forces of demand and supply.	• Firms are <u>price setters</u> , i.e. have the ability to set own price through their control over their output
• At the prevailing price, they can sell unlimited quantity within their capacity.	• Firms can influence either price <u>or</u> quantity but not both, due to the downward sloping nature of the demand curve facing them.

Think! Can a bakery such as BreadTalk increase the price of its French loaves? Why?

Should a farmer selling his cabbages in a farmers' market increase the price of his cabbage? Why?

2.3.2 Differences in revenue curves

Revenue curves of firms in perfect market

Total, average and marginal revenue schedules of a perfectly competitive firm (price taker). *Refer to 1.1 for the revenue concepts*.

QUANTITY	PRICE	TR	AR	MR
1	8	8	8	8
2	8	16	8	8
3	8	24	8	8
4	8	32	8	8
5	8	40	8	8





Average revenue (AR) defined as revenue per unit of output is the same as the demand curve for the firm's product. In a perfectly competitive market, the firm's demand curve is perfectly price elastic and is equal to the marginal revenue (MR). Due to it being a small firm in a market consisting of numerous other small firms selling completely homogeneous products, it has no market power and has to take the price determined by the market.



Revenue curves of firms in imperfect markets

Total, average and marginal revenue schedules of an imperfectly competitive firm. *Refer to Section 1.1 for the revenue concepts.*

QUANTITY	PRICE	TR	AR	MR
1	8	8	8	8
2	7	14	7	6
3	6	18	6	4
4	5	20	5	2
5	4	20	4	0
6	3	18	3	-2





An imperfectly competitive firm has the market power to influence either the price or quantity sold. With a downward sloping demand curve, it still has to lower price to increase quantity sold. Its AR curve which is its demand curve is downward sloping and becomes more price inelastic as market power increases. The MR curve is downward sloping but is lower than the AR curve.

Answer the following questions:

- Why do you think the AR curve is above the MR curve?
 - Which market structure do you think has the steepest AR curve?

2.4 LEVEL OF COMPETITION

Measure of Level of Competition: Market Concentration Ratio

We can get some indication of how competitive a market is by observing the number of firms: the more the number of firms, the more competitive the market would seem to be. However, this does not tell us anything about <u>how concentrated the market might be</u>. For example, there may be many firms in the market (suggesting a situation of perfect competition or monopolistic competition), but the largest two firms might produce 95% of total market output; this makes these two firms more like oligopolists, hence the level of competition in such a market can be considered very low or oligopolistic.

In any market, a large number of producers may make the market seem highly competitive, is could be deceiving. Hence an alternative measure to level of competition is to focus on the measure of <u>market</u> <u>concentration of firms.</u>

- Market concentration measures the extent to which an industry's output is dominated by a number of firms and can be used to measure the level of competition in an industry. It is quantified using a concentration ratio, that is, the percentage of total sales, revenue or production accounted for by the firms in an industry.
- Example: The simplest measure of concentration ratio involves adding together the market share of the largest firms, for example, 3 or 5. This is known as 3-firm or 5-firm concentration ratio; it refers to the percentage of total sales, revenue or production accounted for by the three or five largest firms in the industry.
- Although there is no definitive 'rule' about what ratio constitutes an oligopoly, a 3-firm concentration ratio of over 60% would indicate a highly oligopolistic market.



Key ideas from Sections 1 & 2

- 1. Firms in all market structures are assumed to aim for profit maximisation.
- 2. The ease of entry into an industry (whether there are barriers to entry) determines the strength of the market power and the extent of competition in an industry, hence the market structure.
- **3.** Perfect competition and monopoly are extreme ends in the market structure spectrum in terms of market power firms in perfectly competition have no market power while monopoly possesses very strong market power.
- **4.** Although there are many small firms in monopolistic competition, each firm has some weak market power due to product differentiation.
- 5. Oligopolistic firms each have strong market power but the presence of a few big firms makes them interdependent in their business decisions and behaviour.

3. BEHAVIOUR OF FIRMS I: PRICE AND OUTPUT DECISIONS AND TYPES OF PROFITS

By understanding the industry's characteristics, we would be able to understand the behaviour of the firms and later on evaluate their performance.



The different characteristics of the market structure that the firms are operating in will influence the price and output decisions made by them. We shall examine their price and output decisions in the short run and long run.

3.1 PROFIT MAXIMISING EQUILIBRIUM

Recall:

- In part 1 of Firms and Decisions, we learnt that **short run** is the time period during which there is at least one fixed factor i.e. the firm's cost is made up of fixed cost and variable cost.
- By the marginal principle, **total profit will be maximised** at the output level **where MR=MC**.
- Equilibrium point shows the output and price where profit is maximum. This output level is termed the **firm's equilibrium output** and the corresponding price is **equilibrium price**.



Note: TC/TR diagram is not in the A level syllabus. It is shown here to help you understand why MC = MR is the profit maximising condition.

	•	At MR>MC \rightarrow marginal profit is positive (distance cd)
\mathbf{Q}_0	•	Above Q_0 , \rightarrow total profit can be increased if output is increased
		(i.e. total profit is still not maximised if firms produce at $Q_0)$
	•	At MR <mc <math="">\rightarrow marginal profit is negative (distance ef)</mc>
0,	•	Below $Q_1 \rightarrow$ losses can be lowered if output is reduced
Q 1		(i.e. total profit is still not maximised if firms produces at
		Q ₁)



SLS Lesson: "Equilibrium Price and Output of a Firm"

	• Profit maximising output is at the level where the distance between TR (point a) and TC (point b) is the largest.
Qe	• Since total profit rises when marginal profit is positive, and falls when marginal profit is negative \rightarrow it must reach a maximum where marginal profit is zero \rightarrow i.e. at the point where MR=MC \rightarrow thus, profit maximisation occurs at the intersection of MR and MC i.e. firms should produce at Q _e if the objective is to maximise profits.
	• The total revenue of the firm is highest when output is at Q _r .
Qr	• As long as marginal revenue is positive, a rise in output will raise total revenue. However, once marginal revenue becomes negative, a rise in output will cause total revenue to fall. The peak of the TR curve will be where $MR = 0$. This occurs at Q_r .
	• Note that profit maximising output is different from the output where total revenue is the highest $(Q_e \neq Q_r)$.

3.2 TYPES OF PROFITS

3.2.1 Types of Profits of Firms in the Short Run

The types of profits (supernormal, normal, subnormal) experienced by firms is an outcome of firms' decisions. In turn, the types of profits will determine the survival of the firm in the short run and long run.

At the firm's profit maximising equilibrium output, firms in all market structures (perfectly competitive, monopoly, monopolistically competitive or oligopoly) can earn any of the 3 profit types of profits in the short run (normal/supernormal/subnormal).

This section will cover the diagrammatic representation of the 3 different types of profits for both perfect and imperfect markets, as well as firms' decision whether to shut down in the short run.

SLS

SLS Lesson: "Types of Profit and Profit Determination"

A. Supernormal Profits (AR>AC)



Both perfect and imperfectly competitive firms (monopoly, monopolistically competitive firm and oligopoly) maximise profit at the point when MC = MR.

When a firm maximises its profit, firm's equilibrium output is Q and firm's price is P.

At this equilibrium output, AR > AC (by distance EB). The firms are earning supernormal profit.

Total Revenue (TR)	 = Price x Output = Average Revenue (AR) x Output = OP x OQ = area OPEQ 	
Total Cost (TC)	= Average Cost (AC) x Output = OC x OQ = area OCBQ	
Economic Profit	= Total Revenue (AR) - Total Cost (TC) = area OPEQ - area OCBQ = area PEBC (supernormal profit)	
Supernormal profit earned as AR > AC, therefore TR > TC at Q.		

B. Normal Profit (AR=AC), this is also known as the breakeven level.



Both perfect and imperfectly competitive firms (monopoly, monopolistically competitive firm and oligopoly) maximise profit at the point when MC = MR.

When a firm maximises its profit, firm's equilibrium output is and firm's price is P. At this equilibrium output, AR = AC. The firms are earning normal profit.

Total Revenue (TR)	 = Price x Output = Average Revenue (AR) x Output = OP x OQ = area OPEQ 	
Total Cost (TC)	= Average Cost (AC) x Output = OC x OQ = area OPEQ	
Economic Profit	= Total Revenue (AR) - Total Cost (TC) = zero (normal profit)	
Normal profit earned as $AR = AC$, therefore $TR = TC$ at Q.		

C. Subnormal Profit (AR<AC). This is also known as also known as a loss.



Both perfect and imperfectly competitive firms (monopoly, monopolistically competitive firm and oligopoly) maximise profit at the point when MC = MR.

When a firm maximises its profit, firm's equilibrium output is Q and firm's price is P. At this equilibrium output, AR < AC. The firms are earning subnormal profit.

Total Revenue (TR)	 = Price x Output = Average Revenue (AR) x Output = OP x OQ = area OPEQ 	
Total Cost (TC)	= Average Cost (AC) x Output = OC x OQ = area OCBQ	
Economic Profit	= Total Revenue (TR) - Total Cost (TC) = area OPEQ - area OCBQ = area PEBC (subnormal profits; losses)	
Subnormal profit earned as AR < AC, therefore TR < TC at Q.		



Think!

Should the firm shut down when it earns subnormal profit i.e. making a loss?

Key ideas from Section 3.1.1

- 1. All firms are assumed to aim for profit maximisation.
- 2. To determine a firm's equilibrium output level (i.e. profit maximising), the MR = MC rule is used. The profit maximising (equilibrium) output for all market structures is that where MR = MC.
- 3. Firms will then use the demand curve (AR) to determine the equilibrium price to charge for this equilibrium output level.
- 4. The type of profit earned at equilibrium output level depends on whether AC is greater, equal or less than AR.

3.2.2 Shut-Down Condition in the Short Run

(Note that the explanation below is applicable to <u>all</u> market structures)

When the firm earns subnormal profit, it is making a loss. Will the firm shut down immediately in the short run or continue production?

- An implication of the profit maximising objective of firms is that when firms earn subnormal profit, their immediate aim is to minimise losses.
- To achieve this, firms will weigh the average revenue (or total revenue) against average variable cost (or total variable cost) because whether a firm continues or shut down, it will still incur fixed costs in short run.
- If the firm produces, it will have to incur TVC but if it shuts down, there is no TVC. Hence for a firm <u>to continue producing with a</u> <u>loss, TR should cover TVC</u>.

The decision by firms to produce or shut-down is a behaviour of firms. However, this behaviour is only made after assessing the profitability of firms. That is, a firm only considers shutting down in the short run if it makes subnormal profits, and a firm only decides to shut down if its total revenue < total variable cost.

Also note that a firm may make subnormal profits despite producing at its profit maximisation output where MC = MR. A firm making subnormal profits does not imply that the firm's objective is not one of profit maximisation.







Think!

How would the graphs for the 3 cases look like for a perfectly competitive firm?

3.2.3 Profit level of Firms in the Long Run

- Recall from production and cost lectures, in the long run, existing firms are no longer tied down by fixed costs. All costs incurred are variable costs. To remain in an industry, firms will aim to make <u>at least normal profit</u> (the profit level is equivalent to the next best profit forgone from an alternative industry).
- The long run equilibrium of an industry is the condition when all market adjustments are completed. Firms no longer have the incentive to change their plant size, or enter and exit the industry.
- When firms make supernormal profit in the short run, new firms will be attracted into the industry. However, the different strengths of barriers to entry in the different market structures will lead to different types of profit earned in the long run.

How an	industry	adjusts	from S	R to L	R equi	librium	when S	UPERNO	RMAL
	PRO	FIT is ea	rned by	y the f	^r irm IN	THE SH	IORT RU	N	

	Perfect competition	Monopolistic competition	Oligopoly / Monopoly
Barriers to entry/ Ease of entry and exit Adjustment	Absence of barriers to entry New firms will be able to enter easily Industry supply	Weak barriers to entry New firms will be able to enter relatively easily As there are now more	Strong / Very strong barriers to entry New firms will NOT be able to enter No adjustment as no new
process (incentive to enter the mkt)	increases as firms enter Market equilibrium price & firm's output decreases Supernormal profit is reduced/eroded ↓ Equilibrium price decreases with entry of new firms until it is equal to firm's average cost of production ↓ No incentive of new firms to enter	substitutes available, individual firm's demand will decrease & become more price elastic Individual firm's price and output decreases Supernormal profit is reduced/eroded Demand decreases causing price to fall until Price is equal to firm's average cost of production No incentive of new firms to enter	firms are able to enter the industry to compete for supernormal profits

LR profit	A PC firm will earn <u>normal profit</u> in the long run	A MC firm will earn <u>normal</u> <u>profit</u> in the long run	Oligopolies & monopolies retain their supernormal profit in long run
LR profit (diagram)	Revenue / Cost (\$) P Q Q Output	Revenue/ Cost (\$) P Q Q Q Q Q Q Q Q Q Q	Revenue/ Cost (\$) AC AC Q AR = D Output
	Figure 10a	Figure 10b	Figure 10c

Similarly, when firms make subnormal profit in the short run, firms that are not able to cover their variable cost will leave the industry (zero output).

How <u>an industry adjusts</u> from SR to LR equilibrium when <u>SUBNORMAL</u> profit is earned in the short run

	Perfect competition	Monopolistic competition	Oligopoly / Monopoly
Barriers to entry/ Ease of	Absence of barriers to entry and exit	Weak barriers to entry and exit	Strong / Very strong barriers to entry and exit
entry and exit	Firms will be able to exit (shut down) easily	Firms will be able to exit (shut down) easily	Firms with losses and are not able to cover variable cost in the short run will still have to leave
Adjustment process (incentive to enter the mkt)	Industry supply will decrease; equilibrium price and firm's output increases and subnormal profit is reduced.	Individual firms that are remaining will have a higher and less price elastic demand as there are fewer substitutes available.	Individual firms that are remaining will have higher and more price inelastic demand as there are fewer substitutes available.
	Equilibrium price increases until it is equal to the firm's average cost of production \rightarrow normal profit is earned	Individual firm's price and output increase, until the price is equal to the firm's average cost of production \rightarrow normal profit is earned	Individual firm's price and output increase.
LR profit	A PC firm will earn <u>normal profit</u> in the long run.	A MC firm will earn <u>normal profit</u> in the long run.	An oligopoly or monopoly can <u>earn</u> <u>supernormal or normal</u> <u>profit</u> in the LR.

Key ideas from the whole of Section 3.1

- 1. Firms can earn any of the 3 types of profits (normal / supernormal / subnormal) in **short run**.
- 2. Profit levels provide signals to the movement of resources whether more resources will enter or whether the resources currently used in the industry will leave it.
- 3. For firms to remain in the industry in the **long run**, they must earn either normal profit (which is equal to opportunity cost) or supernormal profit.
- 4. Perfectly competitive and monopolistic competitive firms can only earn normal profit in the **long run**.

3.3 EQUILIBRIUM OF A FIRM WITH IMPERFECT INFORMATION (Cost-plus Pricing)

In reality, firms *do not have perfect information* on their marginal revenue (MR) nor their marginal costs (MC).

Firms may not have full or accurate information of the demand for their goods and services. This may cause firms to have imperfect information of their MR too. Furthermore, firms may also not have full information on the exact variable and marginal costs. Hence, firms may not know the exact output where MR = MC. This also implies that firms may not know the corresponding profit maximising price to set.

In practice, firms may adopt simpler rules-of-thumb pricing models for price and output decisions. A common simple pricing model is *cost-plus pricing* or *mark-up pricing*. Producers simply work out the price by adding a certain percentage (mark-up) for profit on top of its average total costs (average fixed cost + average variable cost).

Price = Average Fixed Cost + Average Variable Cost + profit mark-up

There are several determinants affecting a firm's price when it is using costplus pricing.

- The firm's intended level of profit.
 - Firms with imperfect information may set a target profit, and price their goods to achieve this target. The higher the intended level of profits a firm sets, the higher the mark-up it will likely have to set.
- The level of competition firms face in their industry.
 - Firms in industries with fewer competitors and less competition tend to be able to set a higher mark-up than firms in industries with intense competition.
- Market conditions
 - Higher mark-up in expanding markets (increasing demand) and lower mark-up in contracting markets (decreasing demand)
 - Lower mark-up for firms facing rising costs and constant demand
- Number of products a firm has (multi-product mark-ups)
 - higher mark-up for products that are more profitable



• Lower mark-up for products that are less profitable or new products to ensure price competitiveness

3.4 PRICE AND OUTPUT DECISIONS FOR OLIGOPOLIES

Competition and Collusion:

- Unlike perfect competition, monopoly and monopolistic competition, there is no single or simple set of rules for equilibrium in an oligopolistic market.
- The existence of a few but large firms make each of them highly powerful in influencing market supply or price but they become interdependent in their behaviour and business decisions.
- The pricing and output decision of one firm is often based on its prediction of its rival firms' behaviour.
- The pricing and output decisions in this market may differ according to whether they adopt the collusive or non-collusive behaviour model.
- Due to the high degree of interdependence between firms, oligopolies often experience **price rigidity**.

3.4.1 Competitive / Non-collusive Behaviour

- Oligopolistic firms, having a significant market share of the industry, are large enough for the actions of one firm to affect the profitability of other firms in the industry. This implies firms have a high degree of interdependence, where the action of one firm depends on the prediction or response of the actions of other firms.
- When a firm reduces its price, rivals are likely to follow. This is because goods in an oligopoly tend to be substitutes. The fall in the price of a rival's goods will cause consumers to switch to the cheaper alternative. To prevent the fall in demand for their own goods, all other rivals will reduce their prices too. Hence, the firm faces a **price inelastic demand** curve as the other firms are also selling at lower price. The firm's quantity demanded increases by less than the proportionate decrease in price. The firm's total revenue will decrease. Furthermore, if firms constantly try to lower their prices below their rivals', a price wars may occur, leading to lower revenue and profit for all firms.
- When the firm raises its price, rival firms may not follow. This is because consumers will now switch to the relatively cheaper goods of the rivals. Hence, the firm that original raises its price will face a **price elastic demand**. The rise in price will result in a more than proportionate fall in quantity demanded. The firm's revenue falls.
- Since both increasing and decreasing prices lead to a fall in total revenue, and therefore profits if costs remain constant, oligopolies tend not to engage in price competition. Instead, there is a tendency for prices in oligopolistic markets to be rigid and stable.
- Oligopolies tend to engage in non-price competition between firms in their attempt to maintain or increase market share. For example, big supermarkets like NTUC and GIANT undertake these marketing strategies such as store loyalty cards, home delivery systems, extension of opening hours (24-hour shopping), innovative use of technology for shoppers including self-scanning, and internet shopping services.



SLS Lesson: "Price and Output Decisions for Competitive Oligopolies"

3.4.2 Collusive Behaviour

- The price rigidity or stability in the oligopolistic industry could also be due to collusion among firms. However, collusion is illegal in many countries.
- Collusion is practised usually to avoid price competition between firms. Price fixing is a form of collusion. Through price collusion, firms are in fact acting as a monopoly.
- Firms may also collude by agreeing to produce pre-agreed level of output so that they can collectively influence market price through quantity restriction. This is known as a cartel arrangement.
- The success of such collusion, however, depends on whether members abide by the production quota assigned to each. The following problems in cartels can lead to cheating incidents, i.e. member firms overshooting their quota and under-cutting price illegally.
 - Different cost conditions among members
 - Different objectives among members
 - Product differentiation (e.g. varying grade of the product)

Although collusion is illegal, economists generally agree that it is very rare for oligopolists to set prices independently. An alternative to overt collusion is **tacit collusion**.

3.4.3 Tacit collusion (or price leadership)

- While collusion is illegal, it is very rare for oligopolists to set prices independently. Very often, oligopolistic firms are involved in tacit collusion.
 - Tacit collusion is an unwritten and unspoken understanding through which firms agree to limit their competition.
 - This happens when other firms follow the price changes set by a dominant firm (usually the largest firm or the firm that has been particularly good at assessing changes in demand or cost).
 - The price leader will generally tend to set a price high enough that the least cost-efficient firm in the market may earn some return above the competitive level.
- Firms in an industry are more likely to collude better under these conditions:
 - Presence of few firms and thus no strong threat of new competition (strong barriers to entry).
 - Homogeneous or more similar products
 - o Awareness of production methods and common costs
 - Industry is stable when demand and production costs do not fluctuate wildly. This makes agreement or prediction easier.



SLS Lesson: "Price and Output Decisions for Collusive Oligopolies"

3.5 PRICE AND OUTPUT DECISIONS IN CONTESTABLE MARKETS

Instead of the level of competition (perfect competition, monopolistic competition, oligopoly or monopoly) that determines the price and output level of a firm, the **threat of competition** can also determine the pricing and output level of a firm.

- Markets are considered 'contestable' if new firms can enter and leave without incurring large losses
- Contestable markets are imperfect markets in which there are barriers to entry, but firms still face *potential competition*.

Reasons why markets may be contestable:

- Innovations with fast changing technologies and the potential for change in government policies are some factors that make an industry contestable.
- Disruptive technology and market contestability:
 - Disruptive technology is an innovation that significantly alters the way that consumers, industries, or businesses operate hence allowing them to enter and compete in traditional businesses and industries which were previously seen to be oligopolistic or having low market contestability.
 - Disruptive technologies enable small firms with fewer resources to successfully challenge established incumbent firms. These small (disruptive) firms are usually start-ups that have created a different business model, which is often simple, platform-based and convenient. These firms tend to identify and target overlooked segments, or unmet needs, in a market.
 - Customer preferences and habits are changing due to enabling technologies (such as cheap data plans and mobile devices, high speed data transfers) and disruptive firms see and act on them to seek profits. These disruptive firms thereby pose a major threat to incumbent firms increasing market contestability or making a market more contestable.
 - Examples of disruptive technologies and firms
 - Web-based video streaming technology disrupting Cable TV
 - On-demand viewing (Netflix) has disrupted traditional broadcasting firms like Starhub Cable, Radio and cinema operators increasing the market contestability in this industry.
 - Mobile Ride-hailing platform apps
 - Mobile ride-hailing platforms (Uber, Grab, Gojek) connecting consumers who needs rides with drivers willing to provide them has disrupted traditional taxi operators (street hail and call-to-book-a cab)
 - This technology has increased the market contestability of the ride-hailing industry in Singapore as it is no longer dominated by a few firms large firms, i.e. the traditional taxi service industry

Behaviour of firms in contestable markets:

• The *threat of competition* causes these firms to adopt competitive pricing and behaviour to deter competition, even though there might only be one or very few firms in the industry.



SLS Lesson: "Market Contestability"

- For example, the threat of competition can force a monopoly to be more efficient to be able to charge a lower price (below profit maximisation price) to deter the potential new entrants.
- Limit Pricing
 - **Limit pricing** is the practice where a monopolist or oligopolist set price below the average cost of potential entrants to <u>deter potential entrants</u> <u>from entering the market</u>.
 - The existing firm, being established and producing a larger output, tends to have a lower average cost than potential entrants. The existing firm can set a price <u>lower</u> than the potential entrants' average cost, but still <u>higher</u> than its own average cost. This implies that while firms that practice limit pricing are still making supernormal profits, but they are not maximising their profits (they are not making as much profit as they can).
 - The potential entrant has to set the same price as the existing firm if it wants to compete successful, but doing so will not be profitable. Hence, the potential entrant will not enter the market.
 - Had the potential entrant entered the market, the existing firm would lose some market share and may not continue earning supernormal profits.
 - While limit pricing causes the existing firm to earn lower supernormal profits in the short term, it allows the firm to continue to earn supernormal profits in the long run.



Take note: What are the factors affecting a firm's price and output decision?

We have learnt that firms make price & output decisions based on:

- 1. Firms' costs and revenue (see Section 3.1 & production cost notes)
- 2. Firms' objectives
 - The assumption is that, firms aim to maximise profits and thus will decide prices and outputs when MC = MR
 - Nonetheless, these decisions may differ in the short run, depending on a firm's objectives if it is not profit maximising
 - A firm that seeks to maximise revenue (at MR=0) would set lower prices and produce higher output than a profit-maximising one.
- 3. Mark-up pricing models as in reality, firms do not have information MR and MC.

Other considerations that influence firms' pricing and output decision: (see Sections 3.3 and 3.4)

4. Competitors' actions

- Firms do not make decisions independently but consider their competitors' actions
- Monopolies may not have direct competitors yet; they are mindful of the need to deter the entry of potential rivals
- Monopolistically competitive and especially oligopoly firms which display mutual interdependence would consider the actions and

reactions of rivals in making their pricing and output decisions such as adopting the price set by the dominant rival firm

- 5. Business risks and uncertainty
 - Business risks and uncertainty may include unpredictable fluctuations in demand e.g. due to changes in tastes and preferences, sudden entrance of new rivals or changes in government policies

Such risks and uncertainty may cause a firm to make more cautious decisions such as producing an output level which is lower than the profit-maximising output.

6. Threat of Competition (Market contestability)

• Firms will adopt more competitive (lower) pricing instead of profitmaximising (higher) pricing to deter potential competition

4. BEHAVIOUR OF FIRMS II: STRATEGIES TO INCREASE PROFITS

Most firms aim to maximise profit and also to increase their profits. The firm will have to ensure that it maintains high revenue and low cost. Therefore, firms will have to adopt strategies to increase revenue and lower costs. Each strategy is determined by key considerations such as the firm's objective, its cost conditions and the extent of its market power.

4.1 STRATEGIES TO RAISE REVENUE

4.1.1 Price-Strategies to Raise Revenue

A. Raising / Lowering Prices to Raise Revenue

- The price strategies (of lowering or raising price) adopted by firms to raise or maximise revenue can be guided by the **price elasticity of demand of** their goods and services which is influenced by the level of competition in the markets that the firms operate in
 - When there is a high level of competition, such as those in perfect and monopolistic competition, firms face a price elastic demand for their goods, and may adopt price discounts (i.e. adopt competitive pricing by lowering price) to increase sales revenue.
 - Example: Bakeries tend to give discounts/reduce price to increase total revenue.
 - However, there is a limit as to how much firms can lower their prices. This limit is often determined by the production cost incurred. Firms cannot lower their prices indefinitely as losses will eventually be incurred. Hence this strategy may not be sustainable in the long run.
 - This is especially true for small firms that tend to operate with a higher average cost.
 - When there is a low level of competition, such as those monopolies and oligopolies, firms face a price inelastic demand and have the ability to raise prices (due to their strong market power) to increase their revenue



SLS Lesson: "Price Strategies to Raise Revenue" [Note, however, that some industries dealing with essentials, such as transportation & utilities, may be subjected to government policies on pricing.]

B. Price Discrimination to Raise Revenue

- Price discrimination is a form of pricing strategy that firms adopt to increase their total revenue.
- Price discrimination is the practice of firms <u>charging a different price</u> for the <u>same product</u> and the price difference <u>cannot be explained by</u> <u>differences in costs of production</u>. Firms may charge the same good differently to different groups of customers or different units bought.
- Examples:
 - Doctors charge higher-income patients more than the lower-income patients for same medicine prescriptions.
 - Students pay lower bus fares compared to working adults.
- Firms with market power can adopt price discrimination as they have the ability to determine price. The stronger the market power, the greater the ability to price discriminate.

Necessary conditions for firms to be able to adopt price discrimination

- 1. <u>The firms must be able to set its price</u>. Thus, price discrimination will be possible under imperfect competition where firms are price setters (weak or strong power to set price) but will be impossible under perfect competition where firms are price takers.
- 2. <u>Markets are separable</u>, which means the firm can clearly tell the distinct groups of people to charge different prices to (e.g. through units of purchase, types of consumers, time of consumption, domestic vs export, age of consumers, etc.).
- 3. <u>Differing price elasticity of demand</u> between separated markets (markets with lower price elasticity of demand charged higher price, vice versa.)
- 4. <u>Resale of good between consumers is not possible</u> or the cost of reselling exceeds the price difference. It is generally easier to price discriminate in service industries where resale is not possible.

Third Degree Price Discrimination:

- This is the case where the firm charges different prices in different markets according to the price elasticity of demand in each market.
- Market with less price elastic demand is charged a higher price than a market faced with a more price elastic demand.
- This will enable firms to generate larger total revenue and thus higher profit (compared to charging a single price for all consumers).
- Examples:
 - Airlines, movie theatres and many other industries charge lower price for children and elderly.
 - Airline tickets when booked months earlier are priced lower and lastminute ones are priced higher. Closer to the date and time of the scheduled service, the ticket price tends to be higher as the consumer's demand for a flight becomes more price inelastic in demand. This is because those who booked late often have fewer substitutes for travel

Refer to Annex 1 at the end of the notes to learn about first and second degree price discrimination. to their intended destination, therefore likely to be willing and able to pay a much higher price.

Welfare Implications of Price Discrimination:

Firm's decision to price discriminate can influence their profit levels and the business strategies, impacting efficiency and equity.

• Undesirable effects

- There is an absorption of consumer surplus by firm, resulting in a lower consumer surplus enjoyed. This is because some consumers are now charged a higher price which reduces their consumer surplus and allows the firm to earn more revenue.
- Firms may be using a predatory pricing strategy, by charging a lower price to some consumers and making subnormal profit in a market to drive out competitors. The firm will charge a higher price when their competitor has exited the market.

• Desirable effects:

- Output is increased and higher consumption level is made possible.
 - Output under a price-discriminating firm is generally higher and closer to the allocative efficient output than a single-price firm.
 - Price discrimination allows consumers from lower income groups to consume a good or service which they could otherwise not afford.
 - Example: The charging of lower transport fares for students and retirees have a positive impact on welfare of lower-income individuals.
- The extra revenue/profit earned by the firm is reinvested and ultimately benefits consumers through lower price and greater variety.
 - Example: Patented drugs are priced higher in high-income countries so that the firms can sell at cheaper prices in low-income countries. Extra revenue gained can be potentially used for R & D expenditure such as new and expensive medical drugs.
- Firm is able to supply a good which is otherwise not profitable under single pricing.
 - In an industry where the average cost of production is higher than the price consumers are willing and able to pay, the good would not be profitable to produce.
 - However with price discrimination, firms earn a higher level of revenue, making the production of the good profitable.

C. Limit Pricing and Predatory Pricing:

Limit pricing has been covered in the earlier section. Refer to Section 3.5 for more details on limit pricing.

Predatory Pricing:

 Predatory pricing refers to the act where a monopolist or oligopolist sets price below their <u>own</u> average cost to <u>drive competitors out of the</u> <u>market</u>.

- Since price is set below the firm's average cost, a firm practicing predatory pricing will make a loss in the short run.
- However, once competitors leave the market, the firm will gain a larger market share, which implies a higher demand for its good / service, which then allows it to raise its price and earn higher supernormal profits. Predatory pricing is illegal in most countries.

Comparison of Limit Pricing and Predatory Pricing:

Limit Pricing	Predatory Pricing	
Objective: Prevent entry of potential competitors into the market	Objective: Drive out competitors from the market	
Incumbent firm does not make a loss, but may earn less profits.	Incumbent firm makes a loss in the short term.	
When successfully implemented, allows the incumbent firm to earn higher profits in the long term.		

Note: While limit and predatory pricing are price strategies, these strategies do not increase revenue or profits in the short run. Instead, they help reduce entrants or drive out rivals so that the demand for the remaining firm will be higher, allowing the remaining firm to achieve a profit maximising output where MC = MR that is higher and charge a higher price. This allows firms to increase revenue and profits in the long run.

4.1.2 Non-Price Strategies to Raise Revenue

- The aim of non-price strategies:
 - increase demand for firm's goods
 - make demand for firm's goods to be more price inelastic
 - reduce positive cross price elasticity of demand between the firm's goods and its competitors (aim to have a positive cross price inelastic demand)
- Firms adopt mainly product differentiation and marketing strategies to raise its revenue.

A. Product Differentiation

- Product differentiation can either be in terms of **real differentiation**, where there are actual differences in the products, or the creation of salience bias for their product, i.e. **imaginary differentiation**, where there might be a preference for a certain product due to perception even though there is no actual difference in products.
- By engaging in product differentiation, firms can change the tastes and preferences for their products favourably, increasing the demand for their products. This allows firms to sell more goods at a higher price, increasing their total revenue.
- Product differentiation also makes the good of a firm more unique and less substitutable (reducing the positive cross price elasticity of demand for the firm's good with competitors' goods). This makes the demand for the good



SLS Lesson: "Non-price Strategies to Raise Revenue"

more price inelastic, which allows firms to increase their total revenue while charging a higher price.

- Example: SIA adopts various non-price strategies such as branding, advertising, providing better services and wider leg space to make its flights an edge above its competitors so that it can maintain higher fares to increase its revenue.
- There are two important types of product differentiation: product development and innovation, and creation of salience bias for the product.

A1 Product Development and Innovation

- To survive and grow, firms seek to develop new or better products in order to create a competitive edge (even if only temporarily). This increases the demand for its product leading to higher revenue and hence profitability. Eventually new or other firms may compete away the economic profit, encouraging firms to again innovate and develop new or better products.
 - Example: other bakeries quickly imitated the "pork floss" bun by BreadTalk and so BreadTalk has been continuously developing a new range of breads/buns.
 - The introduction of the convenience store for the petrol station represents an innovation that is not only copied by competitors, but improved on. For instance, supermarket chain NTUC FairPrice teaming up with ExxonMobil to create "FairPrice Express", a supermarket within the petrol station.
- However, sometimes such "innovation" amounts to little more than changing the appearance of a product in terms of packaging which creates imaginary differences rather than real differences in products.
- The level of competition in the market that a firm operates in affects its ability to undertake product development and innovation. Firms operating in low competition markets (oligopoly and monopoly) will have more accumulated supernormal profits to fund such projects compared to normal profits earned by firms operating in highly competitive (perfect and monopolistic) markets

A2 Creation of salience bias for their product (brand salience)

- Salience bias is tendency to focus on items that are more prominent or emotionally striking and ignore those that are unremarkable, even though this difference is often irrelevant by objective standards
- The most common way to achieve brand salience is by making use of distinctive brand assets that promote attention or create positive memories of a brand to their potential consumers.
- Powerful and aggressive advertisement campaigns can promote attention and create strong awareness and visibility of product to create brand salience (the product is saliently etched in the minds of potential consumers)
- Prominent features:
 - Example: Huawei's sophisticated ultra-vision with a Leica camera system
- Powerful slogans
 - Examples: Nike's "Just Do It", Adidas' "Impossible is Nothing", and Disneyland's "The happiest place on Earth".

- Aggressive advertising campaigns:
 - \circ $\,$ McDonald's create a family feeling about dining at its restaurants.
 - Singapore Airlines (SIA) advertised itself as the first to offer direct flights from Singapore to New York without a need for a stopover, as SIA purchased Airbus 380, an airplane that is in the forefront of flight technology.
 - Netflix's personalised content is salient to consumers, where suggestions are automatically made on shows the consumer may be interested in watching. They also use top-ten lists to grab consumers' attention to help them choose what to watch, amidst all the programmes available.

B. Marketing Strategies

B1 Based on Loss Aversion bias

- There is a tendency for people to experience losses as more painful than the pleasures that result from gains of the same magnitude
- Loss aversion leads to consumers making decisions that avoid losses over achieving equivalent gains
- Use of 'Limited-time' or 'Limited Edition' to create a sense of scarcity that encourages consumers to hurry to commit to a purchase so they would not lose out on the sales offer thus increasing demand for their product
- Lazada Once a month 'only one day' sales 1-1 (1st Jan), 2-2 (2nd Feb), 3-3 (3rd March)...
- Use of countdown timer: 'You have two days left to End of Sales', to create a sense of urgency to purchase so as not to lose the opportunity to benefit from the offer
- B2 Based on Sunk Cost bias
- Consumers will continue an action because of their past decisions (such as usage of time, money or resources) rather than choose something else that will maximise their utility
- Membership programmes:
 - When a customer enrols in a membership program he/she usually pays a fee, to earn special discounts and offers. Having paid this fee a customer in order to make full use of the membership may end up taking offers he/she otherwise would not. The customer wants to make full "use" of the membership fee. Thus increasing demand for the firm's product.
- Leverage sunk cost to boost upselling
 - Once consumers have paid a hefty sum for a firm's product (sunk cost), they can often be persuaded to pay a little more for an upgrade or make additional purchases
 - Consumer electronic brands purchase extended warranty Product Care by Harvey Norman), purchase insurance for the product (Apple Care)
 - Airlines industry pay an extra for priority boarding, more legroom seats, choosing seats or extra baggage weight
- Set users up for sunk cost bias
 - Products that require consumers to invest time and money make it difficult for them to switch brands hence creating a price inelastic demand for their products

- Digital ecosystem
 - These ecosystems offer customers a unified and easy to use system that delivers value through a variety of services, products, and insights.
 - Apple ecosystem seamless integration of Apple products make it difficult for consumers to switch brand after they have invested in a few Apple products. This helps Apple create a price inelastic demand for its product
 - Other digital ecosystems: Samsung, Microsoft, Facebook, Google, Amazon

4.2 STRATEGIES TO REDUCE COSTS

- Through cost-cutting and greater cost-effective strategies, firms can price more competitively and thus strengthen their survival and growth in the industry.
- There are many cost reducing strategies firms can use, and most strategies aim to reduce fixed and / or variable costs. A reduction in fixed costs would reduce only the firm's average cost (AC). A reduction in variable cost would reduce both the firm's marginal (MC) and average cost (AC).
- If total revenue remains constant, a fall in the total cost increases the profit of firms. Also, a lower marginal cost allows firms to sell more goods and at lower price, increasing the firm's competitiveness.
- Examples:
 - Budget airlines lower cost by doing away with printed tickets and meals, having more seats available per plane, and lease planes from airplane manufacturers instead of buying them (this helps to reduce maintenance costs). These measures lower the variable and hence average and marginal cost of production.
 - Some other strategies may include the reducing inefficiencies and wastage in operations, investing in proprietary technology, getting preferential access to raw materials, etc.
 - Innovations such as new processes in business operations or finding ways to use cheaper factor inputs to produce products may also reduce the cost of production.

While details of the above-mentioned cost strategies have been covered previously in *"Firms and Decisions (1) - Production & Cost"*, below are some cost-reducing strategies that firms undertake in an increasingly integrated and globalised world.

4.2.1 Innovation and improved efficiency

- Innovation in terms of product development and quality helps increase the demand and hence revenue for firms. Meanwhile, innovation in terms of processes or methods of production could help firms reduce the cost of production.
- If firms manage to develop a method of production to reduce or eliminate certain fixed factors of production while still maintaining the same product quality and output, the fixed costs would fall. Assuming total revenue and variable costs remain constant, profits would increase.
- If firms can find a way to produce the product with fewer materials, using cheaper materials, or having less wastage, this could reduce their variable costs. A fall in variable cost would also cause marginal cost and average



SLS Lesson: "Strategies to Reduce Cost" costs to fall. Assuming the demand for the good remains constant, the profit maximising output where MC = MR would be higher. If AC falls to a larger extent than price, there would be increase in profits.

4.2.2 Outsourcing

Outsourcing is a contractual relationship where a third party or external organisation takes responsibility of performing all or part of a business/ production function previously done by the firm itself. This external organisation can be in the home country or overseas. Examples include component manufacturing, corporate health services, data processing, call centres, cleaning, machinery maintenance, product development, etc.

Reasons for Outsourcing

- To reduce costs, firms can outsource parts of their final good or a factor input required to produce their final good to vendors who are specialists in their respective areas. Vendors specialising in a particular good are usually able to produce the good or factor input cheaper than if the firm produced it itself. Firms can lower their variable cost, and therefore marginal and average costs through outsourcing.
- Vendors, specialising in the their respective areas, may produce a good at lower cost due to one or more of the following reasons:
 - Vendors may produce a large output of the goods they specialise in, and in doing so are able to reap internal economies of scale for that particular good or factor input.
 - Vendors may own specialised machinery and equipment, or methods of producing the goods they specialise in. This increases their productivity and lower the marginal and average costs required to produce the good or factor input.
- Firms outsource an operational section to an external agent so that they can focus on their core business.
- The firm can take advantage of resources not available internally to improve its competitive edge.
- Outsourcing helps to minimise the adverse impact of business decisions due to a lack of in-depth knowledge of technical options or the inappropriate use of technology.
- Outsourcing allows firms the flexibility to source out work during peak periods. As a result, fixed costs become variable, leading to cost savings and frees up resources for other purposes.
- Outsourcing allows firms to avoid certain agreements with trade unions, especially in sectors with high wages.

4.2.3 Offshoring

Offshoring is when a firm's production is carried out in another country.

Firms tend to offshore certain work production processes to enjoy lower labour and business costs in the other countries. For example, many firms choose to offshore their customer service call centres to other countries which have lower labour cost.

4.2.4 Online Trading (e-commerce) and Costs

This consists primarily of distributing, buying, selling, marketing and servicing of products or services through the internet. E-commerce or online trading saves tremendous costs of production. More specifically, it helps firms cut down on fixed costs such as rental cost e.g. retail space/office space.

4.3 GROWTH STRATEGIES

Size is a relative term. The size of a firm can be measured in terms of market share, number of outlets, profit level and number of workers. Firms aim to expand, through internal and/or external growth, to enjoy revenue and cost benefits. This helps firms to achieve aims such as increased profits or market dominance etc.



4.3.1 <u>Methods of Growth</u>



Types of Mergers and Acquisitions

(This is not within the H2 A-level syllabus but included here for you to better understand and appreciate actual happenings in the real world.)

- Horizontal Integration
 - This occurs when a firm takes over another firm(s) that is producing the same product, and is also at the same stage of production.
 - Example: Disney and 21st Century Fox
- Vertical Integration
 - This occurs when firms in the same industry but at different stages of the production process of a good amalgamate (combining of 2 or more firms).
 - $\circ~$ Can be either backward or forward integration, i.e. with earlier or later stages of production.
 - For instance, Netflix made two content acquisitions in recent years: Millarword, an independent comic publishing company (like Marvel's

comics) and StoryBots, a children's media brand to create 'the next generation of Seasame Street'. Netflix also acquired ABQ Studios, a production studio in New Mexico, to ramp up the production of original series.

Lateral Integration and Conglomeration

- Combination of vertical and horizontal integration.
- Sometimes, concentration on one product may make a firm vulnerable to a change in tastes and preferences, a switch in government policy or a recession. Thus the firm diversifies, often by taking over other firms producing completely different products. When a firm increases the range of related products at the same level of production, it is called lateral integration.
- Large firms that have grown through lateral integration into highly diversified companies are known as conglomerates.
- The new era of conglomerates Digital Conglomerates
 - For instance, Alphabet-owned Google, which over the years has bought the likes of Android, YouTube, DoubleClick, Waze and Nest Labs. Moving forward, Alphabet's experimental businesses span life sciences, self-driving cars, internet services provided via fibre or balloons, and more.

Article 2: Disney buys 21st Century Fox for \$71 billion

The Walt Disney Company has closed its \$71 billion acquisition of 21st Century Fox. As part of *the* deal, Disney will absorb the Fox film and TV studios, the FX networks, National Geographic and the Indian TV giant Star India in a huge boost to its content which will create a media behemoth of unprecedented scale. The move also instantly cut the number of major Hollywood studios, ending the era of the "Big Six". Warner Bros, Universal, Sony Pictures and Paramount Pictures now make up a Big Five with Disney.

Disney also has plans to launch its new streaming service Disney Plus later this year as it challenges Netflix for future audience share. Before the takeover, Disney already boasted a fearsome catalogue of content, including its classic cartoons, Star Wars and many of the Marvel characters. After purchasing Fox, it will be able to add the likes of X-Men and Deadpool to its portfolio and take on Netflix and Amazon.

The deal also helps Disney further control TV shows and movies from start to finish - from creating the programmes to distributing them though television channels, cinemas, streaming services and other ways people watch entertainment. Disney would get valuable data on customers and their entertainment-viewing habits, which it can then use to sell advertising.

Source: The Guardian, 20 March 2019

- What are some possible factors that led Disney to acquire 21st Century Fox?
- Are mergers always desirable since it brings about higher revenue and lower costs?
- How may consumers or other firms be affected by the decision of two firms to merge?

4.3.2 <u>Reasons for Mergers & Acquisitions (M&A)</u>

Firms may prefer external growth for a variety of reasons. A firm's aim is usually profit maximisation, so M&A is one strategy to reduce its costs and/or increase its revenue, thereby increasing its profits. There might also be specific reasons depending on the type of amalgamation that takes place.

Acquiring existing brand loyalty

- External growth can mean the immediate transfer of existing brand loyalty and goodwill from the other firm. This usually takes time to build and is not immediately available when a firm grows internally.
- In other words, consumer loyalty is also acquired during mergers and acquisitions. This results in less advertising needed and hence lower advertising costs.

Diversification

- External growth is sometimes used as a means of diversifying.
- Diversification of products
 - Diversification provides a firm with a new source of revenue and allows it to spread its risks as losses incurred by one product can be offset by profits earned from another
 - Diversification allows a firm to enjoy economies of scope as costs spent on promoting a firm's brand can be spread over more output if it has a wider range of products e.g. Apple, Samsung, Google, Nestle
 - Note: Economies of Scope refers to the decrease in unit cost (long run average cost) of production as the firm produces a variety of products using similar resources.
- Diversification in production process vertical integration
 - A firm merging with or acquiring another firm in the same industry but at a different stage of production allows for the firm to secure access to retail markets or production inputs
 - Netflix mostly leases studio space around the globe but it opted to purchase Albuquerque Studios to create Netflix original content
 - Netflix has diversified into leasing production studios for independent films, TV or other content producers and also lower its own cost of creating Netflix original content to stream over its platform
 - with the ability to create original content, it also reduces the risk securing content for streaming over its platform
 - Such diversification reduces production risks and costs and provides new sources of revenue and greater economies of scope
- Cost-sharing
 - Amalgamation might be a means of pooling expertise and sharing the costs of R & D expenditure as in the case of electronics firms where such expenses are high.
 - This is particularly appealing to an existing producer when there is a threat of increased competition from abroad.

- **Reaping economies of scale** (refer to "Firms and Decision 1: Production and Cost")
- Market domination
 - One of the most frequent motives for mergers is simply to dominate the market and thus be able to reap the advantage of monopoly power by reducing the number of competitors.

In summary, while firms in imperfect markets do rely on price, cost and non-price strategies, the extent of the use of different strategies depends on the type of market structure, firm's objectives, rival firm's behaviour, the level of business risks & uncertainty and even government's policies.

- With oligopoly firm's size and cost advantages, oligopolists have a greater ability to adopt both price and non-price strategies, engaging in wider range of product innovation & differentiation and large-scale advertising.
- But for monopolistic competition firms, non-price competition is of a more superficial nature e.g. small-scale changes on their packaging or advertising.
- As for monopoly, the possibility of potential rivals entering the industry (if the market is contestable) will incentivise the monopolist to undertake both price and non-price competitive strategies.

Whether a given strategy will successfully increase profits depends on:

- 1. The relative increases between revenue and cost
- 2. How fast the firm's rivals will react / retaliate



Take Note:

In making decisions about business strategies, firms need to consider not only their <u>objectives</u> but also other information such as <u>rivals' action</u> and behaviour, and even <u>government's policies</u> which may add to their <u>business</u> <u>risk and uncertainty</u>.

In analysing firms' competitive strategies, consider the following:

- What are the strengths and constraints faced by the firms?
- What are the benefits and costs of the decision?
- What are the intended and unintended consequences of the decision?
- What could be some internal/ external changes that will require the firms to review their strategies?

Key ideas from Section 4

- 1 As Monopolistically Competitive firms tend to have price elastic demand, price competition may work in their favour. However, their higher AC, due to their small scale of production, will limit their ability to do so.
- 2 Oligopolistic firms have the scale and cost advantage to adopt price competition but due to their interdependence, they tend to avoid doing so to prevent price wars which may hurt firms' profit margin.
- **3** Price discrimination (PD) is a commonly adopted pricing practice in the real world. It is made possible where firms have the market power and

the ability to differentiate their pricing based on units, consumers and markets, although there is no cost basis to explain the discrimination.

4 The main non-price competition strategies for firms are Product differentiation, real or imaginary (brand salience) and marketing strategies based on loss aversion bias and sunk cost bias.

5. PERFORMANCE AND EVALUATION OF MARKET STRUCTURES

The performance of firms is compared and evaluated based on firms' level of profits and their impact on society's welfare. The types of profit firms can earn across different market structure has been covered in section 3.1.2 - 3.1.3. In this section, we will focus on firms' impact on society's welfare.

5.1 KEY CONCEPTS AND CRITERIA

Below are some concepts that will be used to measure the impact of firms on society's welfare.

Note: The firms' impact on society's welfare explains how market dominance can result in market failure. Revisit **Section 2.6** of **"Market Failure and Government Intervention**" after you complete this section.

Allocative efficiency

- A situation where the current level of goods produced and sold maximises society's welfare.
- Condition for Allocative Efficiency: Price = Marginal Cost (P=MC)
- The price (P) that the consumer pays for the good (which reflects his valuation of the good) is equal to the firm's opportunity cost in producing an additional unit of the good, also known as the marginal cost (MC).
- Hence, consumer and producer surplus are maximised.

Productive efficiency

- Occurs when the firm produces at lowest production cost for a chosen output; refers to the optimal combination of inputs to produce maximum output at the minimum cost.
- As the LRAC indicates the lowest average cost of production at every level of output, all firms are productively efficient in the long run as long as their average cost is at a point on their LRAC curve.

Production compared to minimum efficient scale (MES) of production

- MES of production is the output level where LRAC is at its minimum and is shown by the lowest point on the LRAC.
- When a firm is producing at the minimum efficient scale of production, this means that the firm is fully exploiting the scope for internal economies of scale at the current technology, i.e. operating at the best plant size.
- If firm makes normal profit in the long run (the case of Perfect Competition and Monopolistic Competition), this also means that consumers get to pay lowest price possible (as P is equal to minimum LRAC).

Scope of EOS reaped

• Economies of scale are cost savings a firm enjoys when there is an expansion of the scale of production and thus output increases.



SLS Lesson: "Performance and Evaluation of Market Structures" • A firm with a larger scale of production and output would be able to reap a larger scope of EOS.

Dynamic efficiency

- This is associated with *technological advancement* and innovation to reduce average cost of production and meeting the changing needs of consumers over time.
- There are two ways in which dynamic efficiency can be of benefit:
 - Process innovation occurs when new production techniques are applied to an existing product. For example, this is common in the production of motor vehicles with firms constantly looking to develop new methods and production processes to lower cost of production. Process innovation will reduce the long run average cost (LRAC) of the firm.
 - **Product innovation** occurs when firms generate new or improved products. For example, this is common in many consumer product markets, including electronics and communications.

Consumer welfare: price, output and variety

- Firms with market power have the ability to lower the quantity produced in order to charge a higher price, taking away some of the consumer surplus.
- This loss of consumer surplus will be even greater if the firm practices price discrimination.
- Variety of products also matter for consumers' welfare as this affects the choices and range they are able to choose from, finding products that better suit their own tastes and preferences.
- Marketing strategies that leverage on cognitive bias prevent consumers from making rational decisions that maximises their welfare. The more prevalent the use of such marketing strategies, the lower the consumers' welfare.

Impact on other firms

- Strategies taken by existing firms may have negative impact on other firms. For Example:
 - Predatory pricing adopted by an incumbent firm will cause other firms to make losses and leave the market
 - Limit pricing adopted by an incumbent firm will cause potential new firms to charge at a price where they will make losses hence preventing any new firms from entering the market
 - Diversification in products (when successful) will cause other firms to experience a fall in the demand for their product, decreasing their revenue and hence profits or even to the extent of making losses
 - E.g. The introduction of Apple iPhone caused a large decrease in demand for Nokia's phones causing the company to suffer extensive decrease in sales revenue hence large losses
- Successful strategies to increase a firm's demand may also benefit other firms in the following ways:
 - Providing complementary goods or services to it, for example:
 - Addition of a music player to the phone via Bluetooth technology benefitted the headphone and earphone industries
 - Newer versions of mobile devices benefit firms providing accessories for the mobile devices e.g. phone/ tablet covers, screen protectors
 - Firms in the supply-chain for the product will also benefit with higher demand for their products as input for the final product.

Equity

- Firms with some market power are able to exercise market dominance, restricting output to charge a higher price.
- This is inequitable especially if the firm produces essential goods and services, as this reduces accessibility for those less wealthy.
- Also, the high level of supernormal profits earned by the owners of dominant firm means that they will earn a much higher income than fixed wage earners (labour) and small firm owners.

5.2 IMPACT ON SOCIETY'S WELFARE ACROSS MARKET STRUCTURES

	Perfect Market		Imperfect Markets				
	Perfect competition	Monopolistic competition	Oligopoly	Monopoly			
Allocative efficiency	Allocative efficient	M	ore allocative Inefficient				
	price elastic demand,	Allocative inefficient					
	maximisation, MR = MC,	 At firm's equilibrium output Q_M, which competition charge a price greater This means the consumers' value 	than marginal cost (P > MC) ation of the good is greater th	c) c) cer than the additional cost producer			
	its equilibrium price (P) is also equal to its MC	 Output produced is not at the allocative efficient level Firm is under producing & consumer wolfare can be improved with increased produced 					
	(i.e. P = MC).		mer wettare ean be improved w	ner mercased production			
	Pofor to diagrams	• Degree of allocative inefficiency diff above Marginal Cost (P>MC).	ers based on the firms' market	power and ability to set price			
	below (Fig. 13 & 14)	 For a given MC curve: The lower P and MC and thus the more allowed 	the price elasticity of demand, t cative inefficient is the firm	he larger the difference between			
		 Monopolistic competitive firms substitutes. Hence, the difference Monopolistic competitive firms t 	have the least market powe to between price and marginal c end to be least allocative ineffi	er as there are many available cost is not likely to be significant.			
L							









Firm is allocatively inefficient due to presence of market power.

- \circ With profit maximisation, MR=MC, firm's output is at Q_m
- At Q_M , price (P_m) is greater than Marginal Cost $(MC_m) \rightarrow i.e.$ firm is allocative inefficient

Recall in imperfect market where monopoly firm controls the market \rightarrow the monopoly <u>IS the</u> industry.

- Allocative efficient outcome is achieved where market demand (DD) = market supply (SS) allocative efficient output is at Qs & allocative efficient price, Ps
- $\circ~$ There is less output of Q_mQ_s for society and higher price of $P_mP_s.$ Society suffers from a loss of welfare shown by the triangular area, BE_mE_s
- Given the monopoly has a higher ability to set the price above marginal cost (P> MC) than other imperfect firms, it is thus more allocative inefficient than other firms (such as monopolistic competitive & oligopolistic firms) in imperfect markets.

	Perfect competition	Monopolistic competition	Oligopoly	Monopoly	
Productive	Productive efficiency is attainable	e and achieved	Productive efficiency is attainable but may not be achieved		
efficiency	- Given the assumption that firms choose to maximise profit, all firms' long run production can be assumed to be productively efficient.		- Given the assumption that firms choose to maximise profit, all firms' long run production can be assumed to be productively efficient.		
	 Since perfectly competitive and earn <u>normal profits</u> in the long at the lowest cost possible to r Thus they are more likely to ac 	d monopolistic competitive firms run, they are more likely to produce emain profitable. hieve productive efficiency.	 However, oligopolies and monopol supernormal profits in the long run enough, the firms may become co produce at the lowest cost possible achieve productive officiency, over 	ties have a tendency to earn n. If profit levels are high mplacent and may not try to e. Thus, such firms may not pa though it is attainable	
Draduction	Draduces at MES in the long run	Dees not produce at MES (approxim	with excess especitus (see Figures 10b	and 10c)	
compared to MES	 Produces at MES in the long run (see Figure 10a) As PC firms earn normal profit in the long run, this output will correspond to the MES point There is no excess capacity 	 Does not produce at MES (operates with excess capacity) (see Figures 10b and 10c) With market power, it is to the firm's advantage to produce a smaller output in order to charge a higher price However, the firm will <u>not be producing at minimum point of its LRAC</u> (i.e. not producing at MES). Firm is producing with excess capacity i.e. it is not fully utilising all its resources. Some of its resources are left idle as it reduces its output to achieve profit maximising output level Excess capacity refers to the difference in output levels between that of MES and the firm's equilibrium output 			
Scope of EOS enjoyed (see Figure 13)	 Limited EOS The extremely small size of the PC firm does not allow it to enjoy much EOS Thus, although it produces at MES (minimum point of AC), its cost function is far higher than that of larger firms such as oligopolistic or monopolistic firm 	 Limited EOS Monopolistic competitive firms do not produce at MES point but can enjoy some EOS (compared to PC firms) because LRAC will be lower than that for PC firms Lower LRAC curve means lower marginal cost (MC curve), hence higher output Due to limited resources of firms, it is relatively difficult for them to invest and operate at bigger scale 	 Large EC Oligopolies and monopolies have a able to produce larger output → er With higher profits earned, they ar and expand their production furthe Consumers able to enjoy lower price savings are passed to consumers) Extent of EOS depends on how large 	OS greater market share and are njoy greater EOS e also better able to invest er. te and higher output <i>(if cost</i> e the firm is.	

Figure 13: AC curves of the small PC firm and a larger firm Cost					
enjo	oying different economies of sca		LRAC _{PC firm}		
than tha	at of the larger firm, C _{pc} as comp	ared to C $_{large}$. C $_{large}$		LRAC large firm	
			Q1	→ Output	
	Perfect competition	Monopolistic competition	Oligopoly	Monopoly	
Dynamic efficiency	 Dynamically inefficient Assume perfect knowledge in PC market → other firms can easily copy any new products or processes → very little incentive for firms to innovate Earn only normal profits in long run PC firms also do not have funds hence inability to finance innovation 	 Dynamically inefficient Earn normal profits in long run MC firms do not have the funds hence inability to finance innovation Any improvements made tend to be superficial & small scale 	 Dynamically efficient Oligopoly & monopoly firms earn lot Large funds available to undertake sustain market power and fight any dynamically efficient Especially for monopoly, <u>if market</u> from imports or potential new mar to innovate to ward off potential c R&D and innovations are necessary for oligopolies to differentiate their products and sustain market share → thus tend to remain dynamically efficient Oligopolies have both the ability and incentive to be dynamically efficient. 	ong run supernormal profit R&D \rightarrow engage in R&D to γ threat of competition \rightarrow <u>is contestable</u> (e.g. threat ket players), monopoly tend ompetition But if <u>absence of</u> <u>competition</u> \rightarrow monopolies may be complacent and lack the innovation drive \rightarrow dynamic inefficient Monopolies have the ability but may lack the incentive to be dynamically efficient.	

	Perfect competition	Monopolistic competition	Oligopoly	Monopoly
Consumer welfare: Price, consumer surplus & consumption, variety (see Figure 14)	 Referring to Figure 12, PC firms produce at Q_s and charge P_s, which are allocative efficient levels Maximum consumer surplus (area XE_sP_s) is possible as firms produces at P=MC But no variety for consumer choices due to homogenous products 	 MC firms produce lower output and charge a higher price than PC firms because MC firms have stronger market power than PC firms Loss of some consumer surplus due to allocative inefficiency. Lower consumer surplus than in the case of perfect competition But its market power is weaker than oligopolies and monopolies. Consumer surplus is still higher that in those markets Some variety present due to slight product differentiation (can be cosmetic and limited to packaging and services) 	 Oligopoly firms produce lower output and charge a higher price (compared to PC & MC firms) due to oligopolistic firms having stronger market power Loss of consumer surplus (lower consumer surplus than under MC & PC firms) due to allocative inefficiency Good variety & extensive product differentiation (if nature of product allows for it) In the case of differentiated products, firms tend to be innovative & encompass product development (compared to industries in other market structures) 	 Referring to Figure 12, monopolies produce at lower output Q_M & charge a much higher price, P_M → able to do so due to their high market power Loss of consumer surplus due to allocative inefficiency (lowered to area XBPm) No variety for consumers → However if market is contestable, monopoly may engage in R & D to prevent potential firms from entering → thus offer some new products or product development

Key ideas from Section 5.2 (comparison of types of market structure)

- Monopolistic competition & oligopoly are two market structures that rely heavily on both price and non-price competition strategies to achieve their goals.
 - However, with their size and cost advantages, oligopolists have greater ability (resources) to adopt both strategies.
 - Non-price competition in monopolistic competition tends to be of superficial nature, like changing their packaging or small scale advertising. On the other hand, oligopolistic firms will be engaged in a wider range of differentiation and large-scale advertising.
- Oligopolistic and monopolistic firms have large market power/market dominance. Such large market power can lead to complacency and economic inefficiencies, leading to reduced consumer welfare.
- In short, oligopolistic firms (as compared to monopolistic and monopolistically competitive firms) are the most willing and able to engage in activities that would lead to meaningful and significant product differentiation.



In the case where the monopoly firm enjoys much larger economies of scale, its MC

- In the case where the monopoly firm enjoys much larger economies of scale, its MC curve is much lower than the perfectly competitive (PC) firm.
- Thus, the monopolist's equilibrium output (Q_m) is higher than the equilibrium output of the perfectly competitive firm (Q_{PC}) .
- The monopolist's price (P_m) may be lower than the perfectly competitive firm (P_{PC}) . All in all, the consumer surplus may be larger than in the case of monopoly.
- Note however, that this is dependent on how substantial the monopoly's cost advantage is. Only a substantial cost advantage can cause the monopolist's price to be below that of the perfectly competitive industry.
- In addition, we are assuming here that the monopolist is willing to pass on its cost savings to the consumers in the form of reduced prices. In reality, this may not be the case.

Article 3: Why the Grab-Uber Deal is Making Some Uneasy

SINGAPORE – Just weeks after ride-hailing giant Didi Chuxing acquired Uber's business in China in 2016 at US\$35 billion (S\$46.1 billion) – which made it the largest player in the Chinese domestic market, with almost 90 per cent market share. Commuters and drivers found themselves hit in the pocket.

Fares on the Didi Hitch service rose by 20 per cent in Beijing. Customers reported forking out more for the same distance. Didi also reduced its subsidies for drivers in Beijing, with weekend subsidies totally cut. Drivers previously received a 100 yuan (\$\$20.90) bonus for completing 38 rides on Saturdays and Sundays.

It is this exact scenario which regulators and experts in Singapore fear would play out, following Grab's takeover of Uber's South-east Asia operations. The news sent lawmakers scrambling to assess the deal's impact on their markets. Anti-trust watchdogs in Singapore, Malaysia and the Philippines are racing against time to determine if the deal hinders competition.

Under the Competition and Consumer Commission of Singapore (CCCS) proposed measures, Grab and Uber will have to maintain their pre-transaction pricing, pricing policies and product options for commuters.

However, experts added that over-regulating the ride-hailing sector would also quash innovation and kill off start-ups and is a "very delicate balancing act that have to consider".

In Singapore, following the announcement of Uber's sale to Grab, news has emerged that homegrown carpooling service Ryde and Indonesia's Go-Jek are planning to enter the market here. The experts said that while the technological barriers to entry are low, other hurdles stood in the way of potential competitors, including access to drivers. Grab has an army of drivers and new entrants may not be able to readily plug into this pool of drivers due to inertia, resistance or even uncertainty. Enthusing commuters to use another app may also be tough, although experts noted that customer loyalty is very low in the ride-hailing space.

Adapted from: TODAY, 7 April 2018

Questions:

Given the exit of Uber, consider the likely effects on the following economic agents.

- 1. commuters
- 2. traditional taxi operators
- 3. potential new entry firms

To what extent should government intervene in the market?

6. GOVERNMENT INTERVENTION FOR MARKET DOMINANCE

In the previous topic of market failure, we learnt that the government intervenes when the market fail to maximise social welfare. As covered in Section 5, we can see that market dominance can lead to market failure, where firms with market power fail to achieve allocative efficiency.

There are various forms of government intervention meant to monitor and regulate firms' behaviour and business practices for the interest of consumers and the society as a whole.

The following are some possible ways the government can intervene with the intent to regulate a dominant firm's behaviour:

- 1. Regulation:
 - a) **Price Regulation:** allow private monopolies to exist still but with government's regulated prices (examples: privately-owned public utilities; electricity, water) or even use taxes to reduce monopolist's profit
 - b) **Non-price Regulation:** regulation of monopolies by implementing legislations, anti-trust policies, increase market contestability etc.
- **2. Nationalisation/State ownership:** Transfer monopoly power to government (government-owned monopolies)

(Note: The methods of government intervention covered in this section are also used to overcome market failure due to market dominance -Section 2.6 of "Market Failure and Government Intervention")

6.1 GOVERNMENT REGULATION

6.1.1 Price Regulations

In previous topics, we learnt about how governments use price controls in the form of price ceiling and price floors. Governments can also regulate a firm's pricing by requiring them to set prices at marginal cost or at average cost.

The following diagram illustrates a **natural monopoly**. Such firms have a very high MES, and only the downward sloping portion of the AC and MC are illustrated in the diagram.

Refer to Section 2.1 (A1) to recap the concept of natural monopoly.



SLS Lesson: "Government Intervention for Market Dominance"





If the profit maximising natural monopolist is unregulated, it will produce at output level of Q_M and charge a price of P_M .

To regulate the natural monopolist, the government has a few options of pricing policies to impose on the monopolist.

A. Marginal cost (MC) pricing

- **Objective:** ensure firm produces at allocative efficient output level.
- At MC-pricing, the monopolist will have to charge P=MC where price is P_{MC} and produce at output level of Q_{MC}.
- Social optimum is achieved at Q_{MC} , because consumers' marginal benefit from the last unit sold (P) is equal to the marginal cost of producing the last unit (MC).
- <u>Limitations</u>: However, this may mean the firm is making a loss since the natural monopolist's MC is always below AC. (*Try finding the area of the loss by comparing the AC and AR at Q_{MC}*)
- The loss has to be covered in one of the following ways:
 - The government will have to subsidise the firm for this loss.
 - Firms can use a two-part tariff to cover the loss (refer to second degree price discrimination in Annex 1 to learn more).

B. Average cost (AC) pricing

- **Objective:** allow firm to earn normal profit, ensuring firm may still be able to remain in business in the long run.
- At AC-pricing, the monopolist will have to charge P=AC where price is P_{AC} and produce at output level of Q_{AC} .
- Output is higher and price lower compared to unregulated case (where profit maximisation occurs at MR=MC).
- <u>Limitations</u>: However, output is still less than the allocative efficient output and price higher than the MC pricing. There is still a deadweight loss, although smaller than without regulation.

6.1.2 Non-Price Regulation

A. Antitrust and merger regulations

- Most countries in the world have a competition authority to prevent any single firm from dominating a market. This prevents the creation of monopolies and minimises the chance of a firm exploiting market power that is too strong.
- These policies include denying merger between firms that are deemed to lessen competition significantly, and breaking up firms that are deemed too large.
- In Singapore, the Competition and Consumer Commission of Singapore (CCCS) is the branch of the government regulating the competition level of markets. Read the articles below to learn more.

Article 4: Singapore's Market Regulatory Authority: The Competition Commission of Singapore

The Competition Commission of Singapore (CCS) is a statutory body established under the Competition Act on 1 January 2005 to administer and enforce competition in Singapore.

Subject to the provisions of the Act, the functions and duties of the Commission shall be to:

- maintain and enhance efficient market conduct and promote overall productivity, innovation and competitiveness of markets in Singapore;
- eliminate or control practices having adverse effect on competition in Singapore;
- > promote and sustain competition in markets in Singapore;
- promote a strong competitive culture and environment throughout the economy in Singapore;
- act internationally as the national body representative of Singapore in respect of competition matters; and
- advise the Government or other public authority on national needs and policies in respect of competition matters generally.

The Commission will have powers to investigate and adjudicate anticompetitive activities. It will also have the powers to impose sanctions.

Adapted from: https://www.cccs.gov.sg/legislation/competition-act

Article 5: UK Competition Watchdog Blocks Asda- Sainsbury's Merger

The Britain's Competition and Markets Authority (CMA) has blocked the merger of supermarket giant Sainsbury's Walmart-owned Asda after finding it would lead to increased prices in stores, online and at many petrol stations across the United Kingdom, as well as reductions in the quality and range of products available, or a poorer overall shopping experience.

In reaction, Asda and Sainsbury's announced that they have "mutually agreed to terminate the transaction".

However, Sainsbury's chief executive Mike Coupe argued in a statement that the merger sought to "lower prices for consumers", adding that the CMA has ignored "the dynamic and highly competitive nature of the UK grocery market". The merger would have created a supermarket titan bigger than Tesco, with a network of some 2,800 Sainsbury's, Asda and Argos stores.

The deal has fallen through one year after Sainsbury's and Asda unveiled their merger plans, which sought to create a retail king to leapfrog British No. 1 supermarket group Tesco. The CMA said the transaction - which was effectively a takeover bid, with Sainsbury's acquiring a majority 58 per cent stake in the combined group and Walmart the rest - would have resulted in a "substantial lessening of competition" at the national and local levels.

Adapted from: The Straits Times, 26 April 2019

B. Privatisation and Deregulation of markets

- Market liberalisation involves bringing down barriers to entry into industries, making markets more competitive.
- Greater competition will drive firms to be more efficient in production and be more consumer-centred.
- Removal of barriers to entry in certain regulated industries e.g. patents with an expiry date in pharmaceutical industry allow for more firms to enter the industry after the patent expired.
- Allowing foreign firms to operate in local markets will introduce new and dynamic firms into the market increasing the level of competition leading to lower prices, better quality of goods/services, and greater choices for consumers.
- Privatisation of state-owned enterprises will improve profit motivation and the incentives to adopt better technology for greater efficiency.
- Deregulation reduces inefficiencies caused by red-tapes and enable firms to respond quickly to changes in market conditions in the economy.
- Example: Entry of Grab into Singapore's traditional taxi market.

C. Regulating the quality of service

- Governments often also monitor and require a certain quality of service to be provided by firms.
- For example, rail operators are required to conduct regular maintenance of rail lines and trains. They are also required to keep a record of maintenance schedules. These ensure a minimum safety

level and reliability for the railway services. Utility firms are also required to provide gas and electricity reliably throughout the year, and for all households in their region.

6.2 NATIONALISATION/STATE OWNERSHIP

- In extreme case, a government may decide to take over (nationalise) an industry. Usually, in the case of a **natural monopoly** where the **government considers it to be an essential industry**.
- **Objective:** to achieve cost efficiency and raise consumer welfare that provides essential services.
- However, empirical evidence shows that state-run monopolies have suffered from inefficiencies and wastage of resources due to bureaucracy and the lack of incentive to innovate.
- Welfare-oriented pricing also leads to losses and poor quality of service.
- Hence, many governments may be inclined towards privatisation and liberalisation of state-owned monopolies. The pace in developed countries has been faster than that in developing countries.

Learning Reflection

Congratulations! You have finished this lecture topic. However, how much have you understood?

Below are the areas of focus in this topic and a checklist that you may use to know how much you have understood:

	Areas of Focus	What you should be able to do	Check -list
1.	Characteristics of market structures	• Explain and distinguish the characteristics of each market structure.	
		• Explain the different types of barriers to entry.	
		• Explain the difference between price takers and price setters.	
2.	Behaviour of firms 1:	• Explain why the profit maximizing equilibrium price	
	Price and output determination	and quantity for firms is MR = MC.	
	 Types of profit 	and quantity for firms graphically, both for price	
		takers and price setters.	
		• Explain the types of profit price takers can make in the short run and long run.	
		• Explain the types of profit price setters can make in the short run and long run.	
		• Represent the types of profits firms can make graphically.	
		 Explain the shut-down condition for firms in the short 	
		 Explain the condition for firms to enter or exit in the 	
		long run.	
		• Explain non-collusive and collusive behaviour for	
		oligopolies, and how they affect oligopolies'	
		• Define market contestability and explain how it	
		affects firms' strategies to increase profit.	
3.	Behaviour of firms 2:	• Explain how strategies adopted by firms can increase	
	 Strategies to raise 	firms' profits.	
	 Strategies to lower 	 Define price discrimination. Explain the first-degree price discrimination 	
	cost	 Explain the misc-degree price discrimination. Explain the conditions required for firms to price 	
	Growth strategies	discriminate.	
	v c	• Explain the methods of growth for firms.	
4.	Performance and	• Explain how firms with different market power impact	
	evaluation of market	society.	
	suuclures	• Evaluate the desirability of different market structures.	
5.	Government	• Explain how government can use price/non-price	
	Intervention for	regulations or nationalisation to correct market	
	market dominance	failure due to market dominance.	
		• Explain the limitations of each policy.	

ANNEX 1: First and Second Degree Price Discrimination

Aside from third degree price discrimination, firms can also practice first and second degree price discrimination:

First degree price discrimination

- This is also known as perfect price discrimination.
- This type of price discrimination is highly theoretical as it assumes that the firm has perfect knowledge of every consumer's willingness to pay for every subsequent unit of the good.
- The firm separates the whole market into each individual consumer and charges them the maximum price they are willing and able to pay. (Recall: points on the demand curve indicate the maximum prices that consumers are willing to pay for each different quantity)
- Since the price that the consumer pays is the full amount that he is willing to pay, consumer surplus is zero. It is fully absorbed by firm as part of its revenue.
- Example: how auction prices are determined, such as at property or art auctions.
- The equilibrium output sold is where demand = supply, i.e. at P = MC (SS curve) as beyond that, P < MC and thus it is not profitable to produce.
- In this case, the monopolistic firm can produce at the allocative efficient output.

Second degree price discrimination / block pricing

- Also termed as **block pricing** where firm charges different prices for different blocks of quantity.
- Products are sold in packages or blocks. A higher price is charged for the first few units, a lower price for next block of units.
- For instance, \$10 for the first block of 10 units, \$7 for the next block of 10 units. Firm absorbs different amount of consumer surplus at different blocks of quantity and earns higher revenue than if it were to set a flat price for all quantities.
 - Examples: Public utility firms such as those providing electricity or water use block pricing.
- Another type of second degree price discrimination is a **two-part tariff**. This is a pricing scheme where a fixed charge is imposed in addition to a per-unit charge.
 - Examples: telcos that charge a fixed fee monthly on top of the price per unit, and taxis where there is a flag down rate followed by a per km fare.
 - Since the cost of the fixed charge is spread over the quantity consumed, the overall price per unit thus decreases as quantity increases.