

Chapter 14 Market structure: monopoly

Answers to Knowledge checks

- 14.1** If a monopoly faces competition from substitute products, it is not the only seller of the good, so it is not a monopoly.
- 14.2** Not necessarily: it depends upon the position of the cost curves.
- 14.3** If required to set price equal to marginal cost in this context, the monopoly will make normal profit only.
- 14.4** The incentive to engage in R&D is that it will have long-term benefits by enabling higher profits in later periods, and will consolidate the firm's position in the market.
- 14.5** A natural monopoly occurs when a firm faces such strong economies of scale that there is only room for one firm in the market. In this situation, the first firm in the market can always undercut any potential rivals, as the scale economies act as an effective barrier to entry.
- 14.6** A government would not want a natural monopoly providing goods such as electricity, gas, or water to be seen to be making supernormal profits on an essential good to which all citizens should have access.
- 14.7** Competition flourished more easily in telecommunications than in (say) gas or electricity generation because of developments in technology. In particular, the development of mobile phone technology and smartphones led to intense competition among providers, whereas BT had been a natural monopoly when everyone depended on land lines.
- 14.8** This would not be a valid interpretation. Indeed, we could argue that the deterrent effect of action by the CMA is working well because few firms have been penalised. Or it could be that the early intervention of the CMA causes firms to change their behaviour.
- 14.9** If the regulator has less information about the workings of the industry that it is trying to regulate, then it will be more difficult to monitor performance.
- 14.10** If the product could be resold by consumers, they could buy at the low price, and resell at the higher. This would eventually wipe out the difference in price.
- 14.11** The incentive for a firm to practise price discrimination is that it would be able to make higher profits than if it charged the same price to all consumers.

Answers to Exercises and Case studies

Exercise 14.1

- a** See Table A14.1. (Remember that price is the same as average revenue, so total revenue is column (1) x column (2). Marginal revenue is the change in total revenue from one level of output to the next. This is divided by the change in output — which in this case is 1.)

Table A14.1 Marginal revenue for a monopoly

(1) Demand ('000 units/week)	(2) Price (£'000)	(3) Total revenue (£'000)	(4) Marginal revenue (£'000)
0	80	0	
1	70	70	70
2	60	120	50
3	50	150	30
4	40	160	10

5	30	150	-10
6	20	120	-30
7	10	70	-50

- b** Remember that when you plot MR the points need to be located half way between the output levels.

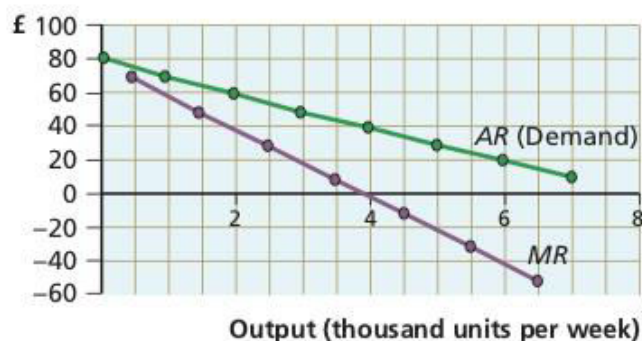


Figure A14.1 Revenue of a monopolist

- c** See Figure A14.2.

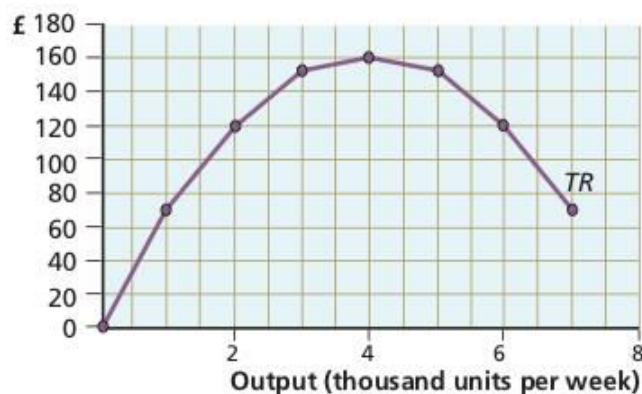


Figure A14.2 Total revenue

- d** Total revenue is at a maximum at output level 4 (thousand).
- e** Marginal revenue is zero at output level 4 (thousand). (It is no coincidence that MR is zero at the maximum point of TR : this is a mathematical property of these curves.)
- f** Unit own-price elasticity of demand is also at the point where TR is at a maximum and MR is zero, i.e. at output level 4 (thousand).
- g** Revenue is maximised at the point where $MR = 0$. A profit-maximising monopolist will always choose output such that $MR = MC$, and since MC will always be positive this will be to the left of the $MR = 0$ point. Therefore, the profit-maximising monopolist will always produce less output than a revenue maximiser.
- h** As demand is price elastic to the left of the $MR = 0$ point, the monopolist will choose to produce in the elastic range of the demand curve.

Exercise 14.2

Whether the firm is able to maximise profits as a monopolist depends on a number of factors. For example, although the firm has a monopoly to operate trains on the route, this does not necessarily mean that there are no substitutes for the firm's product. The firm may need to take into account competition from bus companies, or be aware that individuals may choose to travel by car if the fares charged are perceived as being too high. Furthermore, if the monopoly were

seen to be exploiting its market position to make excessive supernormal profits, there is always the possibility that the franchise would be withdrawn. However, in recent years the problem facing rail franchise companies has been rather different, as some have made substantial losses and have had to be rescued by government intervention.

Exercise 14.3

In tackling this question, remember that the key conditions for price discrimination to be possible are for different consumers (or groups of consumers) to have different price elasticities of demand, and a situation in which the market can be segmented, i.e. where the product cannot be resold — if that were possible, we would expect a process of arbitrage to take place, and price discrimination could not be sustained.

- a** Hairdressing is certainly a product that cannot be resold. But would there be different elasticities of demand? One possibility is that pensioners and/or students might be prepared to visit hairdressers at off-peak times of the day, so that hairdressers could offer discounts to such groups.
- b** Peak and off-peak rail travel is a common example of price discrimination, reflecting the fact that the product cannot be resold, and that commuters display more price-inelastic demand than travellers who are free to travel at any time of day.
- c** Sellers of apples are unlikely to be able to practise price discrimination, as apples can readily be resold, and there may be no identifiable groups of consumers displaying differing price elasticities of demand.
- d** In the case of air tickets, price discrimination can occur in a number of ways. One possibility would be to charge higher prices for travellers who book late, as these are more likely to be business travellers who need to attend business meetings, whereas holiday passengers may plan further ahead. Similarly, you might interpret business class (or first class) fares as an example of price discrimination, where again there may be a difference in the elasticity of demand between business travellers (who may have their tickets paid for by their companies) and other travellers. (The situation is less transparent than some of the other examples, as the quality of service provided is also different.)
- e** In the case of newspapers, the possibilities for price discrimination may again be limited, although some firms do offer discounts to students. This may be with the aim of encouraging a habit of reading a particular newspaper that may persist in post-student life.
- f** Plastic surgery is certainly a product that cannot be resold, and there may be widely differing sensitivities to price among consumers. It may even be that surgeons can negotiate individual prices with individual clients, thereby creating first-degree price discrimination.
- g** Beer is another good for which there may only be limited opportunities for price discrimination — although, again, there may be student discounts in student union bars, where there is the possibility of excluding non-students.

Case study 14.1

Of cabbages and rings

- a** It seems clear that the market for cabbages is close to perfect competition, whereas the market for diamond rings is a monopoly.
- b** Remember the assumptions of perfect competition:
 - 1** Firms aim to maximise profits.
 - 2** There are many participants (both buyers and sellers).
 - 3** The product is homogeneous.
 - 4** There are no barriers to entry to or exit from the market.

- 5 There is perfect knowledge of market conditions.
- 6 There are no externalities.

If you re-read the first paragraph you should find that most of them appear, albeit not in the same words, therefore leading to the conclusion that Ted Greens operates under conditions approaching perfect competition.

In contrast, Edward de Vere has some control over price, faces few substitutes and is able to increase profits by restricting output and raising price. He does not have to worry about competition from other firms as he is the only seller of diamond rings. This market meets the conditions specified for the market to be regarded as a monopoly.

- c The last sentence of the first paragraph indicates that there are some years in which Ted Greens 'barely covers his costs'. If this situation were to arise persistently, then Ted would probably give up and decide to grow some other crop. One of the characteristics of some commodity markets is that supply does tend to fluctuate from season to season, as growing conditions vary with the weather. This means that firms have to take decisions on the basis of expected price, as they cannot predict the weather with any degree of certainty, and by the time the cabbages are ready for market it is too late to switch production by growing something else. As cabbages cannot be stored indefinitely without loss of quality, supply is highly inelastic at harvest time. This is one way in which this market may not meet all of the conditions of the model of perfect competition. Specifically, freedom of exit may not be a valid assumption in the very short run.
- d In a perfectly competitive market, the prospects for increasing profitability are limited. Ted might try to go organic, and therefore attempt to convince potential buyers that he has a premium cabbage crop for sale. This would be taking the market away from being perfectly competitive. The notion of product differentiation (which is what this would be) is introduced in Chapter 15.
- e The change can be seen in Figure A14.3.

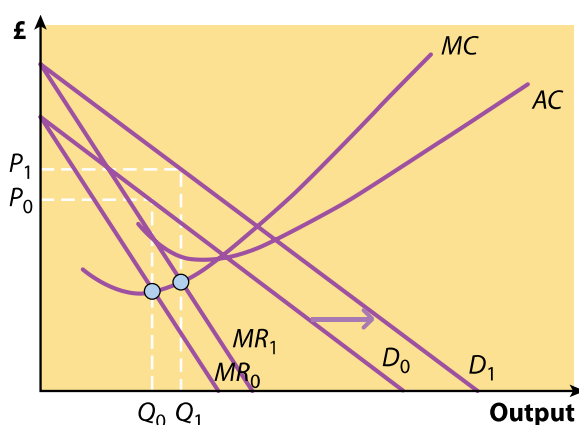


Figure A14.3 A monopoly faces an increase in demand

Initially demand is at D_0 and the corresponding marginal revenue curve is at MR_0 . The monopolist (Edward) maximises profit by choosing the level of output at which marginal revenue is equal to marginal cost, which is at Q_0 . Price will be set at P_0 . If demand increases to D_1 , the new profit-maximising output is at Q_1 , and the price charged will increase to P_1 .

- f The appearance of a rival firm on the scene is going to move the market away from being a pure monopoly. Edward will no longer be able to maintain his practice of restricting output and raising price, but will have to take decisions based on the strength of the new rival. This may introduce a strategic element into the firm's decision-making, as the actions and reactions of the rival firm will need to be taken into account. This creates an oligopoly situation, which is discussed in Chapter 15.

Answers to end-of-chapter questions

A Multiple-choice questions

- 1 a. Supernormal profit
- 2 a. Few barriers to entry
- 3 c. Competition and Markets Authority

B Knowledge and understanding questions

- 4 Characteristics may include:
 - There is a single seller of a good
 - There are no substitutes for the good, either actual or potential
 - There are barriers to entry into the market
 - Price discrimination
 - Supernormal profits

Two characteristics explained	4 marks
One characteristic explained AND one characteristic identified	3 marks
One characteristic explained OR two characteristics identified	2 marks
One characteristic identified	1 mark

- 5 A price maker is a firm that is able to choose the selling price for its good or service, as it faces a downward-sloping demand curve. In monopoly, the firm, assuming it is a profit-maximising firm, will choose to produce where $MC = MR$.

An explanation of why a monopoly may be a price maker	up to 2 marks
A diagram showing why a monopoly may be a price maker	up to 2 marks

- 6 X-inefficiency occurs when a firm has higher average costs due to a lack of competition.

A full explanation of X-inefficiency	2 marks
A vague or partial explanation of X-inefficiency	1 mark

- 7 Advantages may include:
 - The ability to innovate/complete research and development
 - Economies of scale can allow lower costs and prices
 - Can be evidence of a successful industry/firm
 - Can make the firm/industry internationally competitive
 - Can support loss-making services
 - Can be more efficient

Two advantages explained	4 marks
One advantage explained AND one advantage identified	3 marks

One advantage explained OR two advantages identified	2 marks
One advantage identified	1 mark

C Stimulus response question

8 a Nationalised means that a firm is in public (government) ownership).

A full explanation of nationalised	2 marks
A vague or partial explanation of nationalised	1 mark

b A natural monopoly is a monopoly that arises in an industry in which there are such substantial economies of scale that only one firm is viable.

An explanation of a natural monopoly	up to 2 marks
A diagram showing a natural monopoly	up to 2 marks

c

AO1 Knowledge	1 mark
AO2 Application	1 mark
AO3 Analysis	3 marks
AO4 Evaluation	3 marks

Knowledge (1 mark) is likely to include:

- Regulatory bodies
- Privatisation

Application (1 mark) is likely to include:

- Application to the market for tap water

Analysis (3 marks) is likely to include:

Analysis of the effects of a regulatory body on a market, for example:

- To control prices
- To limit price increases
- To regulate quality
- To act as an ombudsman

Evaluation (3 marks) is likely to include:

Evaluation that a regulatory body may not have a beneficial effect on the market, for example:

- A focus on cost saving as opposed to quality
- The cost of setting up and operating the regulatory body
- Regulatory capture

A judgement of the importance of setting up regulatory bodies in the privatised tap water market

d

AO1 Knowledge	1 mark
AO2 Application	1 mark
AO3 Analysis	5 marks
AO4 Evaluation	5 marks

Knowledge (1 mark) is likely to include:

- Natural monopoly
- Nationalisation

Application (1 mark) is likely to include:

- Application to the market for tap water and UK economy

Analysis (5 marks) is likely to include:

Analysis of the disadvantages to the UK economy of operating the tap water market as a national nationalised monopoly, for example:

- Require government spending — opportunity cost
- May be uncompetitive/inefficient
- May stop new entrants into the market
- Prices may be too high

Evaluation (5 marks) is likely to include:

Evaluation that the disadvantages may not affect the UK economy, for example:

- Depends upon the nature of the product
- Depends upon the state of the economy
- Depends upon the cost to the UK government
- Depends upon the long-term plans for the industry

A judgement of the most likely/important possible disadvantage to the UK economy of operating the tap water market as a natural nationalised monopoly

D Essay question

9

AO1 Knowledge	6 marks
AO2 Application	6 marks
AO3 Analysis	6 marks
AO4 Evaluation	7 marks

Knowledge (6 marks) likely to include:

- Characteristics of monopoly:
 - There is a single seller of a good
 - There are no substitutes for the good, either actual or potential
 - There are barriers to entry into the market

- Price discrimination
- Supernormal profits

Application (6 marks) is likely to include:

- Application of the characteristics of monopoly to the search engine market and Google

Analysis (6 marks) is likely to include:

Analysis of the characteristics of monopoly that Google demonstrates, for example:

- Has the largest share of the market
- Differentiates service offered — brand identity
- Many barriers to entry — legal, logistical, marketing, operational
- High sunk costs
- Google earns considerable (supernormal) profits

Evaluation (7 marks) is likely to include:

Evaluation of the characteristics of monopoly that Google does not demonstrate, for example:

- Many other search engines — not a single seller
- Search engine service may be seen as a homogeneous service
- Are Google's profits actually supernormal? In the technology market these may be considered normal profits
- No price discrimination — free service to users

Evaluation that Google may demonstrate characteristics of other market structures, for example:

- Oligopoly — few dominant sellers (Bing, Yahoo, etc.)
- Monopolistic competition
- Perfect competition

A judgement of the extent to which Google demonstrates the characteristics of operating in a monopoly market