

Edexcel A level Economics (A)

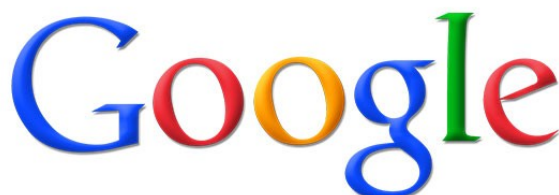
Theme 3

Markets and business behaviour

2018-19

Course companion **2**

Efficiency and market structures (part 1/2)



Student Name: _____

Group: ____

Teacher: _____ (AT101)

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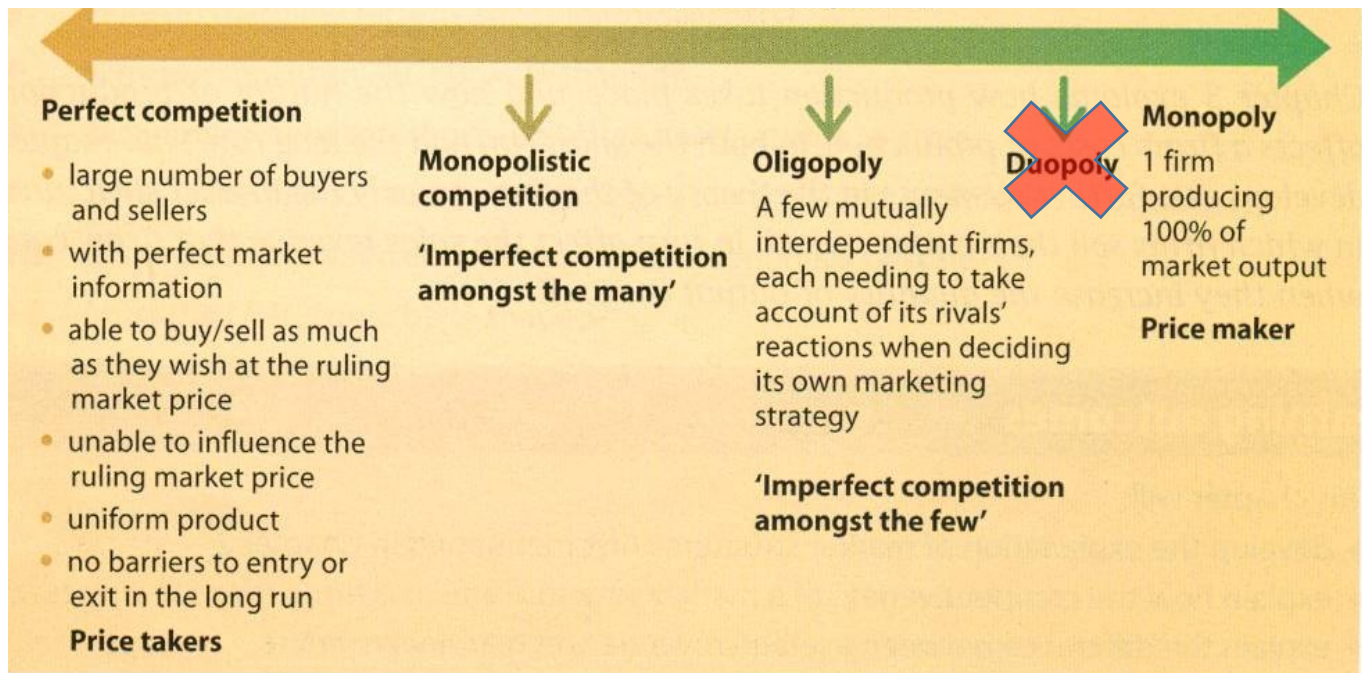
NB: 3.4.4 (Oligopoly) and 3.4.7 (Contestability) to be covered in Theme 3 CC3

3.4.0 – Market structures – an overview

MOST competitive

Spectrum of market structures

LEAST competitive



Market structure: the characteristics of a market which determine the behaviour of firms within the market:

Characteristics:

1. **Number of firms in the market** and their **relative size** ('market share')
2. **Barriers to entry:** factors which make it difficult or impossible for firms to enter an industry and compete with existing producers.
3. **Barriers to exit:** factors which make it difficult or impossible for firms to cease production and leave an industry.
4. Extent to which goods in market are similar:
 - Homogeneous goods:** goods made by different firms but which are identical. Examples?
 - Differentiated (heterogeneous) goods:** goods which are similar but not identical made by different firms such as branded goods. Examples?
5. **Brand:** a name, design, symbol or other feature that distinguishes a product from other similar products and which makes it heterogeneous.
6. Extent to which all firms/buyers in market share same knowledge:
 - Perfect knowledge or information:** exists if all buyers in a market are fully informed of prices and quantities for sale, whilst producers have equal access to information about production techniques.
7. **Interdependency:** extent to which actions of one firm/s will affect another firm/s.

Exercise:

1. Complete the table below:

	Perfect competition	Monopolistic competition	Oligopoly	Monopoly
Number of firms				
Barriers to entry & exit				
Nature of product				
Firm's influence over price				
Examples:				

2. Which of the following markets has characteristics closest to the model of perfect competition?

- A Pharmaceuticals
- B Wheat
- C Telephone services
- D Banking services
- E Steel

(a) Answer:

(1)

**Justify
your answer.....**

3.4.2 – Perfect Competition

- a) Characteristics of perfect competition
- b) Profit maximising equilibrium in the short run and long run
- c) Diagrammatic analysis

FIVE conditions/characteristics:

- 1) **Many buyers and sellers** in the market (none of whom is large enough to influence price)
- 2) Buyers and sellers possess **perfect knowledge** (PK) about what is going on in the market i.e. prices and costs of production/access to the same technologies respectively.
- 3) **Freedom of entry/exit** to/from the industry i.e. low barriers to entry/exit
- 4) All firms produce **homogeneous product** (i.e. uniform, identical product)
- 5) **No transport costs**

Class discussion: How realistic are these assumptions?

Which markets would come close to these conditions?

Foreign exchange markets: Here all currency is homogeneous. Traders will have access to many different buyers and sellers. There will be good information about prices. When buying currency it is easy to compare prices.

Agricultural markets: e.g. wheat. There are usually many farmers selling identical products to the market, and many buyers. At the market, it is easy to compare prices. There are world markets for many crops with prices determined by world demand and supply conditions. No one farmer is able to influence price.

Implications of this model:

- **Firms are PRICE TAKERS:** as firms are small and sell the same product, they must therefore accept the going market rate, which is in itself determined by the forces of demand and supply in the industry
- **Firms able to sell as much as they wish** at ruling market price

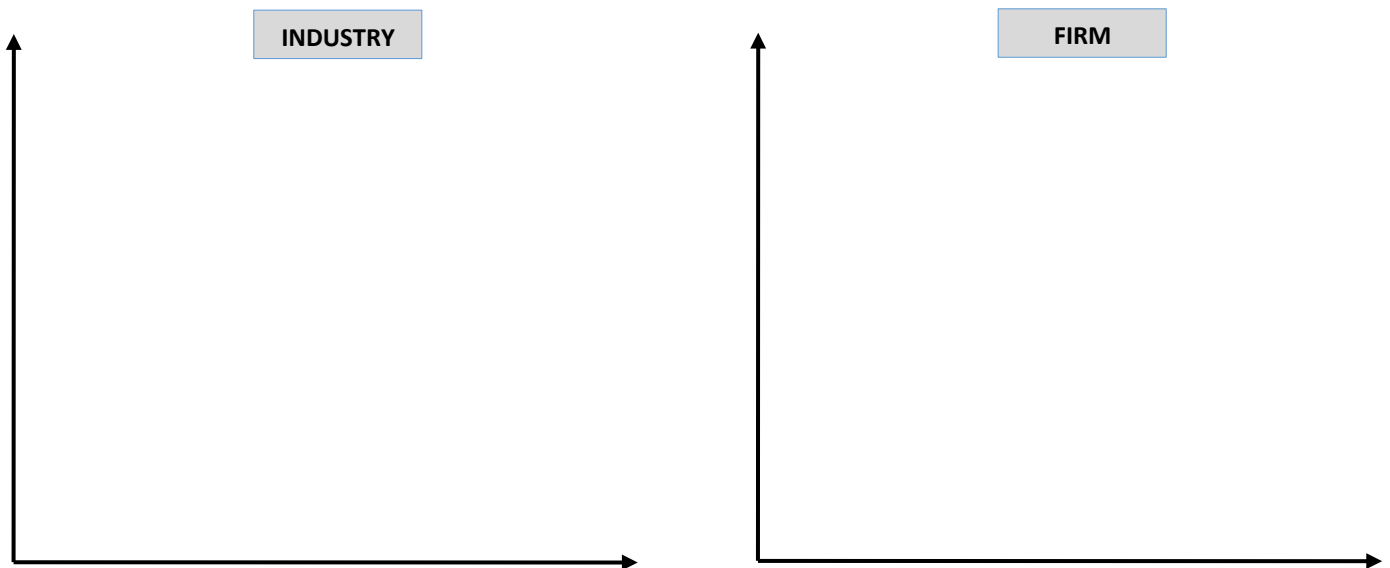


Horizontal (perfectly elastic) $MR=AR(D)$

SHORT run (profit-maximising) equilibrium in perfect competition:

As the firm is a **price taker** it is one of many and can have no influence on the price in the market.

Demand curve and revenue curves:



Why could the firm not charge a higher price?

Why would there be no point in charging a lower price?

To determine how much will be produced and at what price, the theory assumes the objective of firms is **profit maximisation** (i.e. where _____ = _____)



Over to you!

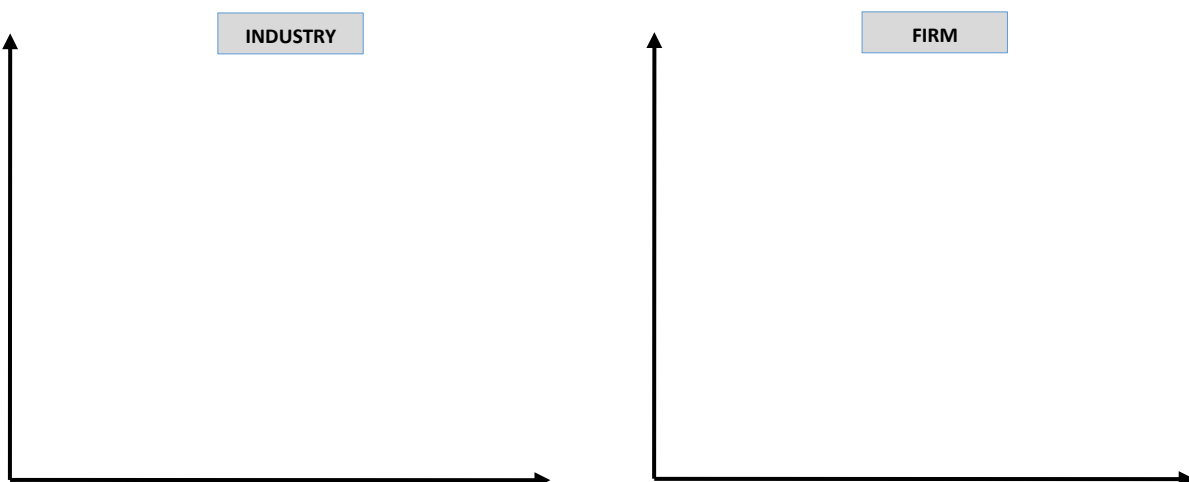
Now add in MC curve to revenue curve/s (above, right) to find profit maximising output (Q_{PM})

How much profit will the firm make in the SHORT run?

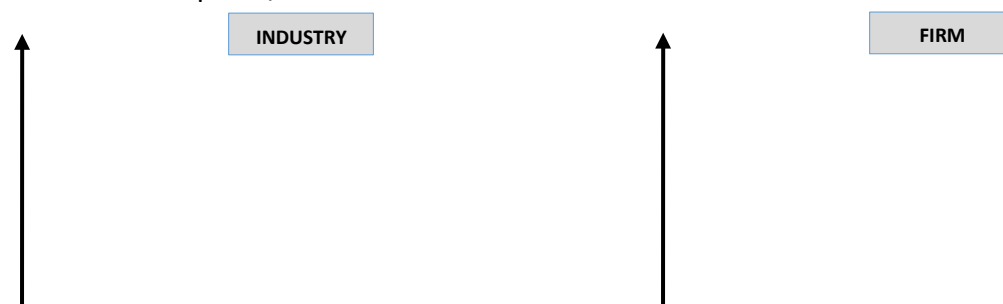
There are **three possibilities** for firms in perfect competition:

MOEDA	COMPRA	VENDA
US DÓLAR	182	194
EURO	236	250
LIBRA	277	312
DÓLAR AUSTRALIANO	180	205
DÓLAR CANADENSE	175	187

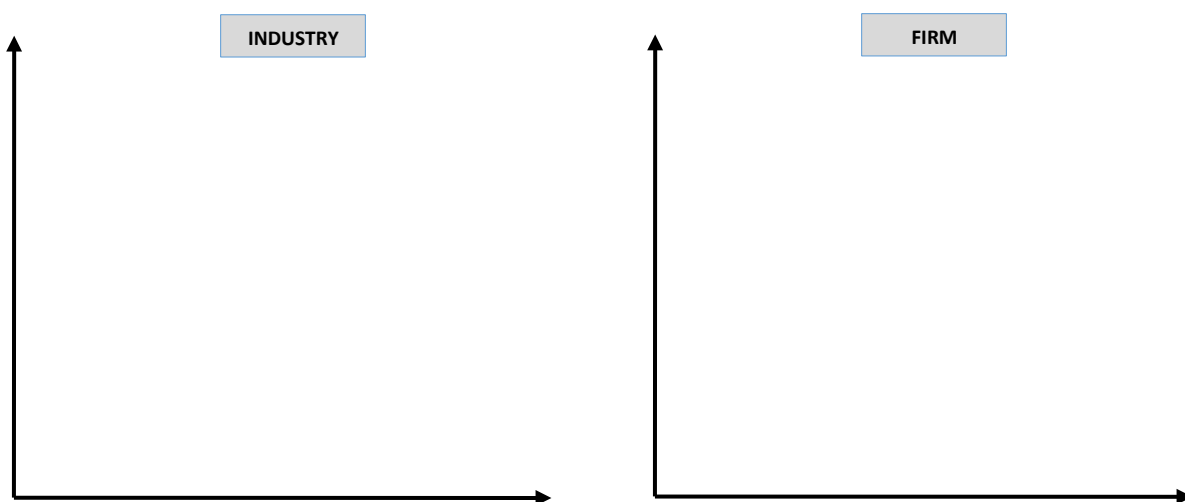
1. Supernormal (abnormal) profit:



2. Subnormal profit/loss:



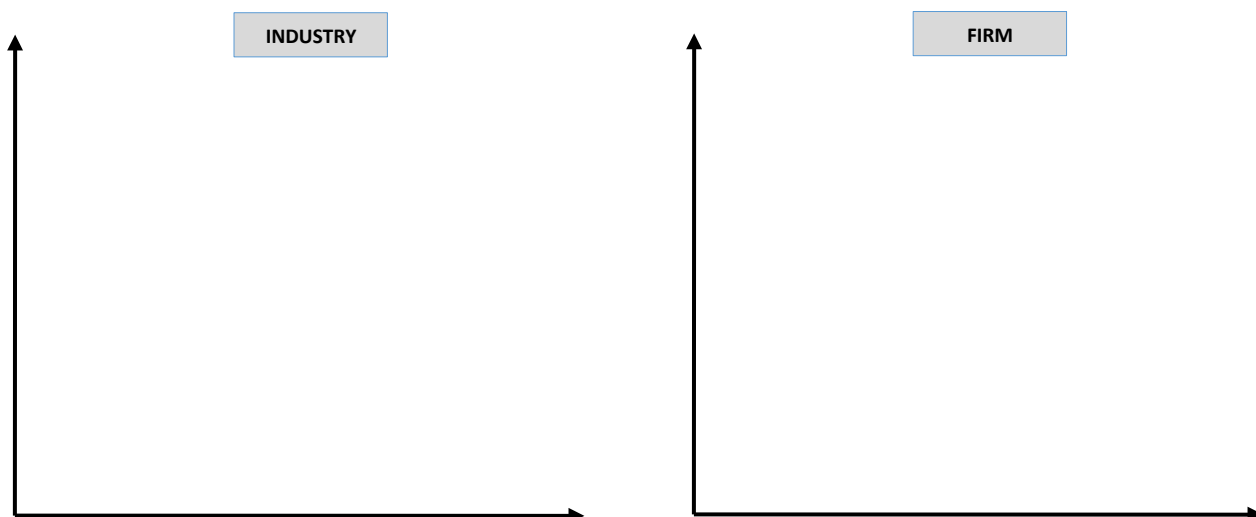
3. Normal profit:



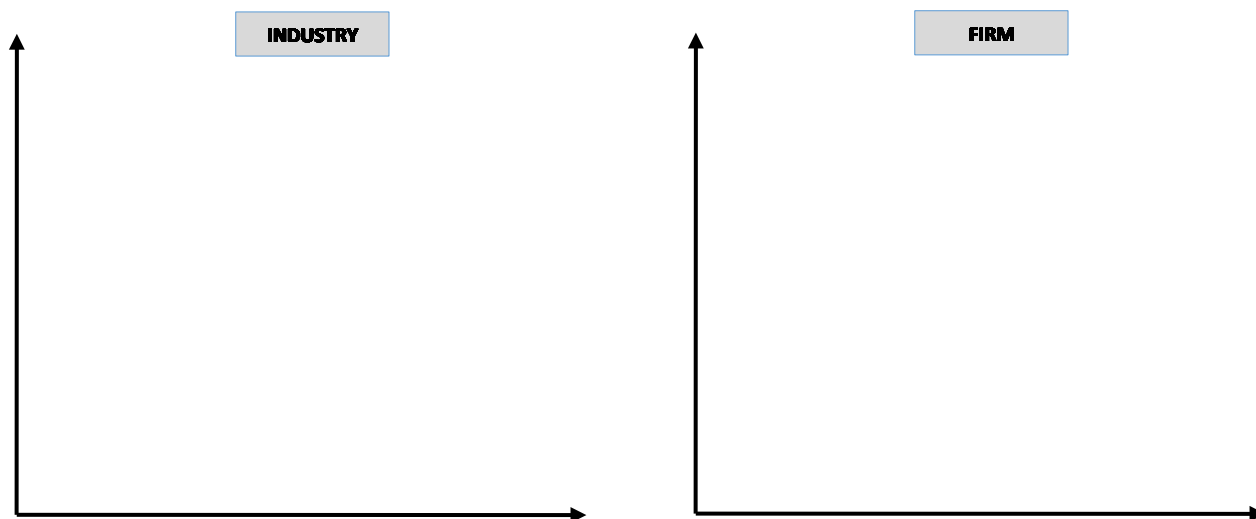
LONG

run (profit-maximising) equilibrium in perfect competition:

- (i) if there are firms making **supernormal profit** in the SR then new firms will enter the industry, attracted by these profits. This will shift industry supply to the right and reduce price for both new and incumbent firms such that supernormal profits are competed away.



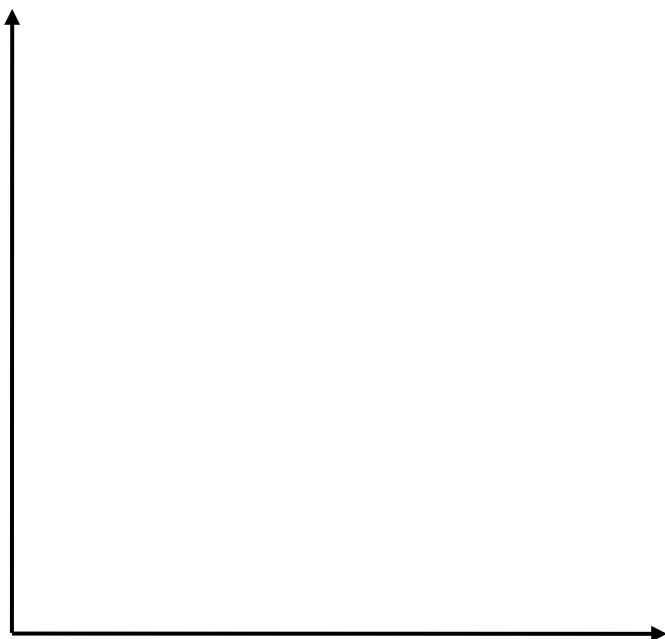
- (i) By contrast, if there are firms making **subnormal profits/losses** in the SR, then they may* leave the industry as, by definition, they are not covering their o_____ c_____. This will reduce industry supply and shift the supply curve to the left, increasing price for the remaining firms such that subnormal profits/losses are eliminated. * see 'shut-down points' p9



Therefore, in the LONG run, all firms in perfect competition will be making normal profit only

[see p7, diagram set 3]

3.3.4(c) Short run and long run shut down point

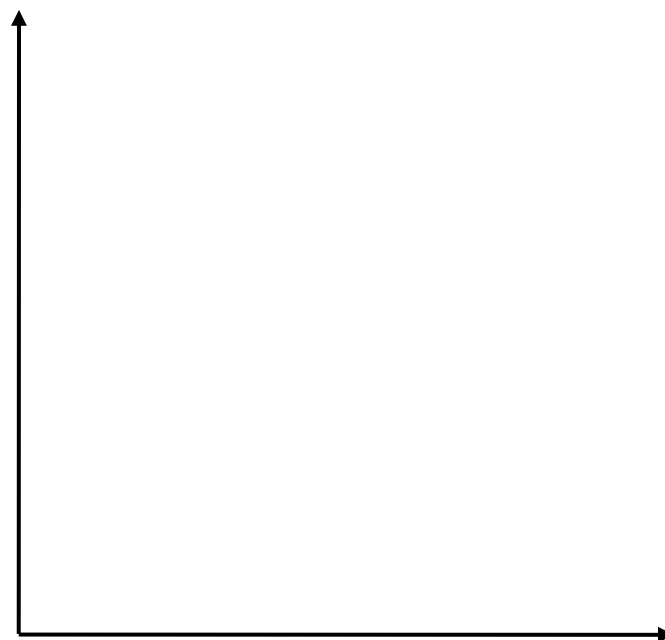


In the **SHORT** run **only variable costs must be covered**.

As long as price (or AR) is equal to or greater than average variable cost, production will continue (i.e. the firm will only 'shut down' in the short run if $P < AVC$).

If $P > AVC$ (but less than ATC) then the firm is making a 'contribution' (area BCGF) towards its total fixed costs (area ACGE or $AFC_{SR} \times Q_{SR}$).

Since fixed costs, by definition, have to be paid out regardless of output, the firm would rather make a short run 'loss' of the smaller area ABFE than the larger area ACGE.



In the **LONG** run, however, **all costs – both variable and fixed (area HJKL) – must be covered** (i.e. $P \geq ATC$). A rational firm (and its shareholders) would not choose to sustain 'losses' (in the form of unrecovered fixed costs) long term.

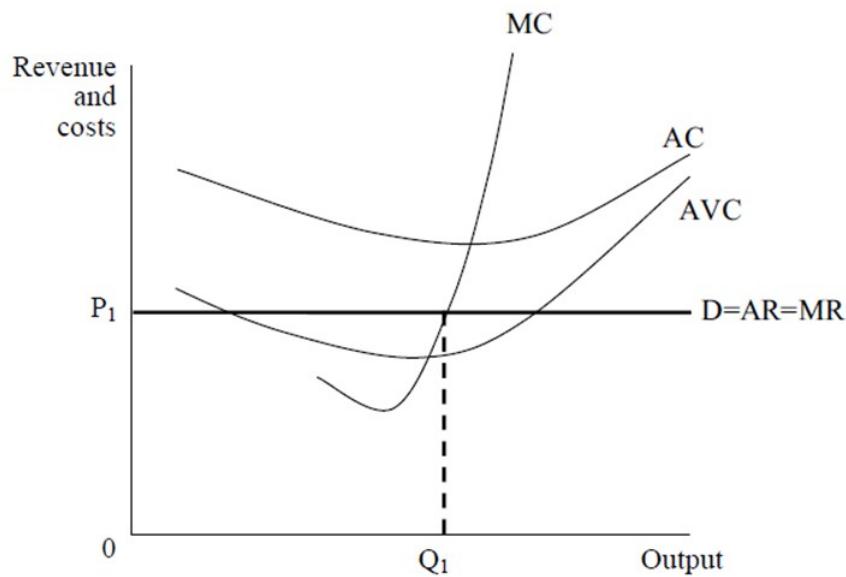
The firm will 'shut down' in the long run if $P < ATC$.

Q1: Why might loss-making firms be able to continue production in the short run?

Q2: Why might loss-making firms wish to continue production in the short run?

Questions:

1.



Based on the above diagram of a short-run perfectly competitive firm, it can be deduced that the firm will

- A shut down immediately
- B raise price
- C expand output
- D continue to produce at Q_1 in the short run
- E lower price

(a) Answer

2.

A loss-making motor vehicle manufacturing firm is most likely to continue in production in the short run if

- A average revenue exceeds average fixed cost
- B government subsidies are withdrawn
- C average revenue exceeds marginal revenue
- D staff threaten industrial disruption
- E average revenue exceeds average variable cost.

(a) Answer:

(1)

3. A perfectly competitive firm is in short run equilibrium and making supernormal profits. The firm is producing a level of output at which

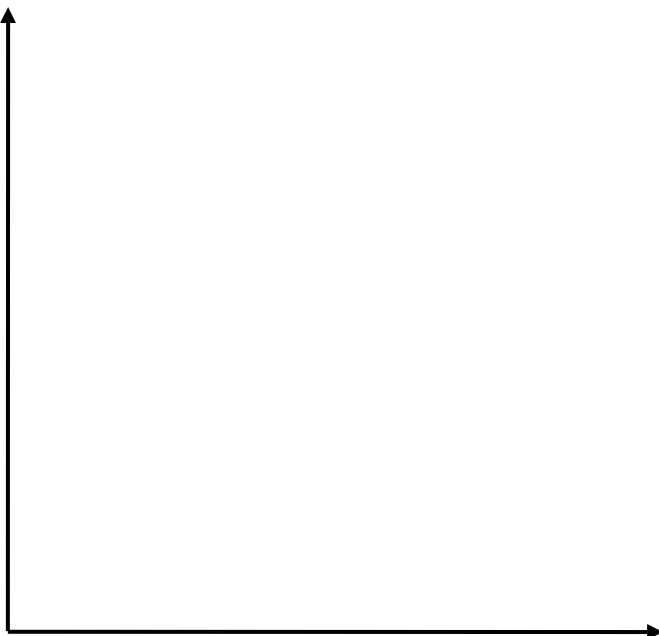
- A marginal revenue is zero.
- B total cost is minimised.
- C marginal profit is zero.
- D total revenue is less than total cost.
- E marginal cost is negative.

(a) Answer

(1)

ADDENDUM

The SHORT-RUN supply curve in perfect competition



Assuming the aim of profit maximisation, the firm will produce where $MC=MR$.

At price P_1 , $MC=MR$ at output Q_1 .

At price P_2 , $MC=MR$ at output Q_2 .

At price P_3 , $MC=MR$ at output Q_3 and so on.

At all prices the MC curve indicates the amount a firm will supply as $P=MC$.

Therefore the MC curve represents the firm's *short run* supply curve **provided that** $P \geq AVC$ (see shut-down points p9); industry short run supply will be the sum of all the firms' short run supply curves.

It follows that the firm's *long run* supply curve is the MC curve above ATC (as all costs – fixed and variable – must be covered in the LR).

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3.4.1 Efficiency

- a. Allocative efficiency
- b. Productive efficiency
- c. Dynamic efficiency
- d. X-inefficiency
- e. Efficiency/inefficiency in different market structures

Allocative efficiency: where $MC=AR(P)$

Allocative efficiency is achieved when the value consumers place on a good or service (reflected in the price they are willing to pay) equals the cost of the resources used up in production. When this condition is satisfied, total economic welfare is maximised and consumer surplus is maximised.

Public sector bodies may aim to charge a price equal to MC in order to maximise consumer welfare.

Regulatory bodies may require public utilities to charge a price equal to MC.

Productive efficiency: where $MC=AC$

Productive efficiency is achieved when the output is produced at minimum average total cost (AC). At this point $AC=MC$.

This can be applied in both the short run and the long run.

In the long run productive efficiency would require that all potential economies of scale are achieved.

Dynamic efficiency (Oligopoly and Monopoly only)

Dynamic efficiency occurs over time and it focuses on changes in the amount of consumer choice available in markets together with the quality of goods and services available.

For dynamic efficiency to be achieved firms must invest in R&D, new product development, new processes. Falling average costs over time – LRAC curve shifts downwards.

Supernormal profit is required for this (i.e. not firms in Perfect Competition and Monopolistic Competition in the LR)

X-inefficiency

X-inefficiency occurs when a firm has little incentive to control costs due to large profits being earned and a lack of competition. This causes the average cost of production to be higher than necessary. The firm may be operating [above/inside of its average cost curve](#). Likely to occur in monopoly, protected from new entrants by high BTEs = breeds complacency.

Sources of X-inefficiency:

- Organisational 'slack'
- Waste
- Overpaying workers/managers
- Paying more than necessary for materials/stock

X-efficiency is likely to occur in perfectly competitive or contestable markets. Firms must operate on the average cost curve to survive as they only make normal profits.



Perfect competition and efficiency

- Now refer back to your diagrams on pp7-8 and the efficiency definitions on p13 and complete the table below:

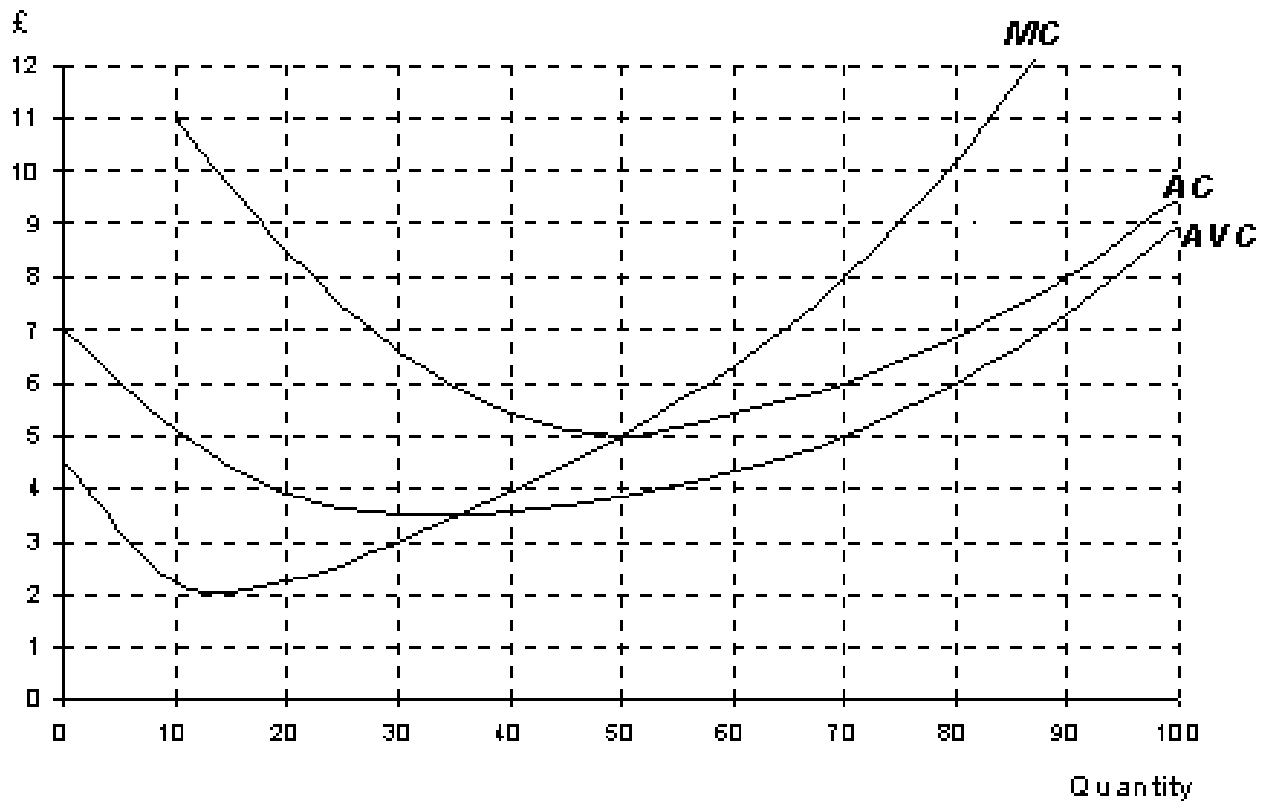
Type of efficiency	Short run (p7)	Long run (p8)
Allocative: ➤ $MC=AR(P)$		
Productive: ➤ $MC=AC$ (min AC)		
Dynamic: ➤ LRAC shifting down over time		
X-efficient: ➤ operating <u>on</u> AC curve		

Evaluation of model of perfect competition

Criticism	Defence

Perfect competition revision exercise

The following diagram shows the cost curves of a firm under perfect competition:



- How much will the firm produce in order to maximise profits at a price of £8 per unit? _____
- What will be its average cost of production at this output? _____
- How much (supernormal) profit will it make? _____
- How much will the firm produce in order to maximise profits at a price of £5 per unit? _____
- How much (supernormal) profit will it make? _____
- How much will the firm produce in order to maximise profits (or minimise losses) at a price of £4 per unit? _____
- What will be its profit position now? _____
- Below what price would the firm shut down in the short run? _____
- Below what price would the firm shut down in the long run? _____

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3.4.3 Monopolistic competition

- Characteristics of monopolistically competitive markets
- Profit maximising equilibrium in the short run and long run
- Diagrammatic analysis

Definition: a market structure where a **large number** of **small** firms produce **differentiated** (non-homogeneous or heterogeneous) products and where there are **low barriers to entry or exit**.

Characteristics:

- Large number of buyers and sellers in market, each of which is relatively small and acts independently (firms are short run profit maximisers, will produce where $MC = MR$)
- Perfect knowledge
- Low barriers to entry & exit
- Differentiated (non-homogeneous) product
- No transport costs



Class discussion: How do assumptions differ from perfect competition (p5)?

Class work: Working in pairs, identify **three** examples of monopolistic competition giving reasons.

- 1.
- 2.
- 3.

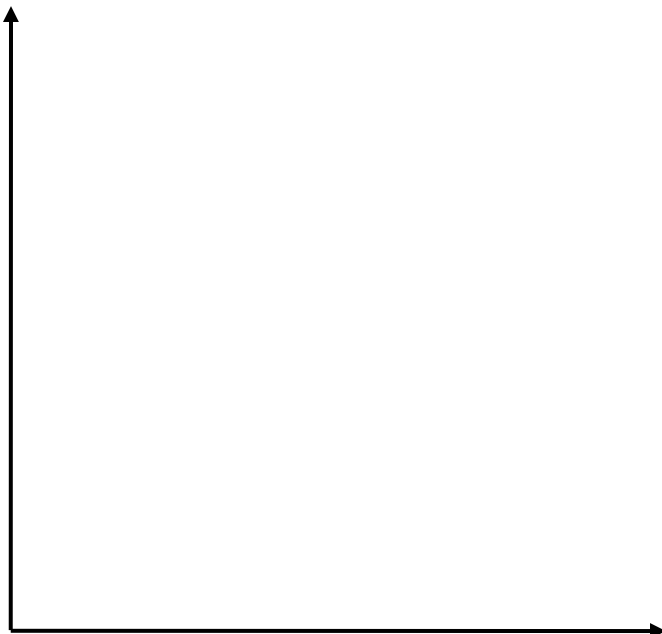


Implications

- Differentiated product** gives *some* **market power** (as can build up brand loyalty using **advertising** to support), firm can raise prices without losing **all** its customers to those firms which have kept stable prices, i.e. **not** price-taker so **demand curve** (=AR) **downward sloping**.
- But market power relatively **weak** due to large number of firms producing relatively close substitutes i.e. PED relatively **elastic** (but depends on brand loyalty).
- MR falls twice as steeply as AR(D) curve (see Theme 3, CC1, p38).

SHORT run

- **Supernormal profits** possible in short run, but will **attract new entrants** to market
- **Losses** possible in short run, but then **firms will exit industry**



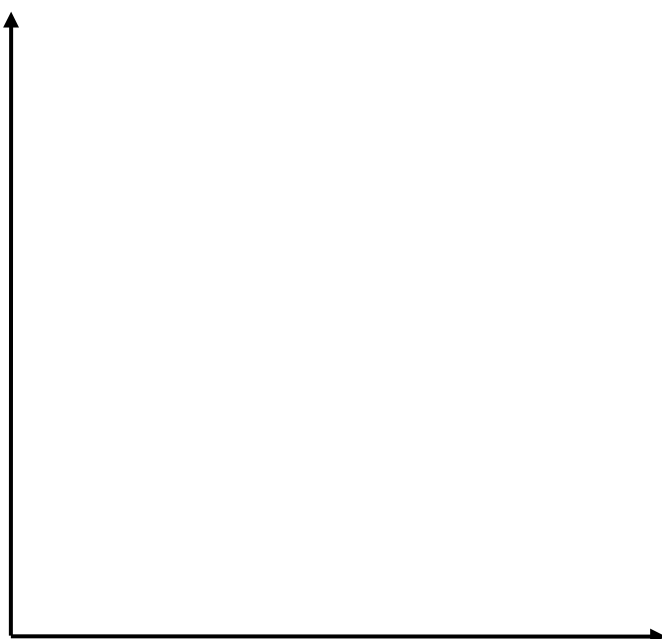
Show a firm in monopolistic competition making supernormal profit in the short run.

Is this firm:

- *Productively* efficient?
- *Allocatively* efficient?

LONG run

- Since **no barriers to entry**, **new firms** will continue to enter the market until no supernormal profits are being made, i.e. $AC = AR(D)$ at equilibrium level of output, only **normal profit** made. Let's demonstrate this on the axes below:



Is this firm:

- *Productively* efficient?
- *Allocatively* efficient?

	SR	LR
PE	Y/N	Y/ N
AE	Y/N	Y/ N

Questions

1.

Which of the following markets has characteristics closest to the model of monopolistic competition?

- A Household water supply
- B Rail services
- C Banking services
- D Window cleaning services
- E Supermarkets.

2.

Minicab taxi firms are best described by the model of monopolistic competition. Which of the following will be true for such firms in long-run equilibrium?

	Productive efficiency	Profit	Product
A	Yes	Supernormal	Homogenous
B	No	Normal	Differentiated
C	Yes	Normal	Homogenous
D	No	Supernormal	Differentiated
E	Yes	Normal	Differentiated

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3.4.4(a)(i) Barriers to entry (and exit)

Before a firm can compete in a market, it has to be able to enter it. Many markets have at least some impediments that make it more difficult for a firm to enter a market. A debate over how to define the term 'barriers to entry' began decades ago, however, and it has yet to be won. Some scholars have argued, for example, that an obstacle is not an entry barrier if incumbent firms faced it when they entered the market. Others contend that an entry barrier is anything that hinders entry and has the effect of reducing or limiting competition (e.g. the oil cartel OECD).

Joseph Bain (1956) identified 4 types:

- Economies of scale
- Absolute cost advantages – patent, ownership of raw materials
- Product differentiation advantages – consumer loyalty
- Capital requirements (fixed and 'sunk' costs)

The economist Joseph Stigler defined an entry barrier as "A cost of producing (at some or every rate of output) which must be borne by a firm which seeks to enter an industry but is not borne by firms already in the industry."

Barriers to entry are designed to block potential entrants from entering a market profitably. They seek to protect the monopoly power of existing (incumbent) firms in an industry and therefore maintain supernormal (monopoly) profits in the long run. Barriers to entry have the effect of making a market less 'contestable' (see Theme 3 CC3).

Barriers may be innocent or strategic:

- Innocent (structural) – not purposefully created to keep out potential entrants e.g. economies of scale
- Strategic (behavioural) – the result of deliberate actions of firms

An example of behavioural is 'switching costs', where consumers find it costly to switch to other suppliers

Q1: Why is it difficult to switch your account to another bank?

Q2: Which type of barrier is more likely to be considered anti-competitive and why?

EXAMPLES OF BARRIERS TO ENTRY

Patents

Giving the firm the legal protection to produce a patented product for a number of years

Entry Limit Pricing

Firms may adopt predatory pricing policies by lowering prices to a level that would force any new entrants to operate at a loss. There is an asymmetry in costs between the incumbent firm (already inside the market) and the potential entrant. If the existing businesses have managed to exploit some of the economies of scale that are available to firms in a particular industry, they have developed a cost advantage over potential entrants. They might use this advantage to cut prices if and when new suppliers enter the market, moving away from short run profit maximisation objectives - but designed to inflict losses on new firms and protect their market position in the long run.

Cost advantages

Lower costs, perhaps through experience of being in the market for some time, allows the existing monopolist to cut prices and win price wars

Advertising and marketing

Developing consumer loyalty by establishing branded products can make successful entry into the market by new firms much more expensive. This is particularly important in markets such as cosmetics, confectionery and the car industry.

Research & Development expenditure

Heavy spending on research and development can act as a strong deterrent to potential entrants to an industry. Clearly much R&D spending goes on developing new products but there are also important spill-over effects which allow firms to improve their production processes and reduce unit costs. This makes the existing firms more competitive in the market and gives them a structural advantage over potential rival firms.

Presence of sunk costs

Some industries have very high start-up costs or a high ratio of fixed to variable costs. Some of these costs might be unrecoverable if an entrant opts to leave the market. This acts as a disincentive to enter the industry.

Examples include capital inputs that are specific to a particular industry and which have little or no resale value; money spent on advertising / marketing / research which cannot be carried forward into another market or industry. When sunk costs are high, a market becomes less contestable. High sunk costs (including exit costs) act as a barrier to entry of new firms (they risk making huge losses if they decide to leave a market).

International trade restrictions

Trade restrictions such as tariffs and quotas should also be considered as a barrier to the entry of international competition in protected domestic markets.

Barriers to entry, exit and mobility *Economist July 13th 2009*

The idea that there are barriers preventing firms from entering markets and barriers preventing them from leaving requires that we view markets as similar to fields surrounded by gates of differing sizes and complexity. The gates have to be surmounted by firms wishing to enter or to leave.

To some extent the gates can be both raised and lowered, not just by those inside the fields but also by those outside wishing to enter. Typical barriers to entry include patents, licensing agreements and exclusive access to natural resources. A patented pharmaceutical, for instance, gives the patent holder exclusive rights for a certain period (usually a maximum of seven years) to manufacture and sell that pharmaceutical within a specified market.

The economies of scale that can be gained from being large and established in a particular field can also act as a barrier to entry. If new entrants calculate that they need to sell large volumes before they can hope to be competitive with existing firms, this acts as a deterrent to their ambition. When, for instance, did a new entrant last try to begin manufacturing for the mass car market?

Barriers to entry can also be erected by governments. Regulations covering the financial services industry are designed to act as a barrier to rogues and villains. But inevitably they also deter many honest businesses too. Forty years ago, foreign banks could not operate in Britain unless they had an office within walking distance of the Bank of England, then the industry's regulator. Needless to say, property prices in the City of London's "Square Mile" were among the highest in the world and acted as a powerful barrier to entry for newcomers.

Well-established firms in a particular field or market may be tempted to raise the barriers when they see a newcomer approaching their patch. They can do this, for instance, by lowering their prices, thus making the newcomers' products less competitive. Moreover, lowering prices may be an easy option for the incumbents since their prices may have been higher than the free-market level because of the barriers.

Monopolies exist where there are insurmountable barriers to entry. If there were no (or only low) barriers, other firms would enter such markets to participate in the monopoly profits.

Barriers to exit make it more difficult for a company to get out of a particular business than it would otherwise have been. They include things like the cost of laying off staff, and contractual obligations such as the payment of rent. For a classic high-street bank with a large number of staff and a wide network of branches, the barriers to exit from traditional banking businesses can be considerable.

Paradoxically, firms sometimes decide for themselves to erect barriers that hinder their own exit from a market. This can be a strategic ploy designed to convey to their competitors the message that they are committed to that market, and that they are not going to leave it in a hurry.

Old ideas about barriers to entry were given a new twist with the development of e-commerce. By using the internet, firms can sometimes surmount traditional barriers with an ease not previously available. Economies of scale, for instance, do not apply in quite the same way.

Much of the deregulation of the 1980s and 1990s was designed by free-market-oriented governments to lower barriers to entry in industries ranging from airlines to stockbroking. But it had only limited success. A 1996 study of the airline industry by the American government's General Accounting Office, for example, illustrated the complex way in which barriers to entry become tightly woven into the fabric of an industry. The study found that three things—namely, limits on take-off and landing slots at certain major airports; the existence of long-term leases giving airlines the exclusive use of airport gates; and rules prohibiting flights of less than a certain distance—continued to impede new airlines' access to airports.

Despite this, in recent years a number of low-cost carriers have managed to some extent to circumvent these barriers by using secondary airports and by marketing tickets via the internet.

Barriers to Entry – research task:**For each of the FOUR case studies (emailed):**

- explain the barriers to entry that exist
- explain whether they are structural or behavioural barriers
- explain the impact on industry structure and consumers

Case study	Barriers	Impact on industry structure and consumers
Buses		
Razors		
Coca cola		
Retail supermarkets		

3.4.5 Monopoly

- a) Characteristics of monopoly
- b) Profit maximising equilibrium
- c) Diagrammatic analysis
- d) Third degree price discrimination:
 - i. necessary conditions
 - ii. diagrammatic analysis
 - iii. costs and benefits to consumers and producers
- e) Costs and benefits of monopoly to firms, consumers, employees and suppliers
- f) Natural monopoly

Monopoly – characteristics and diagrammatic analysis

Monopoly: a market structure where **one firm** supplies all* output in the industry without facing competition because of **high barriers to entry** to the industry.

* UK competition regulator – the Competition and Markets Authority (CMA) – defines monopoly as a firm having 25% market share.

Characteristics/assumptions

1.

2.

3.



Degrees of monopoly

Pure monopoly: One firm only in a market

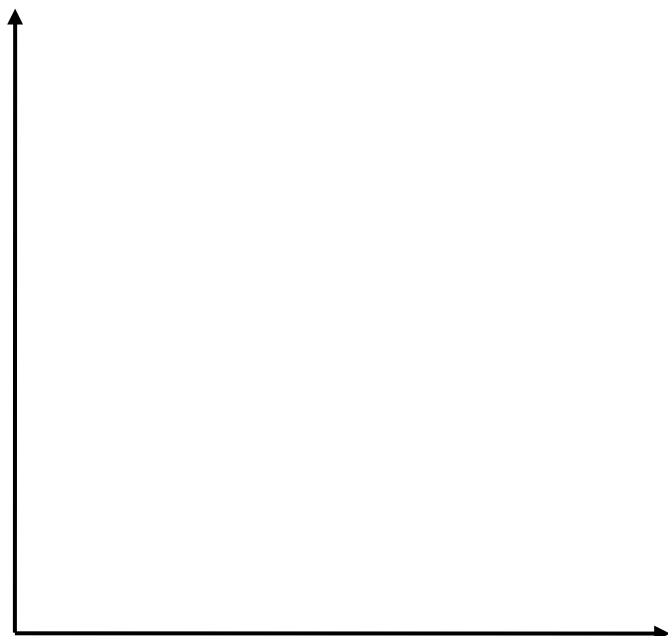
Examples?

Monopoly power (or market power): is the ability to influence the market e.g. to some degree the seller is able to determine the price charged.

Examples?

The **demand curve** for the monopolist is the same as the market demand curve (as the monopolist *is* the industry/market), therefore it is downward-sloping.

The firm is a **price maker** i.e. it can choose the price charged (but this will determine how much it can sell.)



If the monopolist wants to sell more, it must...

The demand curve is the...

Marginal revenue is defined as.....

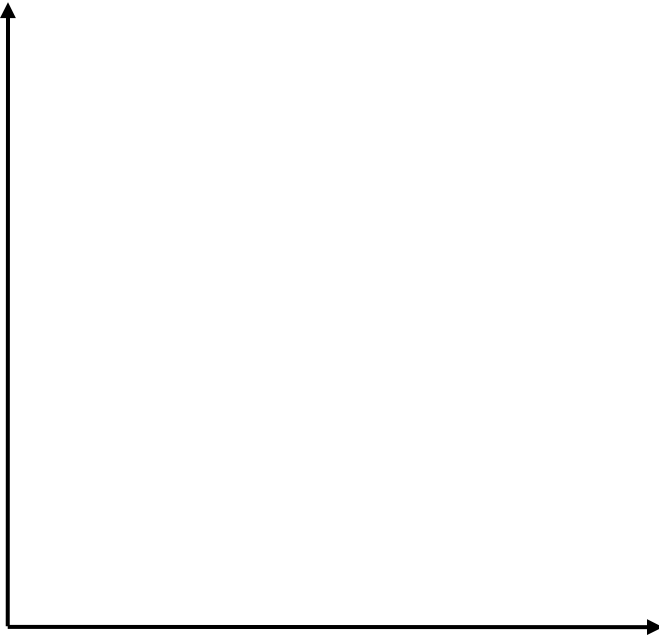
In order to sell more units, the monopolist must reduce the price of ALL units sold. This means that the amount added to total revenue from the sale of one more unit is LESS than the price of the last unit sold. Therefore MR is less than AR and will be twice its gradient (see Theme 3, CC1, p38 and p17 above).

Example:

Output (units)	AR=P (£)	TR (£)	MR (£)
10	200		
11	195		
12	190		
13	185		

Equilibrium output in the short run AND the long run

As there are high barriers to entry in monopoly, the long run equilibrium level of output will be the **same** as the short run level of output.



Equilibrium price and output

Assuming the objective of profit maximisation, the monopolist will produce the level of output where ____ = ____.

Supernormal profit is earned as $AR > \text{____}$. This is **monopoly profit**.

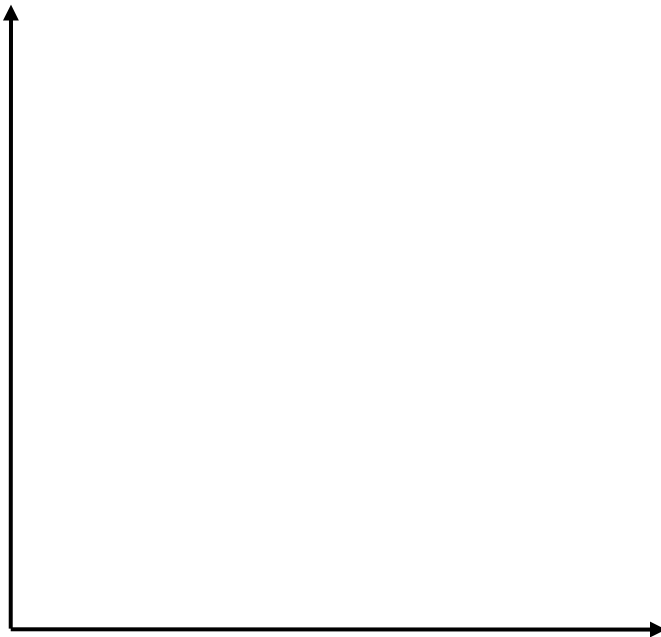
This profit is maintained in the long run as there are high barriers to try to prevent new firms entering the industry.

Predictions of the model

- The firm will make **supernormal profits** in the short run and the long run.
- Price will be **greater than marginal cost**

Loss making monopolist

In the short run it is possible that the firm will make a loss. The monopolist will continue in production as long as $AR > \text{AVC}$ (see shut-down points p9 above).



- a) Draw in AR(D) and MR curves.
- b) Draw in MC and mark in profit-maximising (loss minimising) equilibrium price and output.
- c) Draw in AC curve above AR(D) (remember that MC cuts AC at lowest AC)
- d) Shade in the loss.

Monopoly and efficiency

Monopoly and allocative efficiency

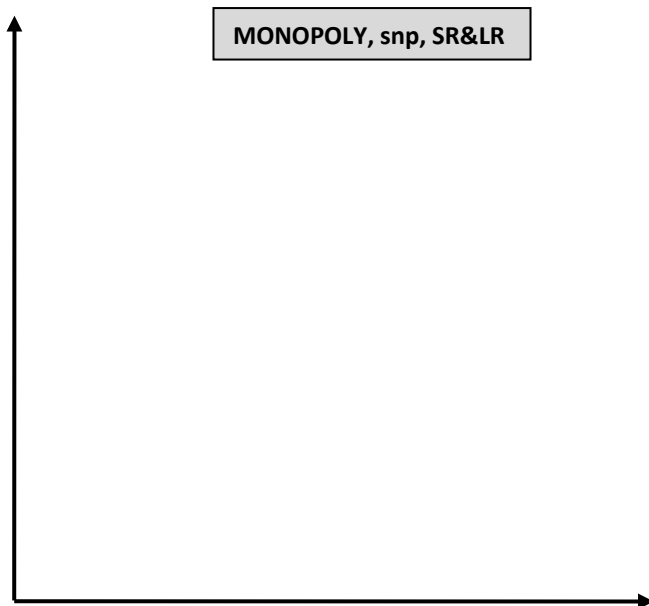
Monopoly is allocatively inefficient as price is greater than _____.

Consumers value an extra unit of the good more than it cost to produce it.

Consumers would prefer more to be produced.

Resources should be shifted into production of this good to meet consumer wants.

There is a misallocation of resources as AR ($D=MPB=MSB$ assuming no +ve externalities) $> MC$ (or $MPC=MSC$ assuming no -ve externalities):

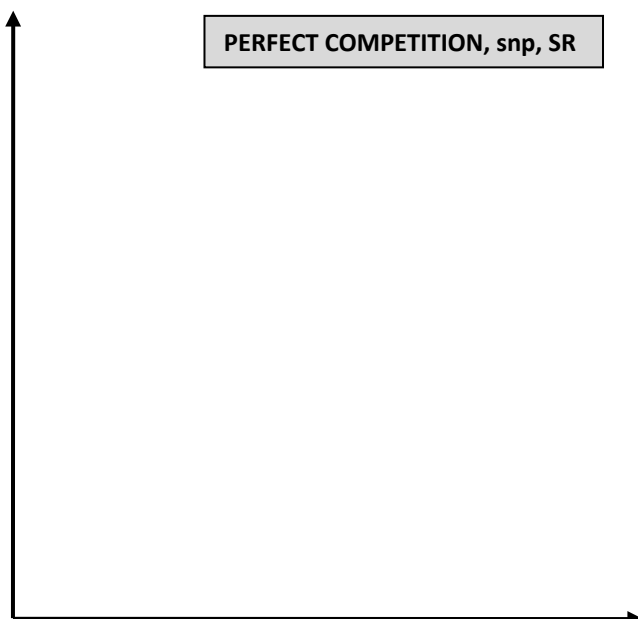


- a) Identify equilibrium price and output in monopoly.
- b) Show the difference between $P(AR)$ and MC at equilibrium output.
- c) Mark in the level of output where $D(AR)=S(MC)$

Compare this outcome to perfect competition

In a perfectly competitive industry equilibrium occurs where $D(AR) = S(MC)$.

Draw this below:



Monopoly and productive efficiency

Monopoly is productively inefficient as costs are not _____.

The firm is operating on the falling part of its ATC curve.

There may also be '**X-inefficiency**' as there is an absence of competition.

Welfare loss of monopoly

- On the axes below, draw typical cost and revenue curves for a (profit-maximising) monopolist making supernormal profits.
- Shade in the welfare loss triangle (where $AR > MC$; consumers value the last unit produced more than the cost of producing it) as a result of monopoly.



Monopoly and efficiency – summary

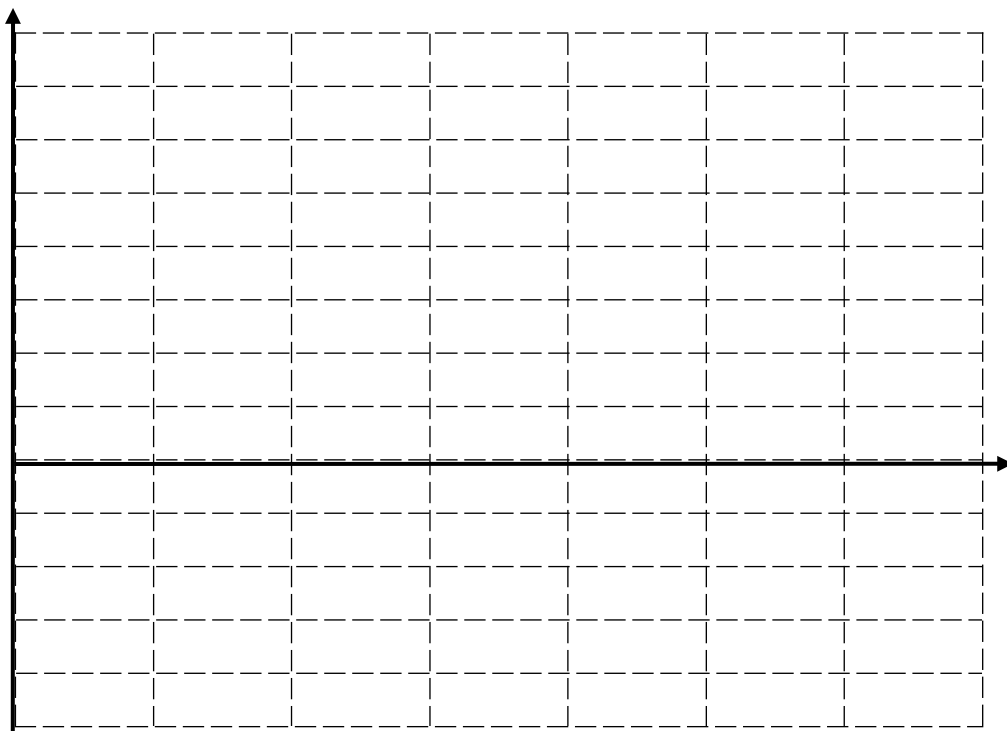
Type of efficiency	SR=LR due to BARRIERS TO ENTRY (see p21)
Allocative: ➤ $MC=AR(P)$	
Productive: ➤ $MC=AC$ (min AC)	
Dynamic: ➤ LRAC shifting down over time	
X-efficiency: ➤ operating <u>on</u> AC curve	

Monopoly – revenue and PED exercise:

OPTIONAL

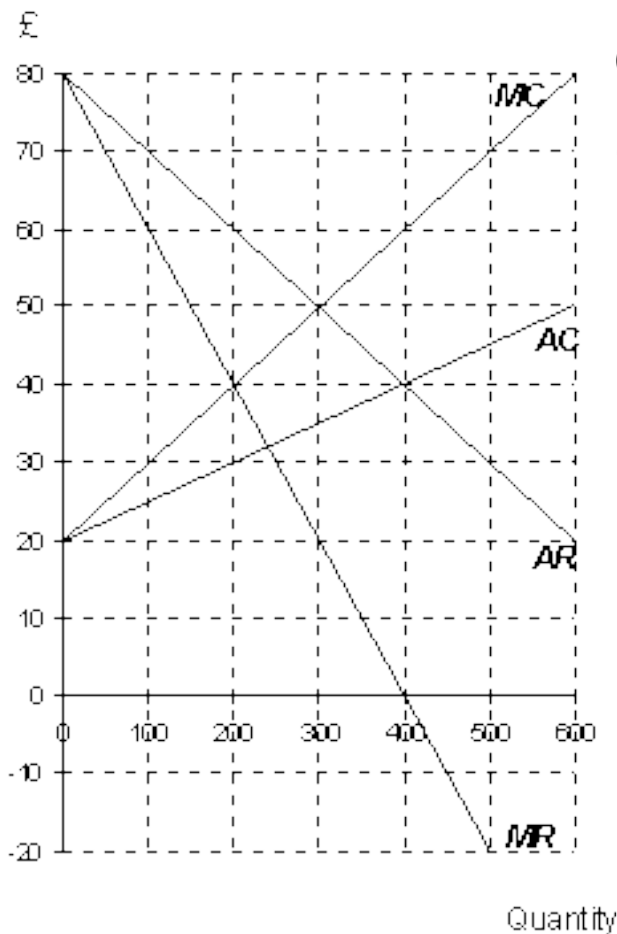
Demand (‘000 per week)	AR=P £	TR £	MR £
0	80		
1	70		
2	60		
3	50		
4	40		
5	30		
6	20		
7	10		

- Calculate TR and MR for each level of demand
- Plot the demand curve (AR) and MR on the graph paper below
- Identify the level of demand at which TR is at a maximum
- At what level of demand is $MR = 0$?
- At what level of demand is there $PED = (-)1$?



Monopoly – revision exercise

NB: notice the rather odd-looking MC and AC curves here??? The absence of a downward-sloping section implies no increasing marginal returns (from specialisation); however what's left obeys our usual rule that **provided MC above AC, AC rising**.



- What is the maximum-profit output? _____
- What is the maximum-profit price? _____
- What is the total revenue at this price and output? _____
- What is the total cost at this price and output? _____
- What is the level of profit at this price and output? _____
- If the monopolist were ordered to produce 300 units, what would be the market price? _____
- How much profit would now be made? _____

(h) If the monopolist were faced with the same demand, but average costs were *constant* at £60 per unit, what output would maximise profit? _____

(i) What would be the price now? _____

(j) How much profit would now be made? _____

(k) Assume now that the monopolist decides not to maximise profits, but instead sets a price of £40. How much will now be sold? _____

(l) What is the marginal revenue at this output? _____

(m) What does the answer to (l) indicate about *total* revenue at a price of £40? _____

(n) What is the price elasticity of demand at a price of £40? _____

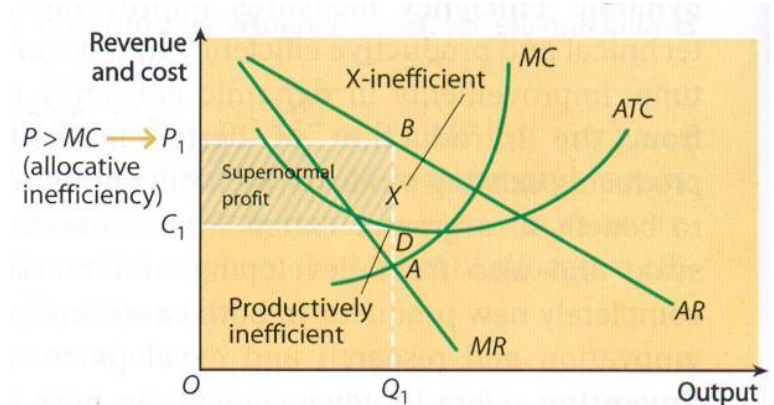
(think about the relationship between *MR* and *TR*.)

Evaluation of monopoly

Costs of monopoly:

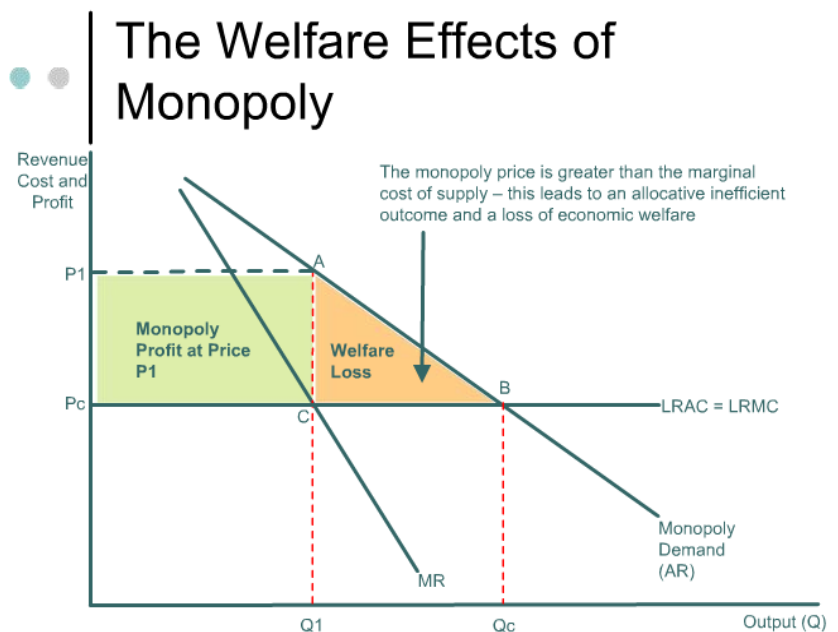
1. Loss of economic efficiency

- Assuming no economies of scale, monopoly equilibrium is both **productively** and **allocatively inefficient**.
- In the absence of competitive pressures, a monopoly is likely to be **x-inefficient** (John Hicks) "The best of all monopoly profits is a quiet life".
- May be **less dynamically efficient** as less incentive to innovate.
- Supernormal profit** provides resources to increase market dominance by **raising barriers to entry**.



2. Welfare loss: higher prices and lower output

- LRAC/LRMC constant**: assumes no economies of scale (simplification)
- AR curve = market **demand curve**
- Perfect competition**: long run equilibrium will produce price P_c , and firms together supply output Q_c
- Profit-maximising monopolist**: output Q_1 where $MR = MC$, at price P_1 .
- Consumer surplus lost**: P_1P_cCA transferred from consumer to monopolist as supernormal profit (producer surplus), also a **welfare loss** to the whole of society of shaded triangle ABC



Implications for allocative efficiency:

- Monopoly** allocatively inefficient: Product is **under-consumed** because **price > MC**.

3. Redistributive effect

Monopoly profit is distributed to shareholders who are likely to be higher income households than consumers- so there is a redistribution from consumers to shareholders.

4. Less consumer choice

If there is just one producer consumers are forced to buy from this producer and have no choice e.g. Microsoft software. **HOWEVER, some claim that there is actually no choice in perfect competition-why?**

Example of monopoly power: Just Giving

<http://www.tutor2u.net/blog/index.php/economics/comments/just-giving-an-abuse-of-monopoly-power>

Watch the short video clip and answer the following questions:

1. What criticisms are made of Just Giving?
2. What percentage of online donations does the company handle?
3. What are their charges?
4. How does the firm respond to the criticism?



Benefits of monopoly

1. Dynamic efficiency

- As firms can earn **supernormal profits** in the **long run** there may be a **faster rate of technological change** that will **reduce costs** and **produce better quality** products for consumers.
- The monopolist may invest profits in **R & D (research and development)** to promote dynamic efficiency
- It is argued a monopolist is never totally safe from competition, as **globalisation** may create international competition, or **radically new substitute products** may threaten the monopoly, the process of **Creative destruction**: breaking the monopoly by product development and innovation, and therefore bypassing any barriers to entry.



Schumpeter and 'creative destruction'

The Austrian economist Schumpeter, arguably "...one of the greatest economists who ever lived...", wrote in defence of capitalism and big business.

He considered that monopoly leads to the development of new products as firms need to get round barriers to entry. They create new products to destroy the monopoly position of existing products.



Kodak falls in the 'creative destruction of the digital age'

(Guardian 2012)

To all intents and purposes it is the end of the "Kodak moment". More than 130 years after a "not especially gifted" high school dropout, George Eastman, founded the camera company that dominated photography for most of the 20th century, Kodak Eastman filed for bankruptcy protection in the US on

Thursday. The company which once sold 90% of the film used in the US and made a type of film – Kodachrome – so beloved by amateur and professional photographers that Paul Simon wrote a hit song about it, finally succumbed to the digital revolution which left its products obsolete after years of ferocious competition from more light-footed rivals in the Far East.



"Kodak was the first company to create the digital camera, but back then most of its profits came from selling chemicals [used for developing film], and they were afraid to invest because they thought it would eat into the traditional business," said Olivier Laurent, news editor of the British Journal of Photography. "When they realised the digital market was here to stay, it had overtaken film, and all Kodak's competitors had far superior digital cameras. Kodak's were never as good and the company lost its 'Kodak moment' reputation as the best in the business."

Kodak, which produced the first mass market Brownie camera priced at \$1 in 1900 with the slogan "You push the button, we do the rest", created the first digital camera in 1975. The original prototype was size of a toaster, had to be held still for a 23-second exposure and only produced 0.01 megapixel black and white images. But the company put the technology on the backburner. In more recent years point-and-shoot cameras have been discarded in favour of ever more powerful smartphones with high resolution cameras built-in. "Kodak was used to selling cheap cameras but with expensive film, where they made all the money. It worked because everyone wanted Kodak film," said Laurent. "But now phones are eating up the compact camera market. Why have a compact camera when an 8 megapixels iPhone is almost as good and it's always there in your pocket?"

Robert Burley, professor of photography at Ryerson University in Toronto, said: "Kodak has been obliterated by the creative destruction of a digital age."

Questions: Why was Kodak's monopoly power eroded?

2. Global competition

Firms have the financial resources to match large overseas competitors.

3. Economies of scale

Monopolist may be able to exploit economies of scale therefore leading to lower cost than under competitive conditions. This would lead to a lower MC curve and therefore a possibility of a LOWER price in monopoly than in perfect competition. Show this on the diagram below:



Natural monopoly: a market where there is only room for one firm benefiting to the full from economies of scale.

- Natural monopolies tend to occur where fixed costs are very high, e.g. railway, or gas/water pipes, or channel tunnel.
- E.g. profit maximising output at 1 million units.
- If market opened to competition, and two firms each take equal share, i.e. 500,000 units of output, each firm will make a loss.
- One firm could survive by expanding at expense of other firm, so industry returns to monopoly.

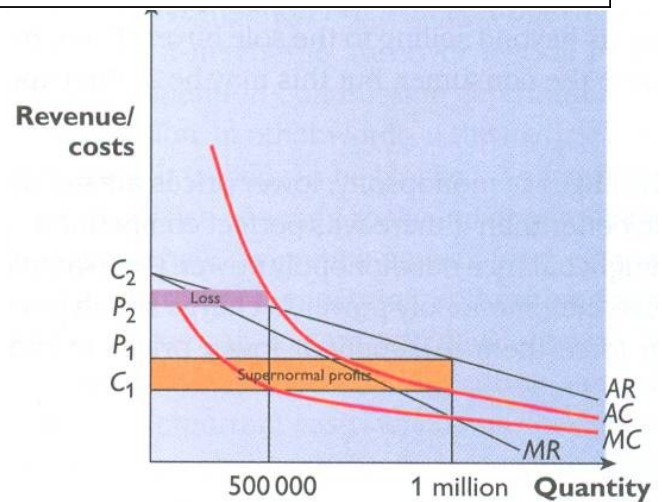
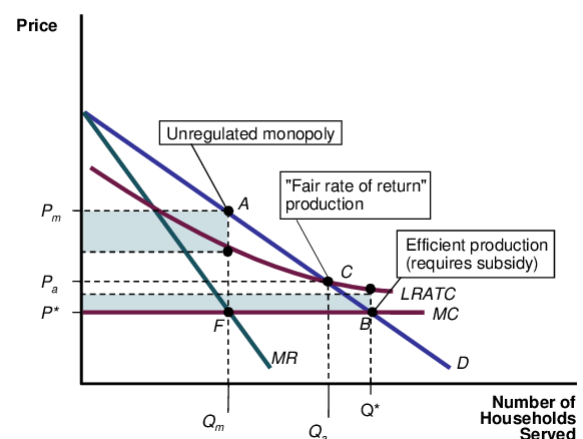


Figure 22 Natural monopoly

- Now consider this slightly differently constructed diagram.....given the extremely high fixed costs, in order for a firm to produce at the allocatively efficient level of output where $MC=AR$ (Q^*) i.e. the socially optimal level, then a subsidy of the bottom shaded rectangle is required (otherwise $LRATC > AR$ and the firm makes subnormal profits/losses and would rationally choose to cut production). However, in the absence of government intervention, the firm would produce at Q_m (generating supernormal profits of the top shaded rectangle) and would therefore underproduce by $(Q^* - Q_m)$

Figure 2.1: Cost Structure of a Natural Monopoly



- 4. Cross-subsidisation:** A decision to fund a loss from one product by raising the price of another.
E.g. Royal Mail charges one price for all first class stamps, and the price of urban deliveries funds the loss made on remote rural deliveries.

Class discussion: Is cross-subsidisation an advantage?

Exercise

"And ... there is often some sort of social judgement that is implied. The implied judgment is that "perfect competition" is a good thing—an objective generally to be sought or achieved by law, while anything less than so-called "perfect competition" is something short of perfection with monopoly at the tail end of the procession being regarded as something very bad that ought to be abolished and forbidden."

Is perfect competition 'perfect'? Should monopoly be forbidden?

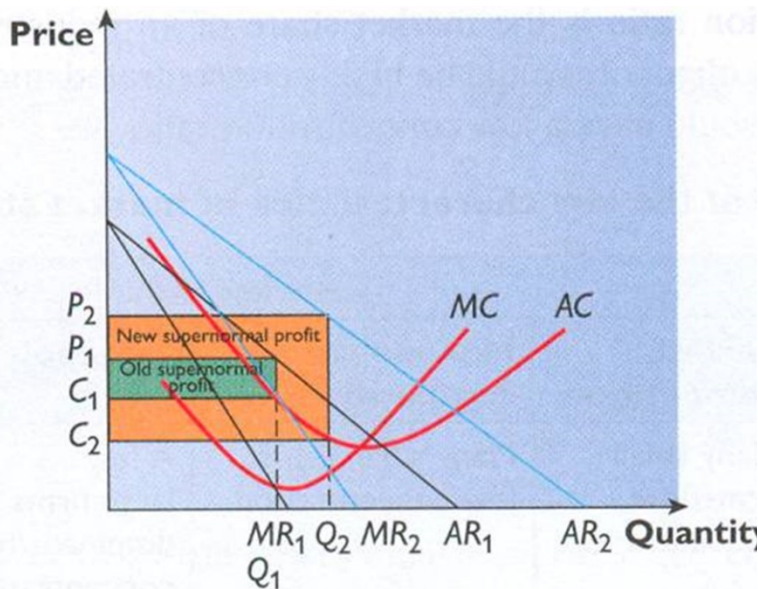
What is your view?

Summary of costs and benefits of monopoly

	Costs	Benefits
Firm		
Consumers		
Employees		
Suppliers		

Impact of a change in demand or costs on a price maker (monopoly/monopolistic competition)

Impact of an increase in demand



Note that AR and MR both shift

Building up the diagram:

Start with monopoly diagram, in this order:

AR

MR

MC

Price and output

AC

Profit

THEN

AR₂ parallel to AR₁

MR₂ parallel to MR₁

Find new output and price

Find new cost

Shade in new profit

NB a fall in demand could turn a profit into a loss

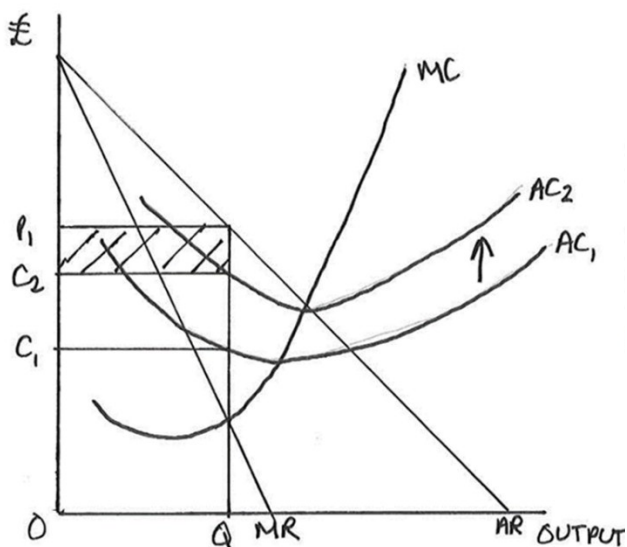
Variations of this diagram:

To show a FALL in demand leading to a smaller profit

To show a FALL in demand causing PROFIT turning to LOSS

To show a RISE in demand causing LOSS turning into PROFIT

Impact of an increase in fixed costs



Upward shift in ATC (not parallel, converging)

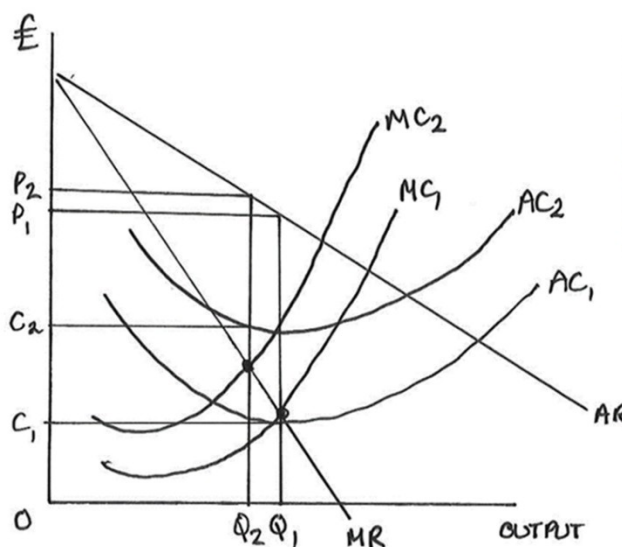
MC unchanged

Why is MC unchanged?

Variations on this diagram:

- A *fall* in fixed costs leading to a larger profit
- A fall in fixed costs *turning loss into profit*
- A rise in fixed costs *turning profit into loss*

Impact of an increase in variable costs



Upward shift in AC and MC
Why do *both* cost curves shift?

Variations on this diagram:

Fall in variable costs lead to rising profit

Question:

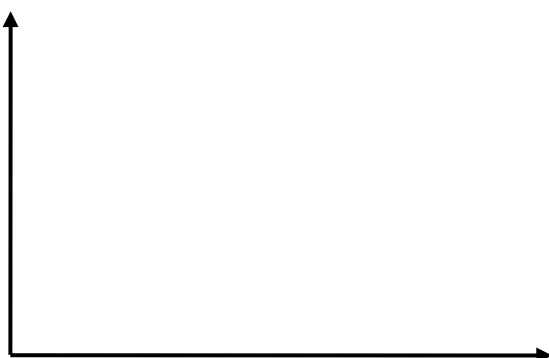
A profit maximising monopolist facing constant average costs experiences a decrease in demand. Other things being equal, which of the following is likely to happen?

(1)

	Output	Price	Profit
A	Stays constant	Falls	Falls
B	Rises	Rises	Stays constant
C	Stays constant	Rises	Falls
D	Falls	Rises	Falls
E	Falls	Falls	Falls

Answer

Draw a diagram to help you answer the question:



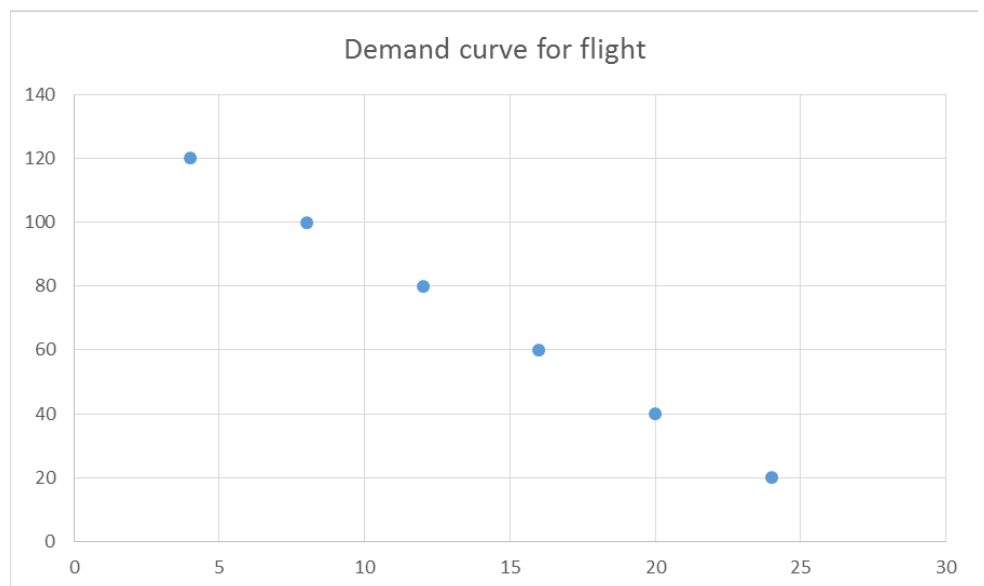
Price discrimination

In 1304 BC Rameses the Great built a toll road (in what is now South Lebanon) through some hills, which was easier than other routes. The servant administering the road was told to... **'Charge what the traffic will bear'**... This was an early example of price discrimination.

How much did you pay? *An investigation into price discrimination*
RoseyJet/Tredwell Tours flight RJ11/TT12 to Paris

From the ticket information available, complete the table to show total revenue for the flight

No. tickets	Price	Revenue



Why do airlines charge different prices to passengers on the same flight?

Definition of price discrimination

Price discrimination is charging different prices to different groups of consumers for an identical good or service for reasons other than differences in cost.

NB: Some ticket price differences may be due to product differentiation rather than price discrimination, e.g. first class, business class

Further questions

Why do carpet sellers in Turkish markets invite buyers to 'haggle'?

Why are Levis jeans sold more cheaply in Bulgaria than in London?

Why do hotels offer weekend discounts for leisure breaks?

Why are car rental prices so much cheaper at weekends?

Why do department stores charge full prices to customers when new fashions come out but cut prices by 50% or more during a seasonal sale?

➤ Price discrimination and consumer surplus

Price discrimination involves the producer attempting to take away (or 'tap into') consumer surplus and turning it into additional revenue. This is shown clearly with perfect (or 'first degree') price discrimination as shown on the diagram below:



In order to derive the market demand curve, a firm would need to line consumers up in order of willingness to pay – from the *most* willing to the *least* willing. **Q: How might a firm/seller determine this in practice?**

.....

.....

.....

(NB: buyers/consumers are likely to want to keep their cards close to their chest for obvious reasons!)

THREE different methods (or 'degrees') of price discrimination:

1. **FIRST degree** – this involves charging consumers the maximum price that they are willing to pay; there will be no consumer surplus (see diagram above).
e.g. _____
2. **SECOND degree** – this involves charging different prices depending upon the quantity consumed.
e.g. _____
3. **THIRD degree*** – this involves charging different prices to different 'groups' of people.
e.g. _____

* only method examinable on Edexcel Economics (A) 2015 spec

Product versioning

One way firms practise price discrimination is to offer *slightly* different products as a way to discriminate between consumers ability to pay. For example:

- Priority boarding tickets. Same flight but for a premium, you get a shorter queue.
- Organic coffee / fair trade coffee
- Extra leg room on airplanes
- First class/second class (on trains where only difference is the carriage décor/legroom)

This is a form of *indirect* segmentation. By offering slightly different choices, the firm is able to separate consumers who are willing to pay higher prices.

Conditions making PD possible

The firm:

- 1) Must have a degree of monopoly power i.e. must be **price maker**, able to select the price.
- 2) Must be able to **identify separate and distinct groups of buyers** and be **able to prevent 'market seepage'** i.e. resale between customers in the different market segments to prevent some consumers buying at a low price and reselling to consumers who would normally have paid a higher price. This is easier to achieve for a unique service e.g. a haircut than for a tangible good.
How is this achieved for airline and train tickets?
- 3) **Different demand elasticities**: each identified group of consumers must have different PEDs. The firm is then able to charge a higher price to the group with a more price inelastic demand and a relatively lower price to the group with a more elastic demand. By adopting this strategy the firm can increase its **total revenue** and **profits**.
- 4) **Low admin costs**. It must be relatively cheap to separate markets and implement price discrimination.

Maximising profit with price discrimination

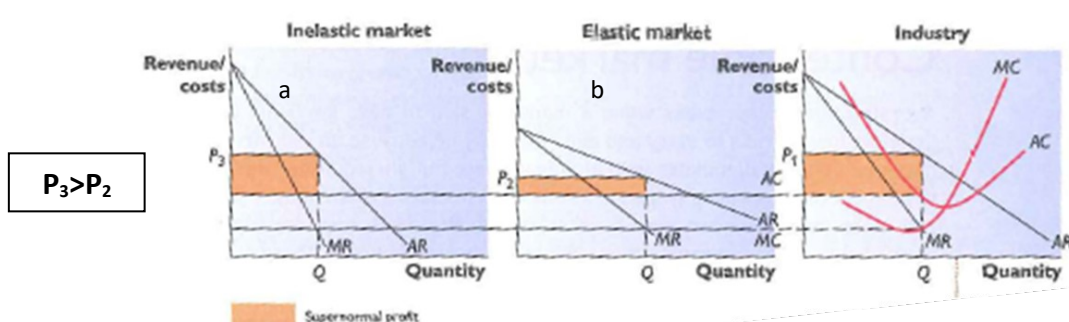
It is possible for a firm to make more profit with price discrimination than with a single price because of 'capturing' consumer surplus.

As we already know, the profit maximising output rule for a single price monopolist is:

$$MC=MR$$

If there are two market segments with different elasticities the profit maximising output rule is:

$$MC=MR_a=MR_b$$



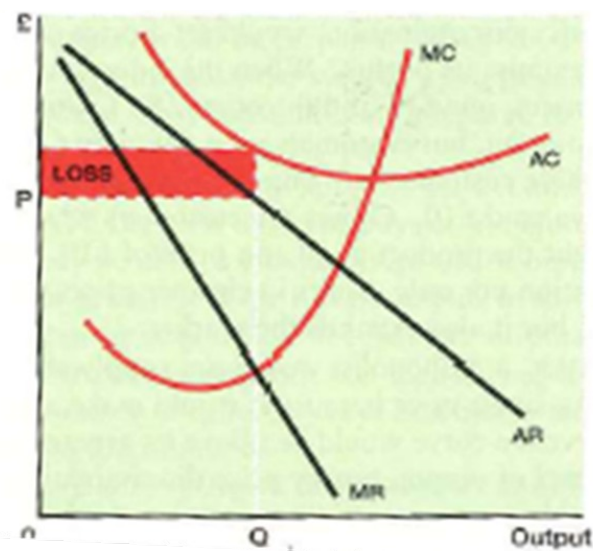
Industry where single price will mean losses

This situation might apply in the railway industry where fixed costs are very high. In many countries railways make losses and are subsidised by the State.

Why are fixed costs so high?

How do railway operators discriminate between passengers?

How do railway operators prevent resale of tickets/market seepage?



Questions:

1. In which of the following is the practice of price discrimination most likely to occur?

- A Sales of milk in a supermarket
- B Sales of cinema tickets
- C Sales of a national newspaper
- D Sales of an ipod in an electrical store
- E Sales of tobacco in a newsagent

2. In May 2009, British Airways (BA) quoted the following prices for a flight from London to Toronto, Canada:

Date of flight	Price
1 August 2009	£407
1 October 2009	£204

Source: www.britishairways.com/travel/fx/public/en

The most likely explanation of this pricing strategy is:

(1)

- A more spare capacity on BA's planes on 1 August 2009
- B higher costs of flying planes in October than in August
- C that there is a difference in price elasticity of demand in August and October
- D the expectation that some airlines will go bankrupt between August and October 2009
- E an expectation that the world recession will be over by October 2009.

3. The internet websites Shopping.com, Shopzilla.com and PriceGrabber.com have grown rapidly over recent years. These websites provide consumers with price comparisons for many retail items including DVDs, computers and toys. The growth of such websites is likely to

- A reduce the extent of price discrimination among retail goods
- B enable retailers to capture more consumer surplus
- C increase production costs for retailers
- D disadvantage consumers
- E increase the producer surplus of retailers

Costs and benefits of price discrimination:

	Costs	Benefits
Consumers		
Producers		

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3.4.6 Monopsony

- a) Characteristics and conditions for a monopsony to operate
- b) Costs and benefits of a monopsony to firms, consumers, employees and suppliers

Definition: A type of market structure where there is one buyer and many sellers or where one firm has significant 'buying power'. The firm has the ability to exploit its bargaining power with a supplier to negotiate lower prices. This occurs in product and labour markets.

"Buying power may be defined as the situation which exists when a firm or a group of firms, either because it has a dominant position as a purchaser of a product or a service or because it has strategic or leverage advantages as a result of its size or other characteristics, is able to obtain from a supplier more favourable terms than those available to other buyers."

Examples:

- Electricity generators can negotiate lower prices for coal and gas supply contracts
- Low-cost airlines getting a favourable price when purchasing a new fleet of aircraft
- British Sugar buys almost the entire sugar beet crop produced in the UK year
- Amazon's buying power in the retail book market (and more significantly now in the ebook market)– it gets a better price than other booksellers and this gives it a significant competitive advantage.
- The increasing buying power of countries – for example China – in securing deals to buy mineral deposits from other countries – often in less developed nations in Africa.
- The government is a major buyer e.g. in military procurement – and might be able to use this bargaining power when confirming contracts for new military equipment and supplies. Also the National Health Service.

Monopsony power examples- good or bad?

1. Halfords and their relationships with suppliers

In late 2005 allegations of abuse of buying power were directed at the UK bike and accessory retailer Halfords.

Halfords, with over 400 retail



car

outlets, are twelve times larger than their nearest rival and thus suppliers rely strongly on their custom. In December 2005 it was reported in the financial press that Halfords were changing the terms of their agreements with suppliers. In particular Halfords allegedly told their suppliers that that would be paid in 120 days not 90 days as had been the practice since 2003, before which it was 30 days. Halfords would benefit by an extra £53.2 million - almost twice the capital spending by the firm for the period. In addition Halfords allegedly demanded a 5% across the range cut in prices and a bigger contribution to the company's advertising spend by suppliers. *Source: Robert Nutter, EconoMax, February 2006*
How is Halfords using its monopsony power to increase its profits?

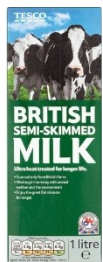
2. Supermarkets

Extracts from OFT Report 2006 on retail supermarkets

"The OFT is aware of two broad areas of concern. First, the strength of buyer power of the supermarkets might distort competition in the upstream supply market. For example, where suppliers are in a weak position relative to supermarkets, their incentives to invest or innovate in new products might be distorted if, for example, the supermarkets used their buyer power to reduce the prices paid to them."

"...the large supermarkets might use their buyer power to obtain better terms from suppliers to such an extent that suppliers are forced to charge higher prices to their other customers (including smaller retailers and the wholesalers who supply them)"

Dividing the spoils in the milk industry



"Supermarkets use their gigantic size and bargaining power to capture almost all of the profit from the milk industry, leaving farmers with a tiny proportion of the total: equal to only half a pence for each litre of milk." That is the central finding of new research by Drs Howard Smith and John Thanassoulis presented at the Royal Economic Society's 2008 annual conference. Farmers are in the weakest position, only able to secure 0.5 pence per litre, or about 3% of the total supply chain profits from liquid milk."

The research suggests that dairy farmers might help to counter-balance the power of the supermarkets by strengthening farmers' cooperatives. This is already happening in many parts of the country. But fundamentally the retailers will always hold the whip hand in pricing negotiations and contract agreements. The danger is that the market failure due to excessive monopsony power will lead to many more milk farmers leaving the industry, thereby increasing the demand for imported milk. Is the buying power of dairies such as Robert Wiseman and Dairy Crest, who then sell much of their processed milk to large supermarkets such as Tesco and Asda, resulting in a fair deal for the small scale dairy farmer – the price taker? When a market has a sole buyer, a monopsony, prices are depressed by the buying power of the only outlet for the producers. Arguably the dairy farmer has lost out to the combined buying power of the dairies and the supermarkets.

To what extent is the monopsony power of retail supermarkets good or bad for consumers and suppliers?

Case study: Premier foods watch the video clip at <http://www.bbc.co.uk/news/business-30338663>

Pay and stay

1. What do Premier foods produce?
2. What are PF requesting from suppliers and why?
3. What will happen to suppliers who do not comply?

Is this legal?



Summary of effects of monopsony

	Costs	Benefits
Firms		
Consumers		
Employees		
Suppliers		

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GLOSSARY pt1/2

Term	Formula/definition/explanation
Perfect competition	
Monopolistic competition	
Oligopoly	
Monopoly	
Monopsony	
Homogeneous product	
Heterogeneous product	
Barriers to entry	
Barriers to exit	
Innocent/structural barriers to entry/exit	
Strategic/behavioural barriers to entry/exit	
Predatory pricing	
Limit pricing	
Sunk costs	
Interdependency	
Price taker	
Price maker	

(Glossary pt2/2 overleaf)

Supernormal (abnormal) profit	
Subnormal profit (loss)	
Normal profit	
Shut-down point	
Short-run supply curve	
Allocative efficiency	
Productive efficiency	
Dynamic efficiency	
X-inefficiency	
Price discrimination:	
- FIRST degree	
- SECOND degree	
- THIRD degree	
Welfare loss	
Natural monopoly	
Cross subsidisation	
Consumer surplus	
Product versioning	
Market seepage	