

COMPETITIVE & MONOPOLY FIRM PERFORMANCE

OPTIMAL OUTPUT, PRICING AND
MARKET BEHAVIOUR

1. Types of the market structure
2. Perfect competition
3. Pure monopoly
4. Monopolistic competition
5. Oligopoly



Types of the market structure

Market structure is best defined as the organizational and other characteristics of a market. We focus on those characteristics which affect the nature of competition and pricing – but it is important not to place too much emphasis simply on the market share of the existing firms in an industry.

1. Types of the market structure

Traditionally, the most important features of market structure are:

- **The number of firms** (including the scale and extent of foreign competition)
- **The market share of the largest firms** (measured by the concentration ratio)
- **The nature of costs** (including the potential for firms to exploit economies of scale and also the presence of sunk costs which affects market contestability in the long term)



1. Types of the market structure

- **The degree to which the industry is vertically integrated** - vertical integration explains the process by which different stages in production and distribution of a product are under the ownership and control of a single enterprise. A good example of vertical integration is the oil industry, where the major oil companies own the rights to extract from oilfields, they run a fleet of tankers, operate refineries and have control of sales at their own filling stations.
- **The extent of product differentiation** (which affects cross-price elasticity of demand)



1. Types of the market structure

- **The structure of buyers in the industry** (including the possibility of monopsony power)

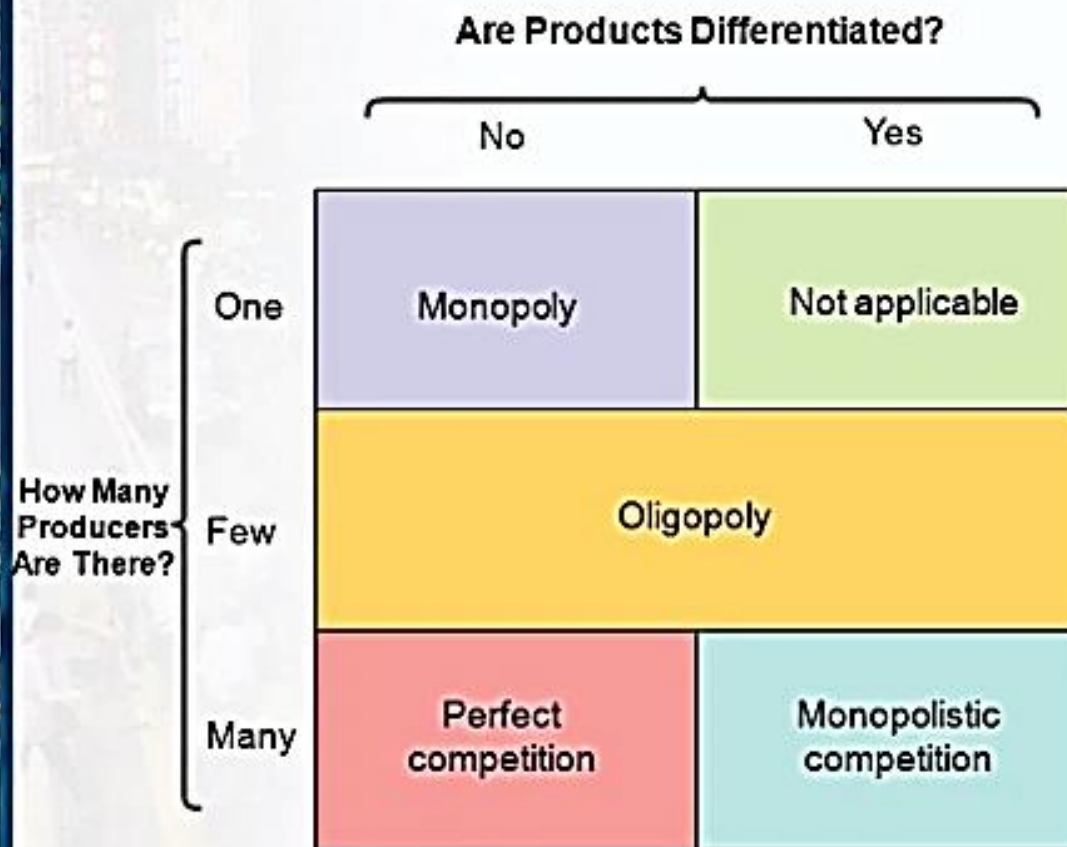


- **The turnover of customers** (sometimes known as "market churn") – i.e. how many customers are prepared to switch their supplier over a given time period when market conditions change. The rate of customer churn is affected by the degree of consumer or brand loyalty and the influence of persuasive advertising and marketing

1. Types of the market structure

- There are quite a few different market structures that can characterize an economy. However, different power of competition reasons four basic types of market structures. Namely perfect competition, monopolistic competition, oligopoly, and monopoly. Each of them has their own set of characteristics and assumptions, which in turn affect the decision making of firms and the profits they can make.
- It is important to note that not all of these market structures actually exist in reality, some of them are just theoretical constructs. Nevertheless, they are of critical importance, because they can illustrate relevant aspects of competition firms' decision making. Hence, they will help you to understand the underlying economic principles.

Types of Market Structure



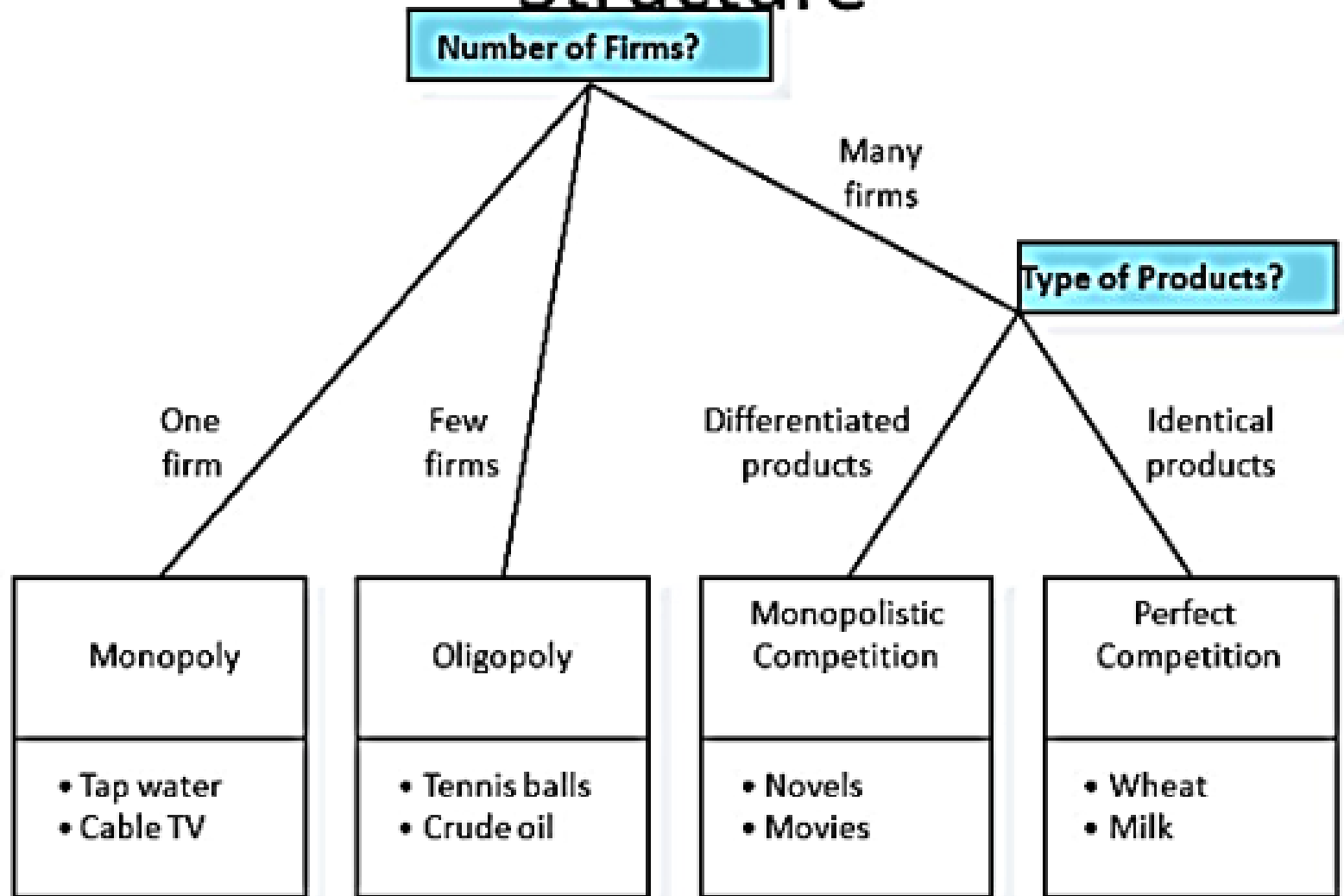
This system of market structures is based on two dimensions:

1) the number of producers in the market (one, few, or many)

2) whether the goods offered are identical or *differentiated*

Differentiated goods are goods that are different but considered somewhat substitutable by consumers (think Coke versus Pepsi).

Figure 1 The Four Types of Market Structure



Characteristics of the Four Market Types	Monopoly	Oligopoly	Monopolistic Competition	Perfect Competition
Number of Firms	One	Few	Many/Several	Very Many
Freedom of entry	Restricted or Blocked	Restricted	Unrestricted	Unrestricted
Nature of product	Unique	Undifferentiated or Differentiated	Differentiated	Homogeneous (undifferentiated)
Implications for demand curve	Downward Sloping, more inelastic than oligopoly	Downward Sloping, relatively inelastic	Downward Sloping, but relatively elastic	Horizontal (price taker)
Average size of firms	Very Large	Large	Small	Small
Possible consumer demand	Highly Inelastic	Inelastic	Elastic	Highly Elastic
Profit making possibility	Economic Profit, short and long run	Losses to normal to economic in short and long run	Economic in short run; normal over long run	Normal
Government intervention	Highly to Nationalization	Moderate to highly	Minimal	Minimal
Example	Canada Post	Computers	<u>Autobody Repair</u>	Beef Producers
Control over Price	Total	Significant	Some	None

Measuring Market Power

- **Concentration ratio:** the proportion of total industry output produced by the largest firms.
 - If the industry produces 1 million products and the four biggest firms produce 700,000 of them, the concentration ratio is 70%.
 - An industry with a concentration ratio above 60% is considered an oligopoly.
 - Examples are beer, soft drinks, batteries, cigarettes, computer printers, Internet browsers, baby food, cereal, and credit cards.

Perfect competition

- Perfect competition describes a market structure, where a large number of small firms compete against each other. In this scenario, a single firm does not have any significant market power. As a result, the industry as a whole produces the socially optimal level of output, because none of the firms have the ability to influence market prices.



Perfect competition

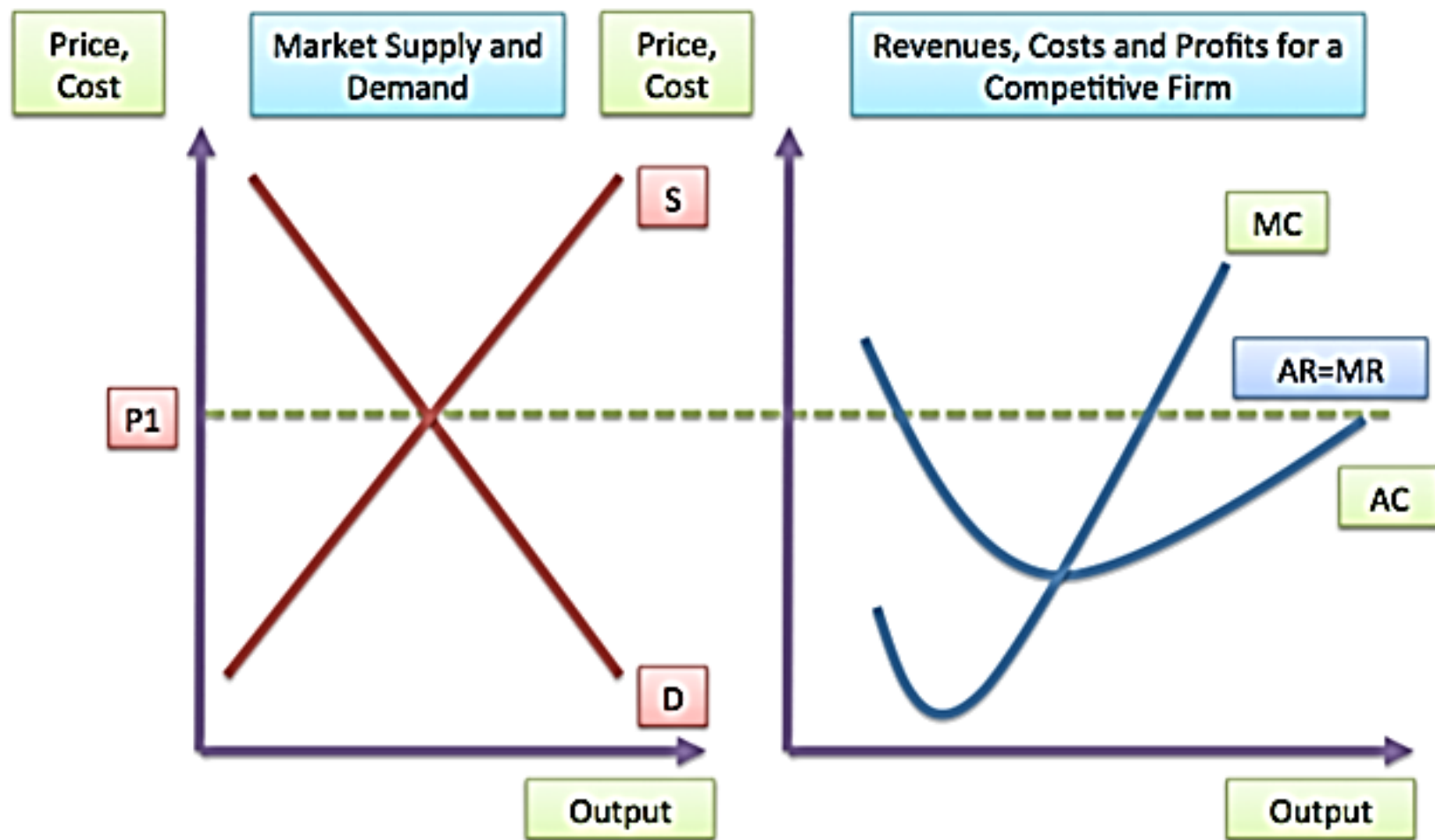
The idea of perfect competition builds on a number of assumptions:

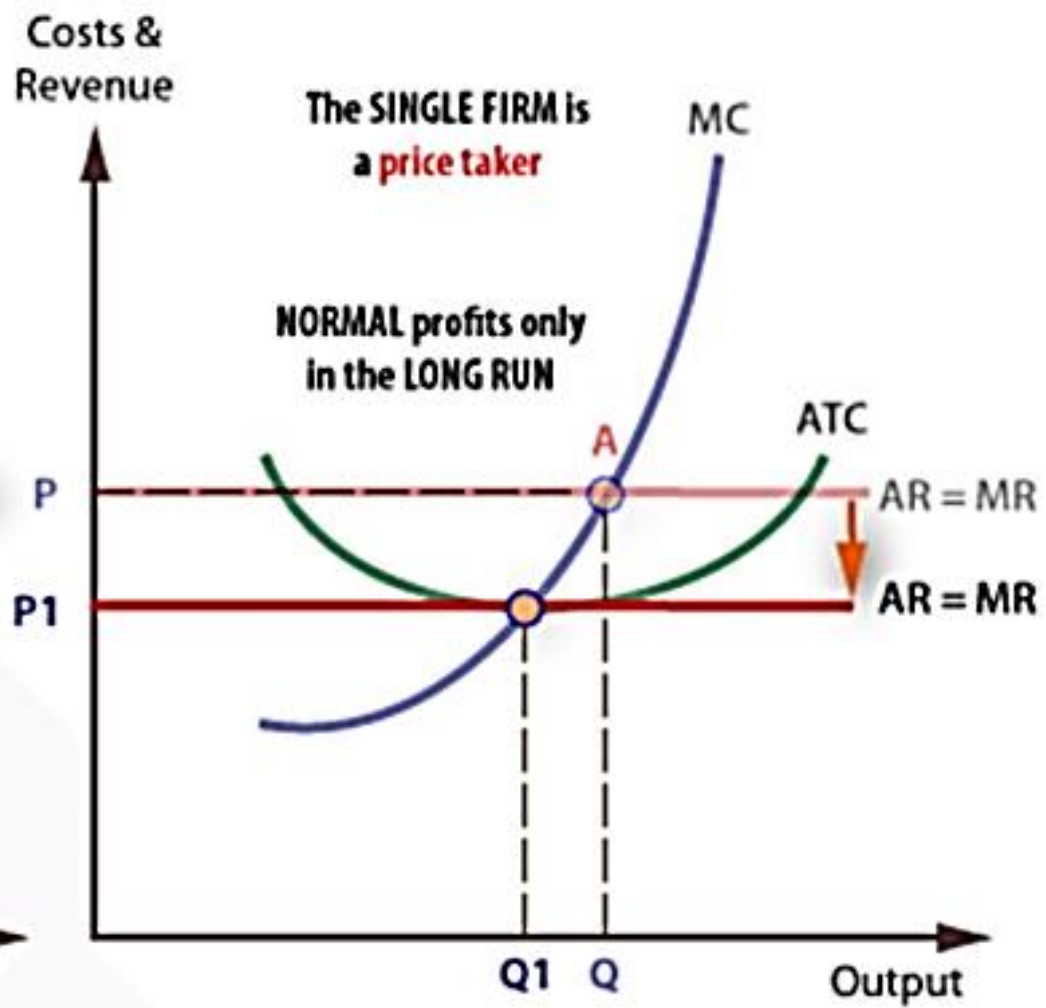
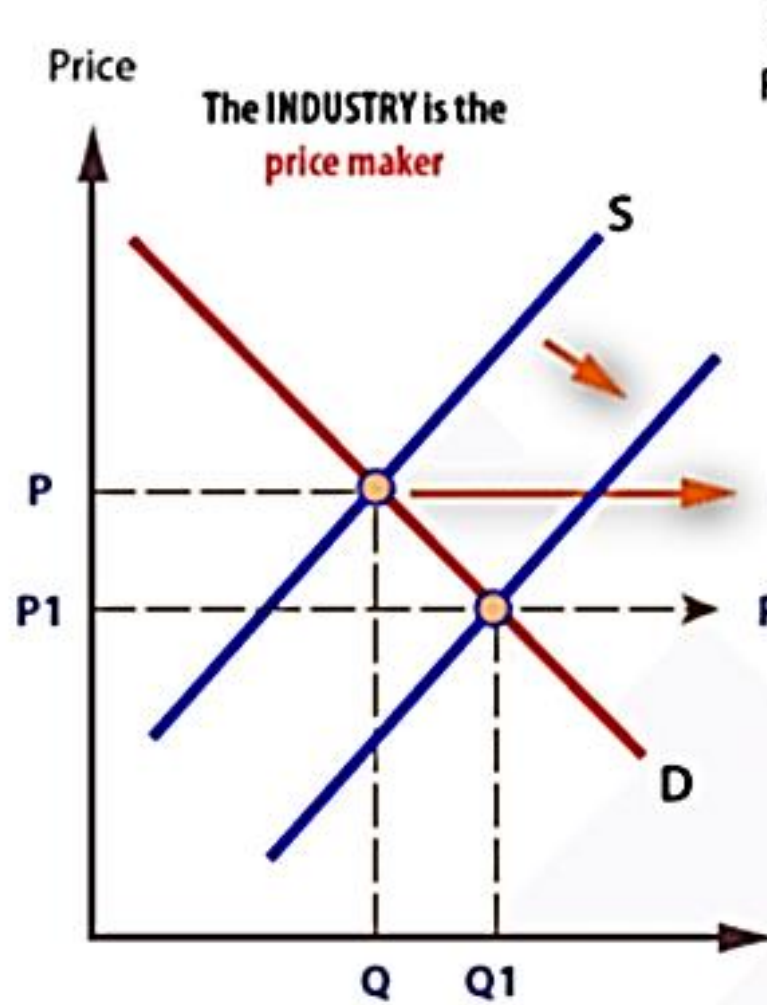
- (1) all firms maximize profits,
- (2) there is free entry and exit to the market,
- (3) all firms sell completely identical (i.e. homogenous) goods,
- (4) there are no consumer preferences.

By looking at those assumptions it becomes quite obvious, that we will hardly ever find perfect competition in reality. This is an important aspect, because it is the only market structure that can (theoretically) result in a socially optimal level of output.

Short Run Equilibrium with Perfect Competition

We assume that firms are seeking to maximise profits

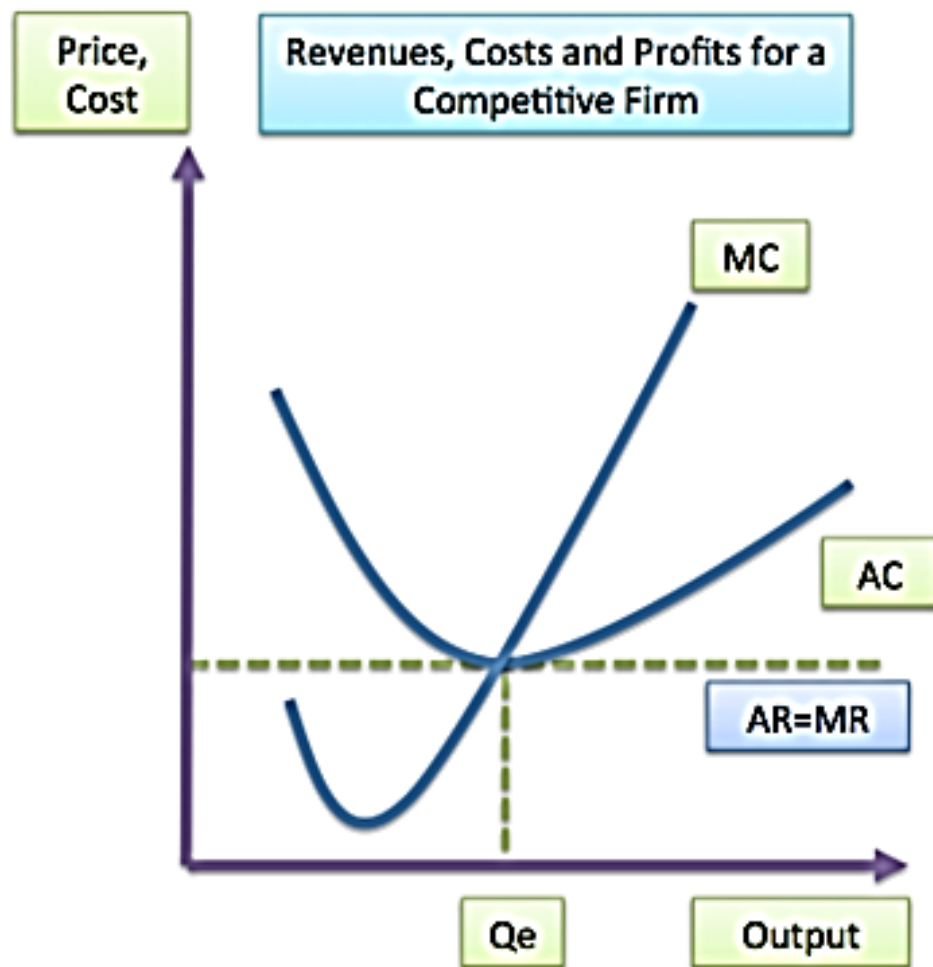




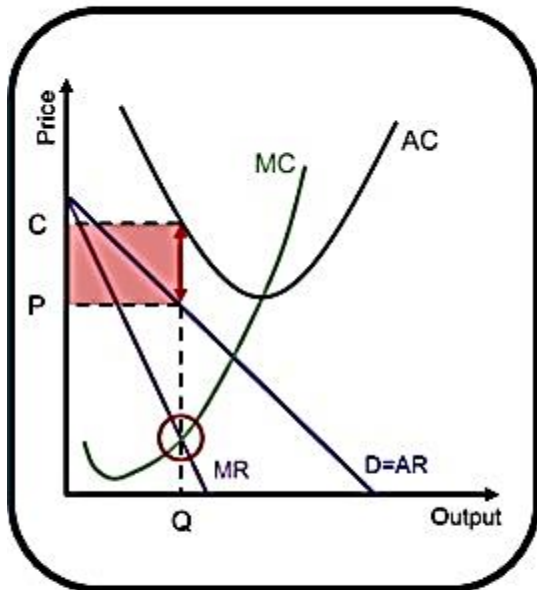
Perfect Competition and Economic Efficiency

Perfect competition leads to static economic efficiency in long run

- When the industry is in long-run equilibrium $P=MC$ giving allocative efficiency, and $P=MC$ where AC is minimised, giving productive efficiency.
- The structure of the industry gives static efficiency due to price seeking behaviour which drives down costs by eliminating inefficient firms

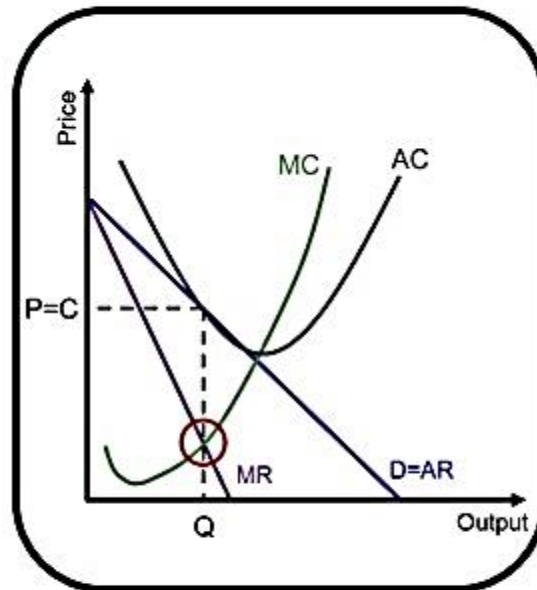


Economic Losses



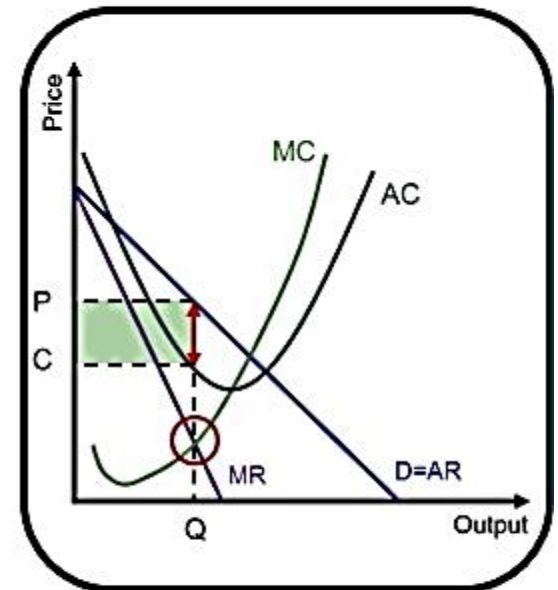
Firms Exit

Normal Profits

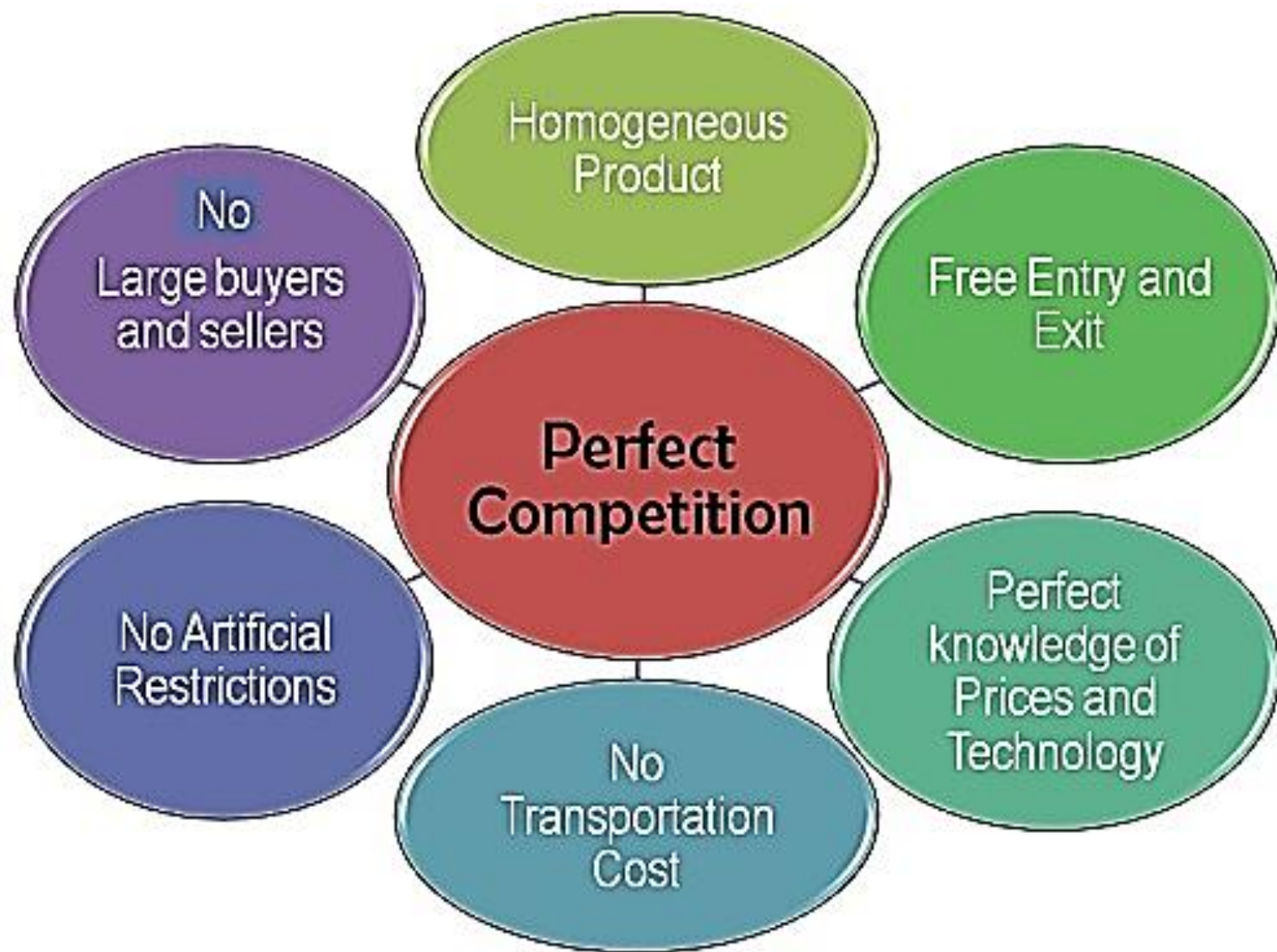


Firms neither
Enter or Exit
Market

Supernormal Profits



Firms Enter



Imperfect Competition

Market structure that does not meet the conditions of perfect competition

There Are Barriers to Entry

Any factors that make it hard for a new firm to enter a market

Facilities

Equipment

Licensing Fees

Expertise

Start-up Costs

Expenses that a firm must pay before it can start to produce and sell goods

Monopolistic Competition

Oligopoly

Oligopsony

Monopoly

Monopsony

Pure Monopoly

Assumptions of the Pure Monopoly Model

- A single seller
- No close substitutes
- Significant entry barriers

Barriers to entry

- Economies of scale
- Branding
- Legal barriers

Revenue Curves

- The relationship between demand, average revenue and marginal revenue
- Why a monopolist will not operate in the inelastic portion of its demand curve
- Revenue maximization

Profit Maximization

- A monopolist will produce where $MR=MC$ to maximize profits
- Barriers to entry permit firm to earn profits in the long-run

Natural Monopoly

- Economies of scale and natural monopoly
- Examples of natural monopolies
- Policies to regulate natural monopolies

Efficiency in Monopoly

- Monopoly power leads to inefficiency and welfare loss

Price Discrimination

- Necessary conditions for it to occur
- Effect on consumer and producer surplus and total welfare
- Effect on efficiency

Introduction to Pure Monopoly

Pure monopoly is a market structure in which there is only ONE dominant firm which sells a unique product, has price-making power and in which there are significant barriers to entry.

Monopoly in the real world: Monopolistic markets are, in fact, more common than perfectly competitive markets. Quite a few of the goods and services we consume are provided by pure monopolies or at least NEAR monopolies:

- **Microsoft:** has a near monopoly in the market for PC operating systems, in which its Windows software runs on nearly every PC computer in the world.
- **Local utilities:** Most of us have only one option for who we buy our electricity, water, garbage collection, and gas heat from. Most public utilities are provided by monopolists
- **State liquor stores:** In many US states liquor is sold in purely monopolistic state-run (or regulated) stores
- **Cable and phone providers:** Until the last decade or two, most people had only one option for where to buy their cable TV or their phone service from. The adoption of cellular phone technology has made the phone service industry more competitive recently.
- **Rail transportation:** In the US, Switzerland, and many other countries, there is a purely monopolistic provider of train service in the country. If you want to travel by train across the US, you will travel on Amtrak.

Barriers to Entry in Monopolistic Markets

One characteristic ALL monopolies share is that there are significant barriers to entry, which keep competition out of the market. It is these entry barriers that protects a monopolist's power. *Without high entry barriers, new firms would enter the market and reduce the price-making and profit-making power of the monopolist.*

Examples of entry barriers:

- **Legal barriers:** Monopolists may have exclusive rights granted by the government to provide a certain good or service. Other legal barriers may include patents or copyrights held by the firm which prevent competition from producing a similar product.
- **Economies of Scale:** The “advantages of being big”. Some firms have achieved such a great size that they can simply produce their good more efficiently, and thus sell it for a lower price, than any other firm could hope to do, keeping competition out of the market.
- **Ownership of resources:** If a firm has exclusive access to the resources needed to make its good, then no other competitor can hope to begin producing the good. An example of this is the global diamond giant De Beers, which has exclusive access to over 80% of the known diamond mines in the world.
- **Strategic pricing:** A monopolist may be able to block entry to the market by temporarily selling its output at a price below its per-unit costs (and earning short-run losses). This deters competitors from entering
- **Brand loyalty:** If a firm has a brand that is well known and popular among consumers, then other firms will find it hard to get a foothold in the market, allowing the monopolist to maintain market share.

PED and the Monopolist's Demand

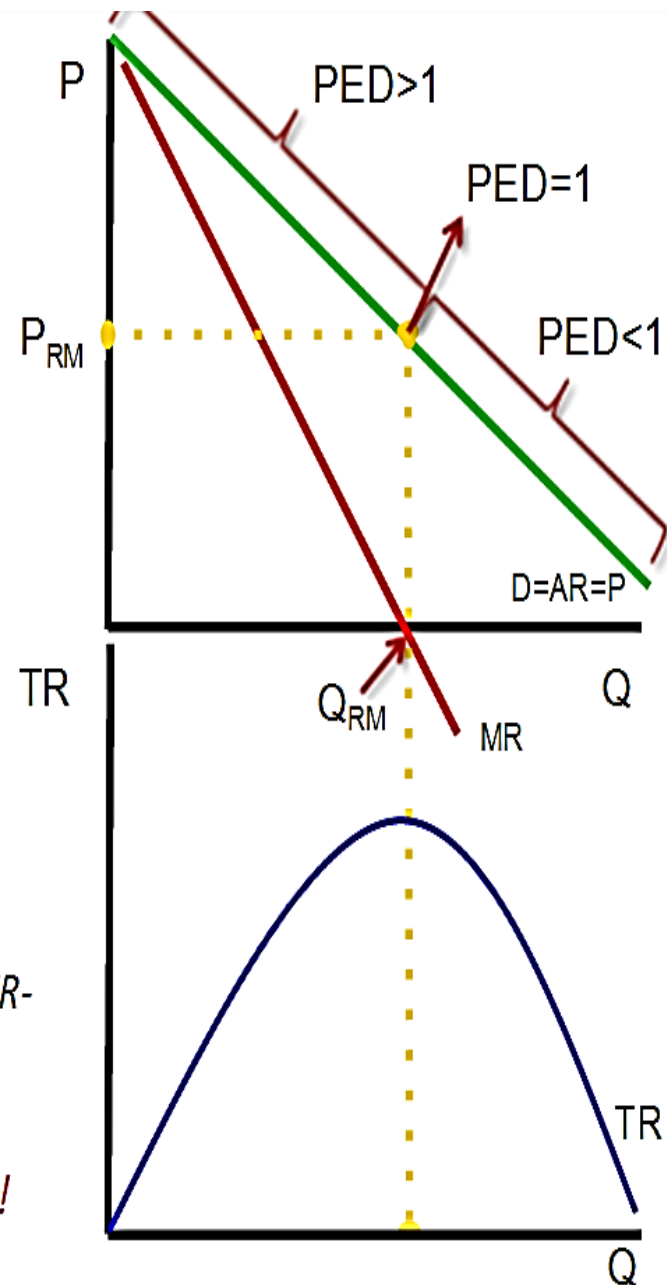
Examine the graph to the right. Notice that the monopolist's demand can be seen to have:

- An elastic range (where MR is positive)
- An inelastic range (where MR is negative)
- At Q_{RM} the monopolist's total revenue is maximized

A monopolist will NEVER produce in the inelastic range of its demand! Because if a monopolist were to sell beyond Q_{RM} the would always do better by decreasing its output until MR were positive once again.

- Total costs would decrease as the firm reduces its output
- Total revenue would increase, therefore...
- Reducing output to a point below Q_{RM} would definitely increase the firm's profits (remember, economic profits = $TR - TC$)

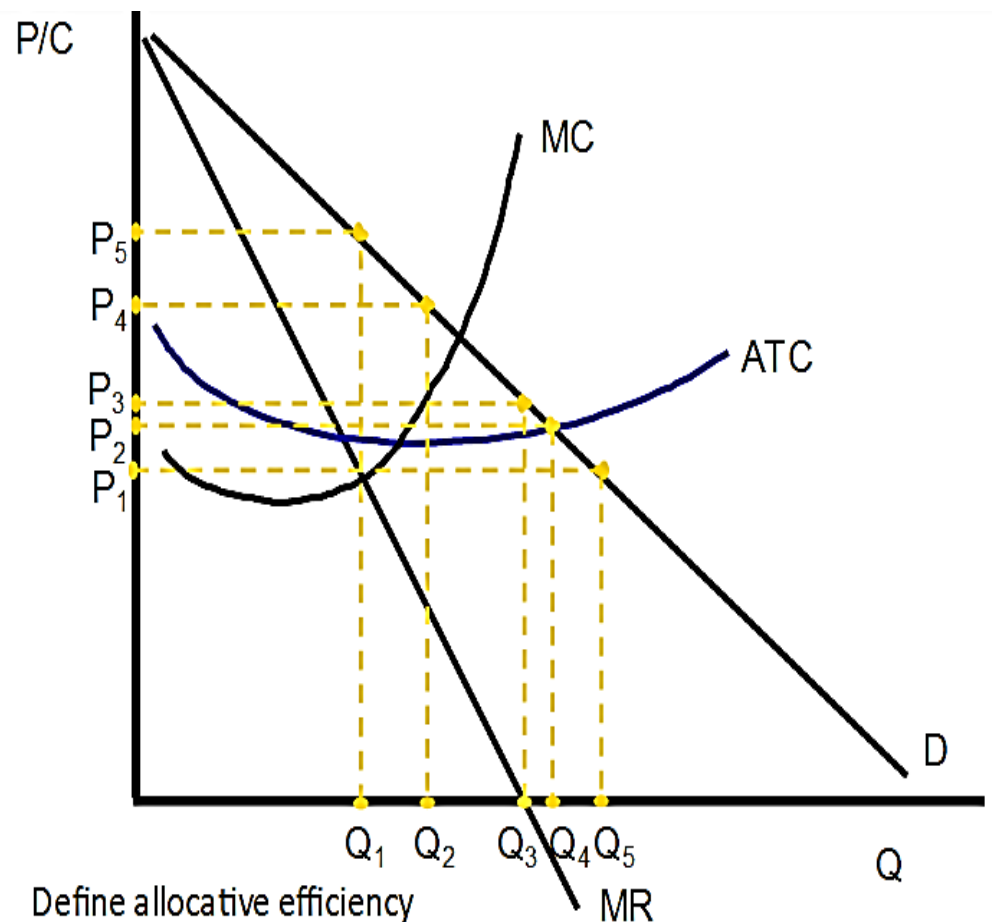
Notice that if a monopolist wished to maximize its revenues, it would produce at the quantity where $MR=0$!



Monopoly Practice Question

The diagram shows the demand, marginal revenue, and cost curves for a pure monopoly.

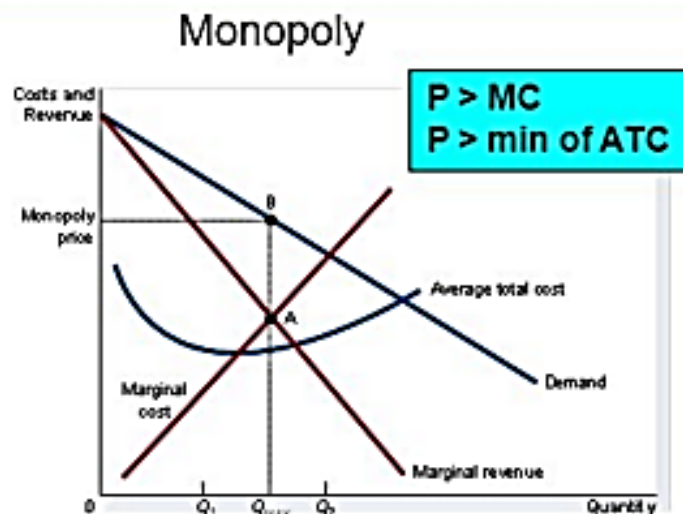
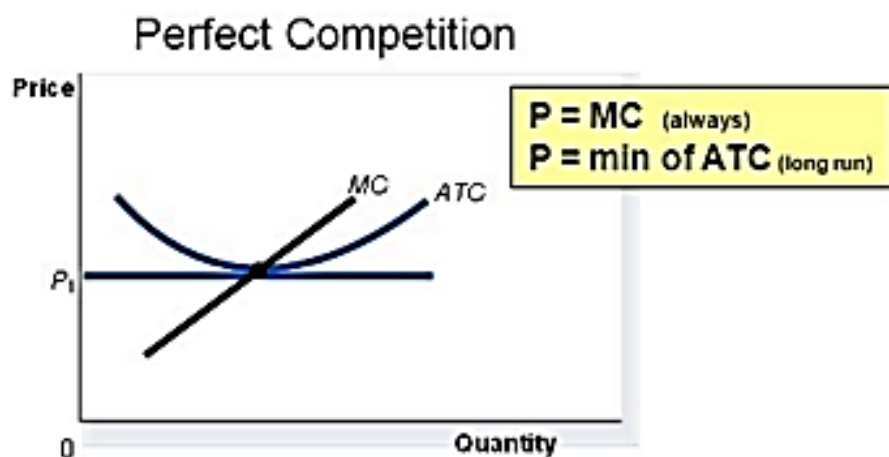
1. How does a monopolist determine its profit-maximizing level of output and price?
2. Using the information in the graph, identify each of the following for the monopolist.
 - a. The profit maximizing level of output and price
 - b. The line segment of the demand curve that is elastic
3. Suppose that the industry depicted in the graph became perfectly competitive without changing the demand or cost curves. Identify the equilibrium price and output that would prevail in the perfectly competitive market.
4. Using the information in the graph, identify the area of consumer surplus for each of the following.
 - a. The profit-maximizing monopoly
 - b. The perfectly competitive industry



5. Define allocative efficiency
6. To be allocatively efficient, what level of output should the monopolist produce?
7. Should the government use a per-unit tax or a per-unit subsidy to lead the monopolist to produce the allocatively efficient level of output? Explain how this tax or subsidy would achieve the allocatively efficient level of output?

Efficiency Analysis

- **Allocative Efficiency** is when $P = MC$
 - No DWL, socially optimal
 - Monopolies fail as $P > MC$ **Competitive Firms** always pass $P = MC$
- **Production Efficiency** is when $P = \text{min. of ATC}$
 - Monopolies fail as $P > \text{min of ATC}$
 - Competitive Firms achieve it only in long run



Long-run Equilibrium in a Monopolistic Market

In our study of perfect competition we learned the following:

In Perfectly Competitive Markets

- If firms are earning economic profits in the short-run, new firms will enter the market, increasing the supply, reducing the price and eliminating profits.
- If firms are earning economic losses in the short-run, some firms will exit the market, reducing the supply, increasing the price and eliminating losses for the firms that remain.
- In the long-run, firms in perfectly competitive markets will only break even.

However, in Monopolistic Markets:

- If the firm is earning economic profits in the short-run, those profits will be maintained as long as the firm can keep demand for its goods high and its costs low, *because entry to a monopolistic market is blocked!*
- If the firm is earning economic losses in the short-run, those losses will be maintained as long as the firm cannot increase the demand for its product or reduce its price. *Exit from a monopoly market is difficult because of the large economies of scale that often characterize large, single sellers.*

Internal Economies of Scale (IEoS)



Technical economies
i.e. containerization



Specialist capital
machinery /
technology



Purchasing
economies
(monopsony power)



Large scale
application of the
division of labour



Using specialist
managers across the
supply chain



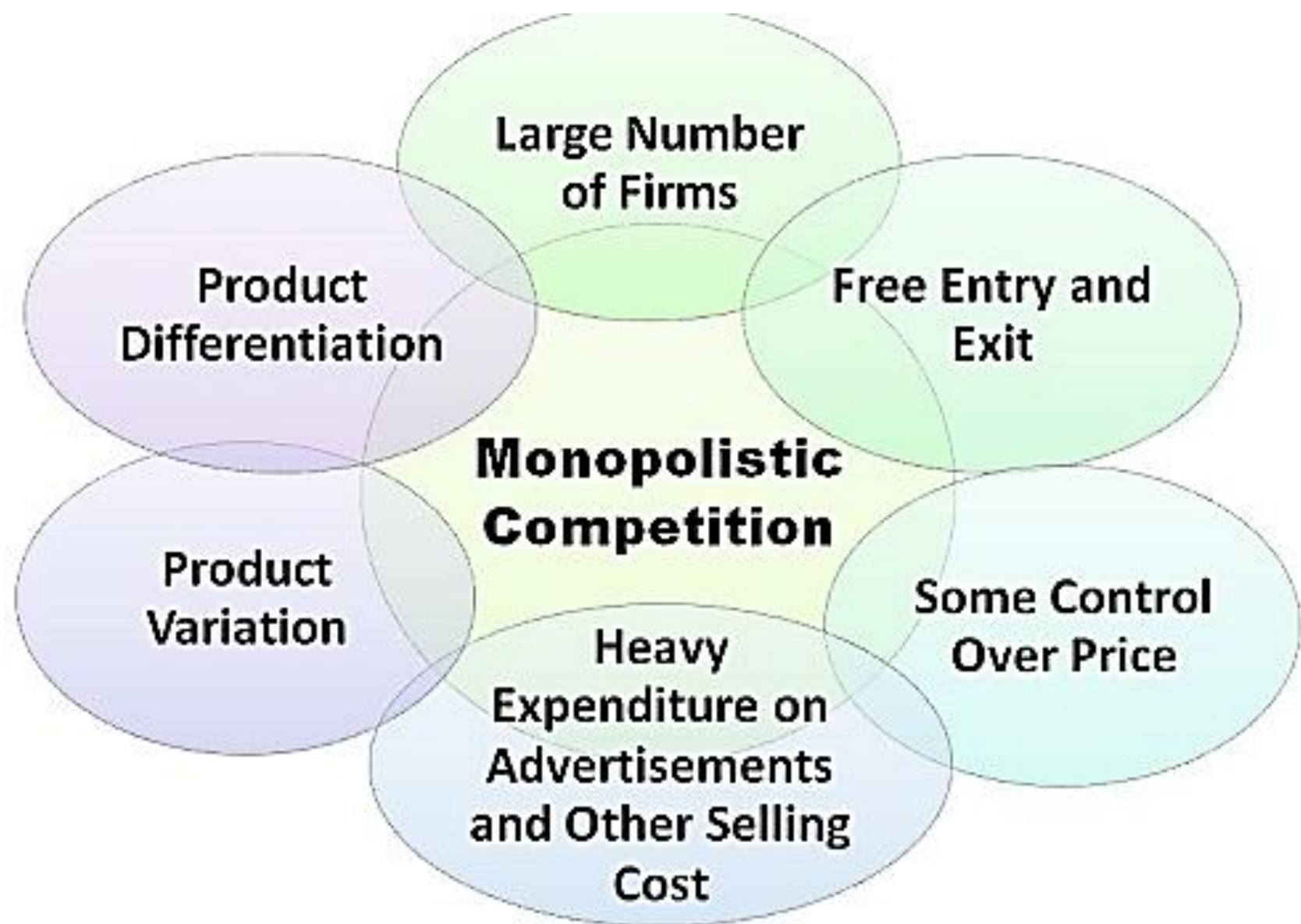
Financial economies
e.g. lower interest
rates on loans



Risk-bearing
economies from
diversification



Network economies –
which helps to lower
marketing costs



Characteristics of monopolistic competition

- Product differentiation.
- Many firms.
- Freedom of Entry and Exit.
- **Independent decision** making.
- Some degree of market **power**.
- Buyers and sellers do not have perfect information (Imperfect Information)

How does Monopolistic Competition differ from Perfect Competition?

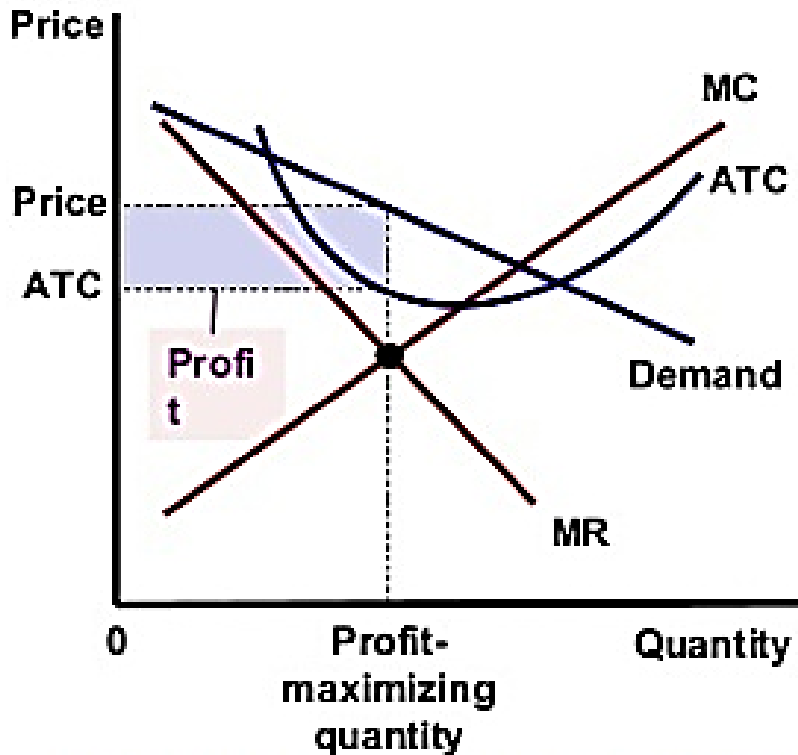
	Perfect Competition	Monopolistic Competition
Number of producers (sellers in the market)	Many	Many
Types of goods and services available for consumers	Homogeneous	Differentiated
Does the firm have control over their own prices?	No – price takers	Yes – some pricing power
Is branding / marketing important?	No	Yes – key non-price competition
Are entry barriers zero, low or high?	Zero barriers	Low barriers
Does this market structure lead to allocative efficiency in the long run?	Yes: Price = MC	Not quite ($P > MC$)
Does this market structure lead to productive efficiency in the long run?	Yes – min LRAC	No – higher LRAC

A general comparison for easy understanding has been given as under

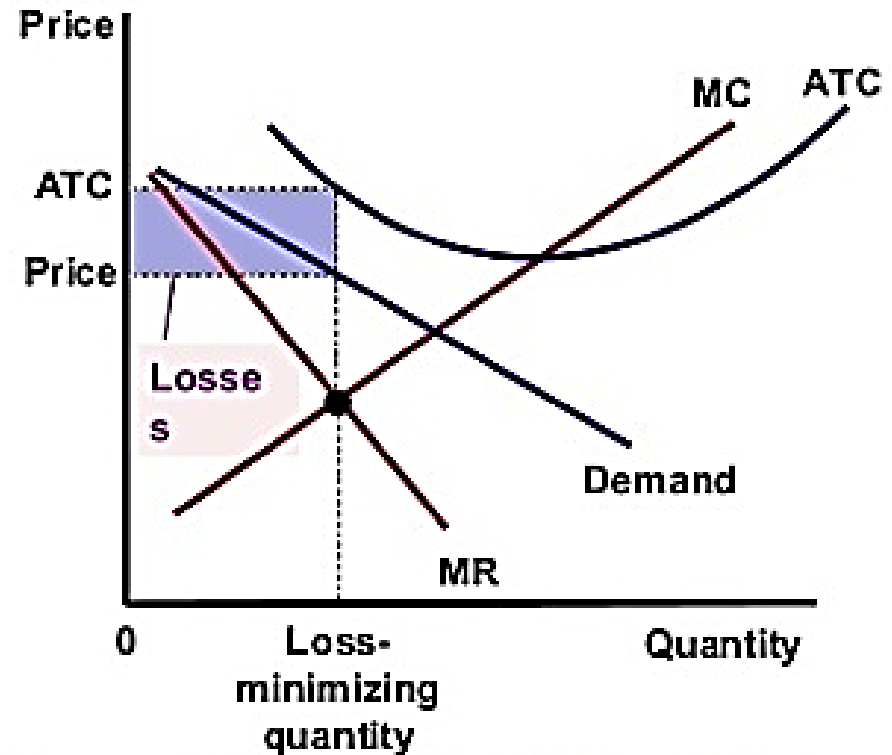
Features	Monopoly	Monopolistic competition
1. Description	Extreme market situation where there is only one seller. He has no competition and so controls supply and price.	A mixture of monopoly and competition.
2. Buyers and Sellers	Only one seller and practically all buyers depend on him. Hence, he has absolute control over the market.	Slightly large number of sellers <i>i.e.</i> competing monopolists.
3. Supply	Supply from only one seller. Hence, absolute control over the supply.	Supply from large number of sellers but subject to control and competition.
4. Demand	Demand is inelastic. Demand curve slopes downward.	Demand may be elastic or inelastic according to the nature of competition
5. Product	Homogeneous product.	Differentiated products purposely differentiated.
6. Nature of Competition	No competition at all. No price or product competition.	Fairly good competition. Competition between competing monopolists is product differentiation and selling costs.
7. Price	Higher price higher than all competitive price. $P > MR = MC$	Highest price as cost of product differentiation and selling cost is added to the price.
8. Output	Small output fixed by the sole seller.	Output varies with product differentiation and selling costs.
9. Profit	Excess profit monopoly gain.	Extra profit realised by products differentiation and selling costs mostly monopoly profit.
10. Application	Pure Monopoly is rare but elements of monopoly are there in markets.	More realistic in life.

Monopolistic competitors in the short run

(a) Firm makes profit



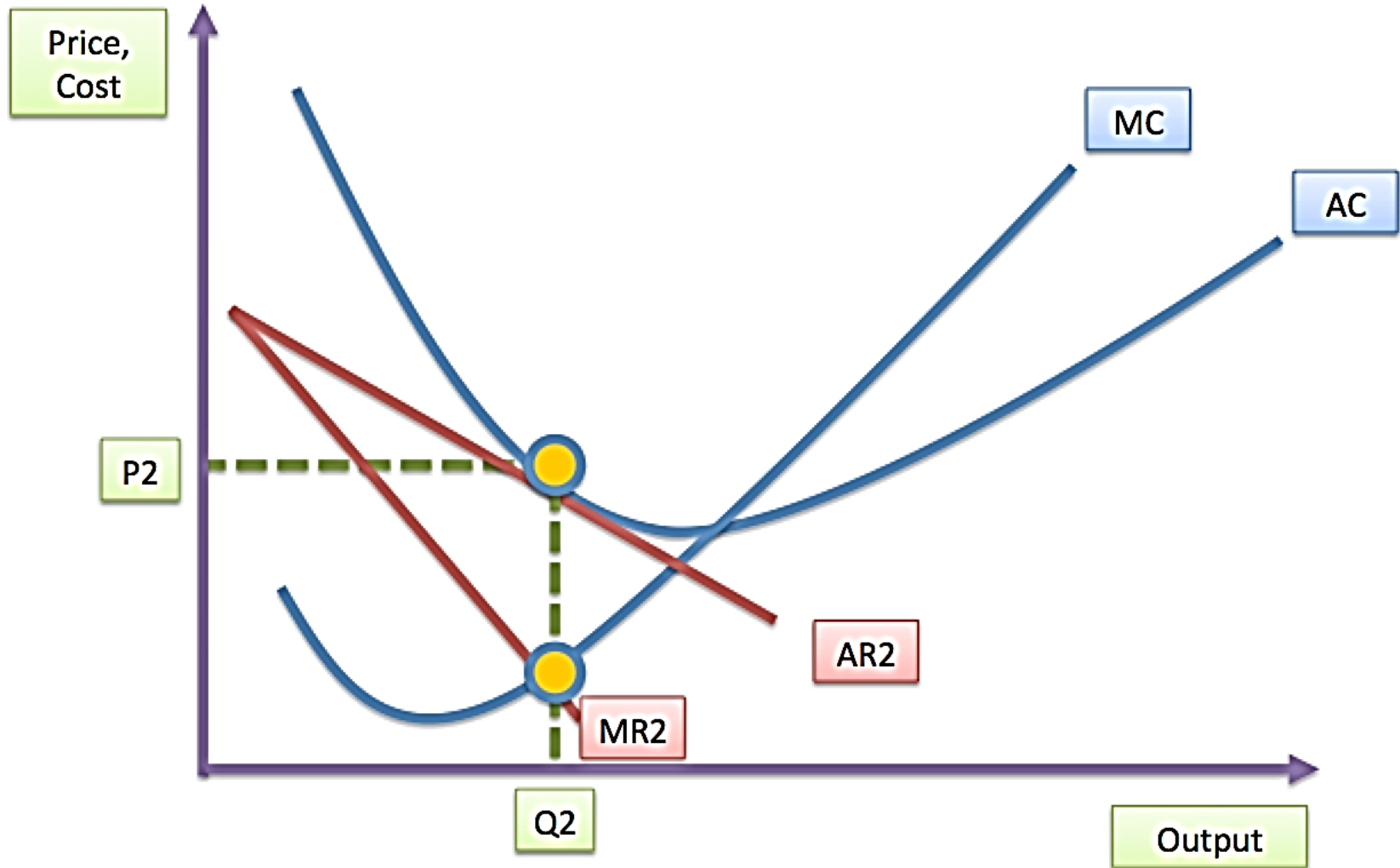
(b) Firm makes losses



Monopolistic competitors, like monopolists, maximize profit by producing the quantity at which marginal revenue equals marginal cost. The firm in panel (a) makes a profit because, at this quantity, price is above average total cost. The firm in panel (b) makes losses because, at this quantity, price is less than average total cost.

Long Run Equilibrium with Monopolistic Competition

Profits are competed away as demand shifts inwards to AR2



Product Differentiation and Advertising

How Do Firms Differentiate Products?

There are three types of product differentiation:

- **Simple:** the products are differentiated based on a variety of characteristics;
- **Horizontal:** the products are differentiated based on a single characteristic, but consumers are not clear on which product is of higher quality; and
- **Vertical:** the products are differentiated based on a single characteristic and consumers are clear on which product is of higher quality.

Differentiation occurs because buyers perceive a difference, eg due to design, performance, or how it is distributed and marketed, and who buys it.

Examples of Monopolistic Competition



Shoe repairs and
key makers



Taxi and minibus
companies



Sandwich bars
and coffee stores



Hairdressing
salons



Dry-cleaners and
laundrettes



Bars and
Nightclubs



Raffles and Competitions with Prizes

SHOP 24 X 7

After Sales Service

Special Features

Sponsorship Deals

Sales Promotion

Brand Names

Packaging

Publicity

Advertising

Free Delivery

Personal Selling



Late-night shopping



Non-Price Competition

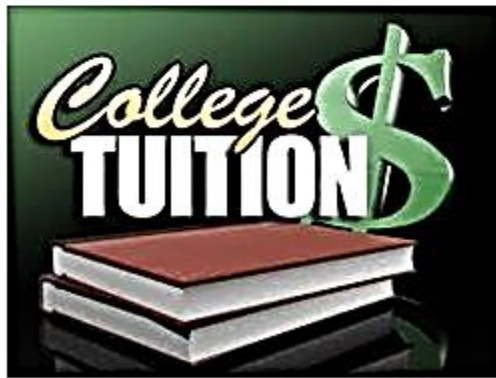
Examples of Price Discrimination

CHICKEN STRIP COMBO Includes: 3 Chicken Strips Fries Beverage \$5.99	CRUNCH COMBO Includes: 3 Pieces of Big Crunch Fries Beverage \$5.99	TWISTER COMBO Includes: 3 Pieces of Twister Fries Beverage \$4.99
CLASSIC Includes: 3 Classic Sandwiches Fries Beverage \$6.00	POPCORN COMBO Includes: Popcorn 3 Pieces of Chicken Fries Beverage \$4.99	TOONIE TWO'S DAY FOR TWO Includes: 2 Pieces of Chicken Fries Beverage \$4.44
FOR TWO Includes: 2 Pieces of Chicken Fries Beverage \$12.99	FOR TWO Includes: 2 Pieces of Chicken Fries Beverage \$12.99	FOR TWO Includes: 2 Pieces of Chicken Fries Beverage \$12.99
FOR FOUR Includes: 4 Pieces of Chicken Fries Beverage \$18.99	FOR EVEN MORE Includes: 6 Pieces of Chicken Fries Beverage \$33.99	FOR MORE Includes: 8 Pieces of Chicken Fries Beverage \$28.99

Coupons



AP Exams
\$55 LATE FEE



Grants, discounts
for some....



Cell Phone "Calling Plans"

Oligopoly – Characteristics

- Small number of firms
- Product differentiation may or may not exist
- Barriers to entry
 - Scale economies
 - Patents
 - Technology
 - Name recognition
 - Strategic action
- Examples
 - Automobiles
 - Steel
 - Aluminum
 - Petrochemicals
 - Electrical equipment

Definition:

Oligopoly = the market where there are only a few firms (more than two firms) in the industry producing either identical or differentiated products.

Characteristics:

1. Few numbers of firms:

- Small number of firms but size of firm is large. The market share of each firm is large enough to dominate the market. Few firms control the overall industry.
- The main criterion is the mutual interdependence between these firms. Firms will consider the reactions of its rivals/competitors in decision making .

2. Homogeneous or differentiated product: For example cement or electrical appliances produced by one firm are identical to another firm. On the other hand, automobiles produced by major automakers are different in term of design, technology, performance and price.
3. Mutual interdependence: A condition in which an action by one firm may cause a reaction from other firms. Changes in price or output by one firm can have direct effect on another firm. (Firms will consider the reactions of its rivals/competitors in decision making) .
4. Barriers to entry: Oligopoly firms will restrict new entrants into market. These barriers include control over certain resources, patent rights, exclusive financial requirements and other legal barriers.

Price and Output Decisions for an Oligopolist

Mutual interdependence among firms in an oligopoly makes this market structure more difficult to analyze. Firms have to consider the reaction of its rivals when taking decisions.

Some well-known oligopoly models:

- non-price competition
- the kinked demand curve
- price leadership
- the cartel
- Game theory

Nonprice Competition:

Firms will compete with each other by using better advertising and product differentiation (producing new products and improve the quality of the existing product).

These strategies will attract more customers to the firm, and give consumers more choice.

Note: Oligopolists would compete through non-price competition, rather than price competition. If a firm reduces the price of a product, its rivals/competitors will easily and quickly reduce their prices.

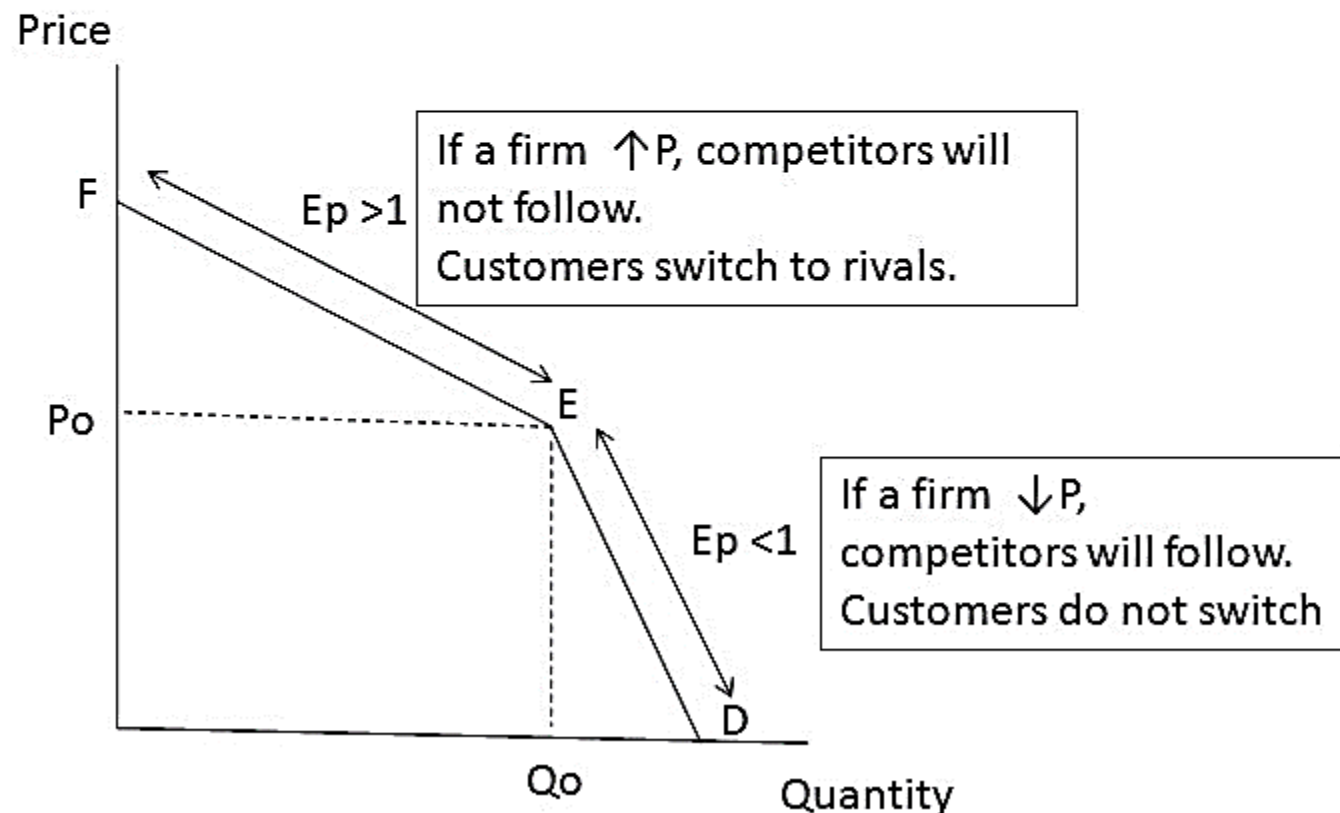
There is a risk of price war if the price reduction continues.

Nonprice Competition

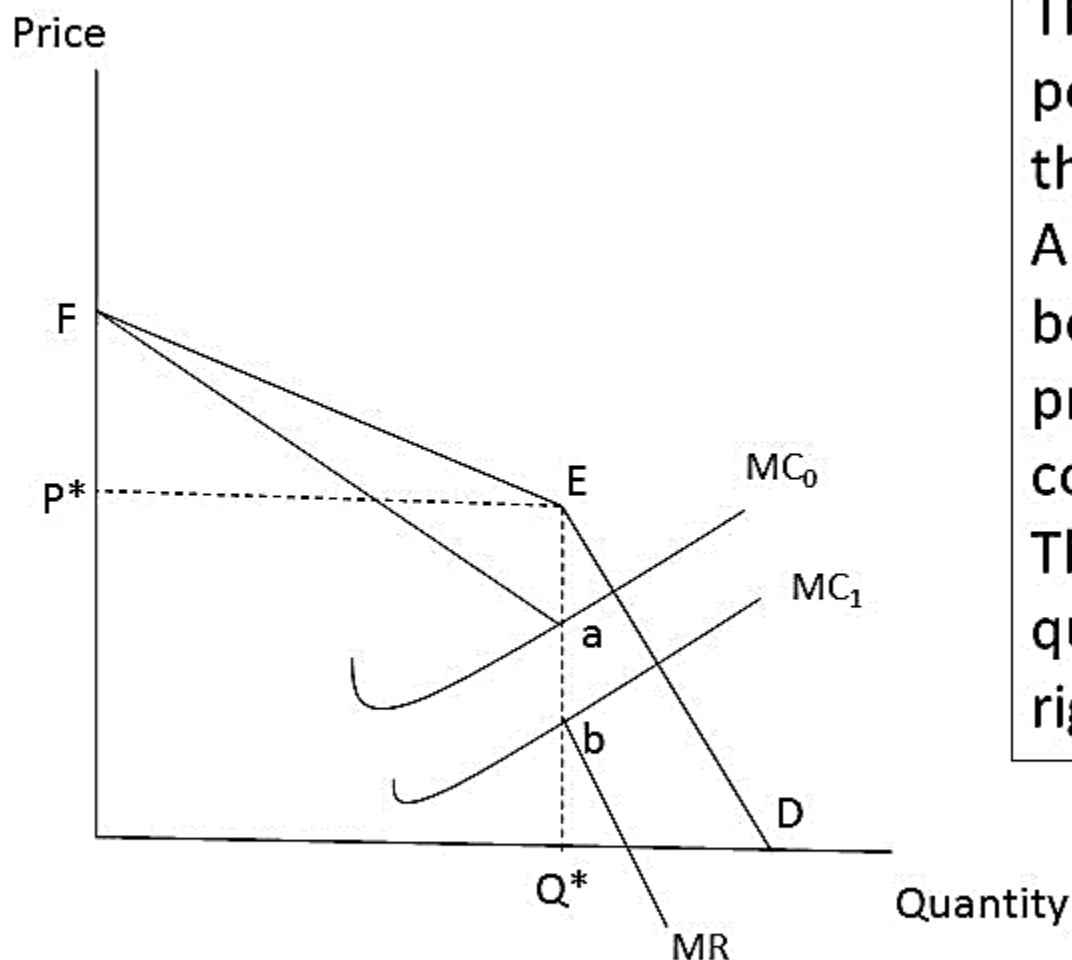
- Oligopolists avoid price competition and instead pursue nonprice competition.
 - Advertising.
 - Convince the consumer that firm A's product is a better buy than those of its rivals.
 - Product differentiation.
 - Firm A could modify its products to make them appealingly different in order to sell more.
- Both strategies are designed to improve brand loyalty, thus maintaining or gaining market share.

Price Rigidity and Kinked Demand Curve

Kinked Demand Curve = a demand curve facing an oligopolist that assumes rivals will match a price decrease, but ignore a price increase.



Price Rigidity



The kinked dd curve below point E creates a gap in the MR (dotted line ab). Any change in MC between ab, equilibrium price and quantity will be constant. The stability in price and quantity is called price rigidity.

How can these firms avoid the low-price outcome?

- Price leadership: informal agreement, the leader sets the profit maximizing high price & other competitor follows.
- Form cartel: an agreement among firms to cooperate with one another to act together as a monopoly. Cartels will establish monopoly price and earns supernormal profit.

Coordination

- Price-fixing: they could explicitly agree to charge the same price.
- Price leadership: one firm would set the price and the others would match it.
- Allocation of market shares: each firm would be assigned a quota of production, with the sum of all output being the industry's profit-maximizing rate of output.

Price Leadership Model:

- A pricing strategy in which a dominant firm sets the price for an industry, and the other firms follow.
- The dominant firm may be
 - The largest firm that dominates the overall industry
 - Due to lower costs of production
 - Being economically powerful
 - Being able to forecast the market condition accurately.
- Hence, the dominant price leader firm can act as a monopoly. The firm sets its price to maximize profits and other firms will set the prices at the same level.

CARTEL:

- Cartel is a group of firms that formally agree to control the price and the output of a product.
- The objective is to get monopoly profits by replacing competition with cooperation.
- The best known cartel is the Organization of Petroleum Exporting Countries (OPEC).

GAME THEORY = A model of the strategic moves and countermoves of rivals.

A Two-Firm Payoff Matrix

		Malaysian Airlines' options	
		High fare	Low fare
Air Asia Airlines' Options	High fare	MAS profit = RM8 million Air Asia profit = RM8 million	MAS profit = RM10 million Air Asia profit = - RM2 million
	Low fare	MAS profit = - RM2 million Air Asia profit = RM10million	MAS profit = RM5 million Air Asia profit = RM5 million

Both rivals are mutually interdependent.

The payoff matrix demonstrate why both rivals using a low-price strategy that does not maximize mutual profits. Consumers benefit from not paying high fares.

Tacit Collusion and Price Wars

- Oligopolists may end up tacitly colluding to be productive, with prices above competitive levels ($P > ATC$).
- There are some industry characteristics that make tacit collusion less likely in reality.
 - Large numbers
 - Complex products and pricing schemes
 - Differences in interests
 - Bargaining power of buyers

HOMEWORK (8 points)

- To make a report about firms' behavior in price war (0-2 points)
- To write an essay "Monopoly: pros and contras"(0-3 points)
- To find and learn information about national models of antitrust policy (0-3 points)