# Unit 3

## 1 Types of business

### Activity 1

**(a)** Public limited company – It is a US global business and has 'Inc' after its name (US usage)

**(b)** State-owned enterprise – 'Board' at the end shows it is state-owned

**(c)** Private limited company – (Pvt) shows it is a private limited company

**(d)** Public limited company – Unilever is a multinational company and 'Limited' is used in India for a public limited company

**(e)** Private limited company – This states it is a private limited company

**(f)** Public limited company – 'Holdings' suggests it is a very large business that owns several other businesses and therefore is more likely to be a public limited company

**(g)** Sole trader – Suggests only one owner and it is a small business of just one café

**(h)** Partnership – Suggests it is a small business of one shop and has two owners

**(i)** Sole trader – Small business and probably a sole trader although it could be a partnership

**(j)** Public limited company – Global business that has 'plc' after its name

### Activity 2

Students' own answers.

### Exam practice

**1** An organisation that is owned and controlled by the state.

**2** The joint venture will increase competition for the three state-owned airlines. As the joint venture is with a private sector business it may be more efficient than the state-owned airlines. As one of the partners in the joint venture is state-owned it will be able to help AirAsia gain access to the market and understand the way of operating in China that has previously been dominated by state-owned airlines. As the new venture is with a budget airline it is likely to offer much lower prices on its flights; something that is not currently offered by the three existing airlines.

**3** Increased competition should lead to lower prices for customers, which should lead to higher demand. Budget airlines make flights more affordable for customers on lower income as income elasticity may be high/elastic.

There may also be more choice and more flights – AirAsia might fly to different destinations and to different airports, increasing accessibility for some customers to areas of China or elsewhere not previously visited.

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**4** There is restricted access to Chinese markets for many goods and services. It may not be possible for airlines to enter the Chinese market without having part ownership of, or a joint venture with, a Chinese business. AirAsia has therefore decided to form a joint venture with the government of Henan province and Everbright, a Chinese state-owned conglomerate. The benefits of this joint venture for AirAsia will also include gaining an insight into how to do business in China. The Chinese way of doing business and the tastes of Chinese consumers may be very different to consumers in other Asian markets. The joint venture will increase the chances of a successful entry into this market.

There is a shortage of pilots in China and the setting up of a pilot training school will increase the supply of these skilled workers, which should keep down the cost of paying pilots. This should give AirAsia access to a ready supply of pilots to ensure its expansion into the Chinese market.

However, the market for budget airlines is new in China and the Chinese partner may know little about how to operate in this market as it is a state-owned conglomerate and the government is only located in one province in China. This may limit the knowledge of consumers in the rest of China.

The Chinese airline market is dominated by the big three airlines and the joint venture will not ensure that AirAsia will be successful. The state-owned airlines will have an advantage over the new entrant as they are said to use the latest, most fuel-efficient aircraft, which will make it easy for them to use predatory pricing to force out the AirAsia joint venture.

Low-cost airlines have less than 10 per cent of the market while the rest of it is dominated by the big three airlines. This makes them powerful competitors with well established routes across China, forming a barrier to entry for the joint venture. It also suggests that the market for budget airlines in China is small at the moment.

Whether AirAsia needs to form a joint venture is partly due to Chinese government regulations over the entrants of foreign businesses. It is also more likely to be successful if it has the backing of a state-owned business as the Chinese government may look on it more favourably when allowing AirAsia to fly into Chinese airports.

Finally, the extent to which the three dominant airlines try to force out the new entrant will probably be the most important determinant of its success. Therefore it could be said that AirAsia did need to form a joint venture to be able to enter the Chinese market for budget airlines.

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## 2 Sizes of businesses

### Activity 1

**1** A significant proportion of the hotel industry is comprised of small firms. Barriers to entry are relatively low. For the price of a large house, a couple can set themselves up in business. If trade initially is slack, one partner can have an outside full-time job and they can live off the earnings from that job. Economies of scale are relatively low. The unit costs facing a small hotel are unlikely to be much higher than that of a chain. Indeed, they might be lower if the chain has to pay higher wages to unionised staff. There is likely to be less organisational slack in a hotel owned and managed by the same person. Chains of hotels are more likely to find it difficult to control costs. Small hotels can offer a more personalised service, accommodating individual needs more easily. A well-run small hotel may also offer lower prices if costs or profit margins are lower.

**2** Despite all the advantages of small firms, large chains of hotels are common and have a significant share of the market. One important factor that might favour chains in the future is consumers' desire to purchase a guaranteed minimum standard of service. When booking a non-chain hotel for the first time, the consumer is uncertain exactly what standard of accommodation is being purchased. Chains of hotels can provide a greater guarantee of quality. Chains are also in more of a position to enter new markets and invest heavily in new facilities. For instance, hotels with swimming pools and other leisure facilities, or low-cost no-frills accommodation, are two market niches which have been developed by chains in recent years.

### Activity 2

**1** Horizontal integration is a joining together into one firm of two or more firms in the same industry at the same stage of production. Vertu is a UK motor dealer. Its strategy is to grow through horizontal integration by buying other car dealerships. Between December 2006 when it was floated on AIM and 2018, it had acquired a total of 128 car dealerships.

**2** One constraint might have been the recession that struck in 2008. In a recession, output and incomes fall while unemployment rises. Households react by cutting back on their spending; this includes new and second-hand cars from car dealerships. Equally, firms may cut costs. One way is to reduce the amount they spend on leasing cars. Again, this affects car dealerships that may provide leasing deals to firms.

Another constraint might have been a lack of finance. Robert Forrester, chief executive of Vertu, had to persuade City of London investors to invest £25 million in the company in 2006. If he managed to persuade investors to invest more, the company could have bought more car dealerships and been a larger company. Similarly, at every stage of its growth, more finance could have seen faster growth.

**3** It is most unlikely that Vertu would have been more successful if it had grown organically. To grow organically, it would have had to set up a network of dealerships from nothing rather than buying out existing dealerships. It would have had to acquire a set of customers, persuading them to buy cars from Vertu outlets rather than from competitors. Creating new dealerships would have increased competition in the market. Vertu would have been under more competitive pressure than with its chosen strategy of buying existing dealerships, a strategy which did not increase competition at a local level. Its growth would

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almost certainly have been much slower and its profits much lower than with its chosen strategy of horizontal integration.

### Activity 3

**1** eBay is demerging with PayPal because of shareholder pressure. Some shareholders argued that the total share price of the two companies when demerged would be higher than the single current share price of eBay. This is because the businesses have different growth rates with PayPal expanding at a much faster rate than the other company. As one company, the share price reflects more of the slower growing business than the faster growing business of PayPal.

**2** The data do not suggest that a demerger will increase the growth rate of either business. The demerger is not about growth of the firms but about increasing the value of the share price. However, the data do suggest that eBay may have lower growth as a result of the demerger. This is because eBay uses the data it receives from PayPal transactions to target its customers with suggested purchases. With less data, advertising from a separate eBay will be less targeted and therefore less effective. So the demerger could lead to lower growth for eBay. It could also lead to lower growth for PayPal if, as a result of the demerger, fewer eBay customers used PayPal to pay for their transactions. Before the demerger, eBay had an incentive to encourage its customers to use PayPal. After the demerger, this incentive will not exist.

### Exam practice

**1** Internal growth occurs when a firm increases its size through investment in capital equipment or an increased labour force. For example, pharmaceutical companies can grow internally through developing new drugs. They invest in research and development, spending money on capital equipment for research and on employees to conduct the research. This research and development will hopefully pay off when new drugs come to market and the pharmaceutical company is able to grow its sales.

**2** One advantage is the merger leads to a much larger firm and it may benefit from economies of scale as it is producing on a much larger scale. Economies of scale, such as purchasing economies where the firm can bulk buy and negotiate discounts on inputs, leads to lower average costs of production. The firm may then increase its profit or it could lower prices. If it chooses to pass on the lower average costs in the form of lower prices then consumers will benefit as they will gain increased consumer surplus and possibly be able to have higher consumption from increased output.

A disadvantage is that there will be fewer competitors in the market as the merger has combined two firms that were previously competing against each other. Therefore the choice of products available to consumers may be reduced. The two firms may combine certain brands and only produce one of them and discontinue the other in order to reduce costs. Production facilities may be used more efficiently if the firm produces one of the brands on a larger scale rather than producing two brands on a smaller scale. Consumers may not be able to buy their favourite brands any more if this happens, leading to some consumers being disappointed.

**3** Horizontal integration is a joining together into one firm of two or more firms in the same industry at the same stage of production. One reason why Celgene might have chosen to grow through a process of horizontal integration relates to time. In 2019, patents

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on Revlimid, the drug that accounts for 65 per cent of annual sales of the company, would come to an end. Developing new drugs through research and development can take many years and most drug development projects lead to no commercial drug being produced, either because it is not effective enough or because it has serious side effects. Buying other companies or stakes in other companies is probably an admission by Celgene that it has no new blockbuster drug in the pipeline from its own research and development.

A second possible reason is that Celgene may believe that it is cheaper to bring new drugs to the market by buying up other companies rather than developing its own drugs. Most research and development does not lead to new drugs coming onto the market. By buying up other companies or stakes in other companies, Celgene is able to pick out promising potential new drugs. The cost of buying into a company at this stage of its development may be high. The market will have priced in the fact that the company has a drug that potentially might make it for sale. However, it eliminates some (but not all) of the uncertainty around development of a new drug from scratch. It removes some of the risk from investment.

**4**

Introduction

- A conglomerate is a firm that makes two or more unrelated products. For example, a company might make medicines and steel, or cosmetics and furniture. Firms could have a variety of objectives. In neo-classical theory, firms are assumed to maximise their profits. However, if there is a divorce of ownership from control, firms may profit satisfice and pursue objectives such as sales maximisation or sales revenue maximisation that might bring greater benefits to managers and directors.

First point – Advantages of conglomerate mergers

- Pharmaceutical companies, such as Celgene, face the problem of risk. In the case of Celgene, it risks losing a significant proportion of its sales revenue after 2019 because of the expiry of its patent on Revlimid.
- All pharmaceutical companies that base their revenues on sales of new drugs are at risk because new drugs being developed may never come to market.
- One way to overcome risk is to diversify. A pharmaceutical company like Celgene, for example, could buy a supermarket chain.
- The supermarket chain might provide a steady flow of revenues and profits to counterbalance the more risky pharmaceutical business.

Second point – Disadvantages of conglomerate mergers

- The problem, however, with becoming a conglomerate is that there is a danger that the most senior directors and managers have little understanding of all the businesses they own. After all, why should the directors of a pharmaceutical company know very much about how to make a supermarket chain successful?
- The danger for a conglomerate is that the business becomes unfocused and is outcompeted by other more specialised firms that fully understand the markets in which they operate.

Evaluation

- Celgene has opted for a different strategy: it is buying up stakes in other pharmaceutical companies. The benefit of this strategy is that Celgene is able to use

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its expertise in the pharmaceutical industry to pick potential drugs that could be big sellers in the future.

- By buying into other companies, it is reducing the overall risk it faces because of the expiry of the patent on Revlimid. It is a way of spreading risk without going outside the industry and buying firms which make products that are totally unrelated to pharmaceuticals.

Conclusion

- Celgene's strategy of horizontal takeovers is, on balance, more likely to grow sales and profits in the future than a strategy where it becomes a conglomerate making a mix of unrelated products.
- It is also a different way of spreading risk arising from the uncertain nature of research and development in the pharmaceutical industry.

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# 3 Business objectives

## Activity 1

**1** To earn a profit from the business. This may be to try to maximise profit.

**2** Students' own answers.

## Activity 2

**1**

**(a)** The profit maximising level of output is where total revenue exceeds total cost by the largest amount. Supernormal profit is the vertical distance between the total revenue and total cost curve where there is a positive number. The distance is greatest at output levels 3 and 4 as shown in Figure 1. The firm will choose to produce 4 units of output because it can earn normal profit on the fourth unit.

**(b)** The sales maximising level of output (subject to profit satisficing constraint that the firm wants to at least earn normal profit) is where total sales are maximised and no loss is made. This is at an output of 7 units as shown in Figure 1. If it produces 8 units, it will make a loss because total revenue will be lower than total cost.

**(c)** The sales revenue maximising level of output (subject to the profit safisficing constraint that the firm wants at least to earn normal profit) is where total revenue is maximised. This is at an output of 5 or 6 units as shown in Figure 1.

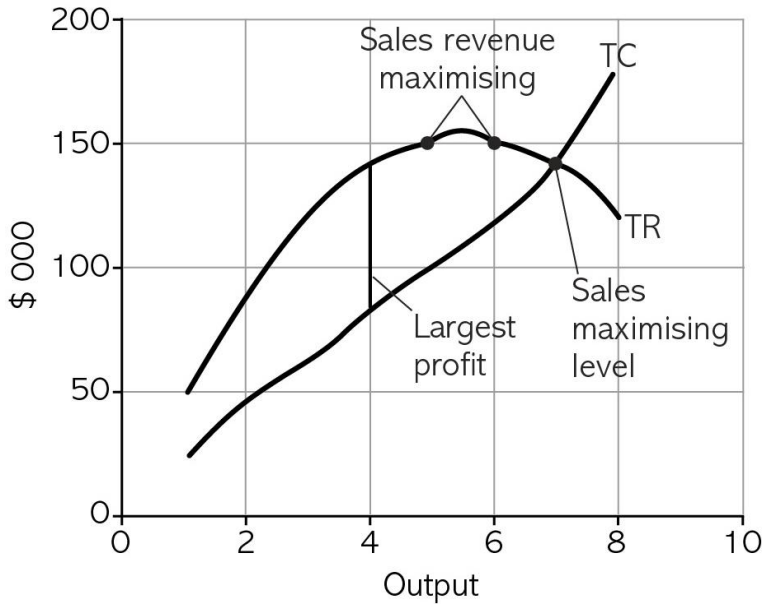


Figure 1

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## Exam practice

**1** (c)

**2** Sales volume maximisation is where the maximum output is sold. For the FT this means that the maximum number of newspapers is sold. This may be at a different output to the maximisation of sales revenue, which is where total revenue is at a maximum. If the price is reduced then more sales should be made, although this may result in lower profit.

**3** The business objective in the short-run is to increase the sales of the FT and increase the number of countries in which it sells the newspaper. This will maximise sales of the newspaper and eventually maximise sales revenue. However, this objective is likely to change to one of profit maximisation over the long-term as it will need to ensure that profit increases to satisfy shareholders of Nikkei.

**4** Being a profit maximiser is when a firm produces the greatest difference between total revenue and total cost or where marginal cost equals marginal revenue. The FT did make a profit before the takeover of £6.2 million in 2016 and also made a small profit in 2017 after the takeover. This would suggest that the FT is trying to maximise profit.

After the takeover, the FT also reduced costs by reducing its wage bill by £6.5 million. Even though its chief executive had an increase in his pay of £75,000, this may have been part of the reward for improving the performance of the business as it did make a profit in 2017. This does suggest that the FT has the objective to maximise profit by lowering costs and also trying to increase revenue by expanding into new markets.

However, it has been said that Nikkei bought the FT with the objective of expanding its sales into many more markets and to become a global newspaper. To do this, Nikkei will need to forgo profit so that it can invest in the FT and enable this to happen. Therefore it could be said that sales maximisation is the main objective and not maximisation of profit, at least in the short-run. Information about the newspaper markets in other countries would help to make a better assessment if the FT's objective, as well as details on its cost and revenue from previous years.

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# 4 Revenue

## Activity 1

**1** See Table 1, column 3.

**2** See Table 1, column 4.

| Sales (million units) | Average revenue ($) | Total revenue ($) | Marginal revenue ($) |
|---|---|---|---|
| 1 | 20 | 20 | |
| 2 | 18 | 36 | 16 |
| 3 | 16 | 48 | 12 |
| 4 | 14 | 56 | 8 |
| 5 | 12 | 60 | 4 |
| 6 | 10 | 60 | 0 |
| 7 | 8 | 56 | -4 |
| 8 | 6 | 48 | -8 |
| 9 | 4 | 36 | -12 |
| 10 | 2 | 20 | -16 |

Table 1

## Exam practice

**1**

**(a)** $5000 × 1000 = $5 million

**(b)** $4500 × 1500 = $6.75 million

**(c)** $4000 × 2000 = $8 million

**(d)** $3500 × 3000 = $8.75 million

**2**

| Price in $ | Sales | Total Revenue ($) | Average revenue ($) | Marginal revenue ($) |
|---|---|---|---|---|
| 5000 | 1000 | 5 million | 5000 | |
| 4500 | 1500 | 6.75 million | 4500 | 3500 |
| 4000 | 2000 | 8 million | 4000 | 2500 |
| 3500 | 2500 | 8.75 million | 3500 | 1500 |

**(a)** Total revenue curve

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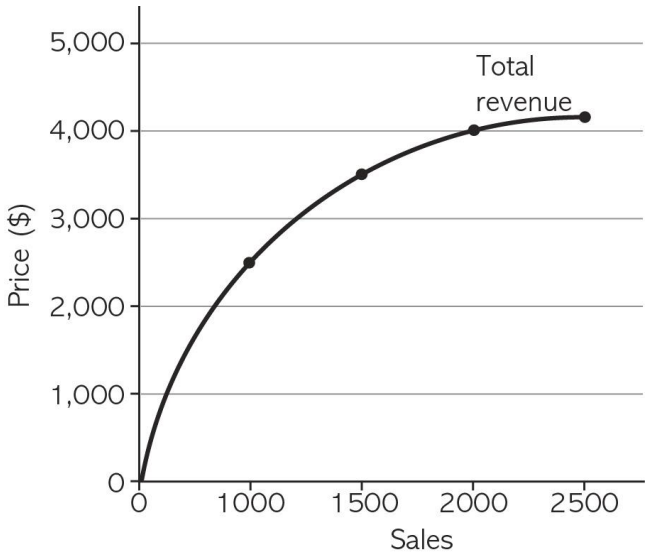


Figure 2

**(b)** Average revenue and marginal revenue

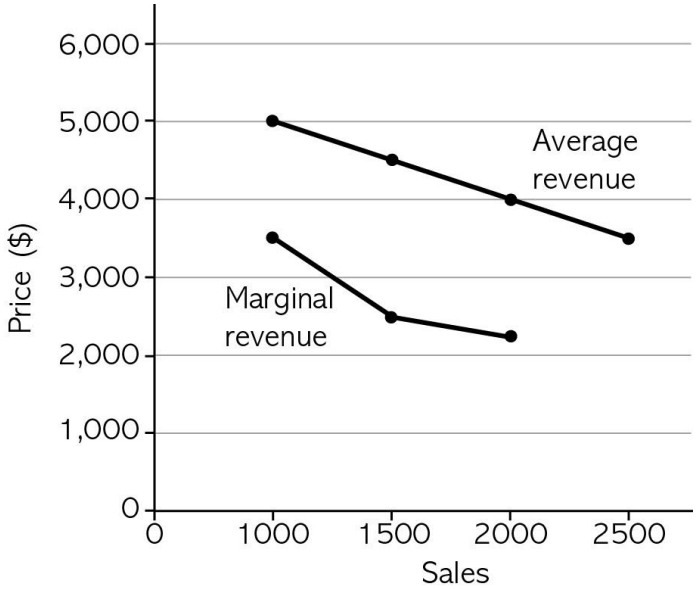


Figure 3

**3**

**(a)** $5000 to $4500 PED = 5

Percentage change in quantity demanded ÷ Percentage change in price

500 ÷ 1000 × 100 = 50 per cent change in quantity demanded

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$500 ÷ $5000 × 100 = 10 per cent change in price

50 per cent ÷ 10 per cent = 5

**(b)** $4500 to $4000 PED = 3

33 per cent ÷ 11 per cent = 3

**(c)** $4000 to $3500 PED = 2

25 per cent ÷ 12.5 per cent = 2

**4** Both styles of bike have price elasticity of demand that is inelastic and therefore customers are less price sensitive to changes in price. This means the fall in quantity demanded as a result of the change in price is less than the change in price. Revenue should therefore increase if prices are raised. Dune PED is 0.5 which means customers are less price sensitive to increases in price than Summum bikes which has a PED of 0.75. So any price increases will gain the highest increase in revenue for Dune bikes rather than Summum bikes. This is because the percentage increase in price for the Dune bikes will result in lower percentage reduction in sales than for the Summum bikes.

Therefore if only one of the bike styles is to have a price increase the owner of the shop should increase the price of Dune bikes rather than Summum bikes. However, increasing the price of both bikes will increase sales revenue for the shop as both bike styles have PED which is inelastic. The PED of the other bikes sold in the shop is elastic, as the elasticity is greater than 1. Therefore to increase revenue of these bikes the prices must be reduced.

To increase total revenue of the shop then the price of both these bike styles should be increased and the prices for the other cheaper range of bikes should be reduced. However, if a choice has to be made then lowering the prices of the cheaper bikes may increase sales revenue the most because 75 per cent of shop sales are of these bikes and only 25 per cent are for the higher priced Dune and Summum bikes.

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# 5 Costs

## Activity 1

**1** The accounting costs of her business were the costs which involved the payment of monies: namely, $18,000 for materials and $9,000 in wages making a total of $27,000. Her economic costs included her accounting costs, but they also included:

- the opportunity cost of her premises: $10,000
- the opportunity cost of her time spent in the business, which is half a teacher's salary: $15,000
- the interest foregone on the capital tied up in the business: 5 per cent of $40,000, or $2,000.

Her total economic costs were therefore $54,000.

**2** On an accounting basis, given revenues of $60,000 and costs of $27,000, she made a profit of $33,000. However, on an economic basis, her revenues were only $6,000 more than her costs and hence her economic profit was only $6,000.

## Activity 2

**1** Fixed costs are costs that do not vary with output. In the case of a restaurant, output could be measured by the number of meals served. Costs that Rachel Hughes could not vary with output would be the rent on the premises, interest payments on a loan and the cost of pots and pans.

Variable costs vary directly with output. Rice and cooking oil can both therefore be classified as variable costs.

Semi-variable costs are costs that can vary with output but only to some extent. For instance, the restaurant could open fewer hours if trade was poor. This would then reduce electricity bills and the cost of casual staff. Equally, Rachel Hughes could give herself a lower wage if business was poor.

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## Activity 3

**1**

| Output (units) | Total fixed cost ($) | Total variable cost ($) | Total cost ($) | Average fixed cost ($) | Average variable cost ($) | Average cost ($) | Marginal cost ($) |
|---|---|---|---|---|---|---|---|
| 0 | 40 | - | 40 | - | - | - | |
| 1 | 40 | 6 | 46 | 40 | 6 | 46 | 6 |
| 2 | 40 | 11 | 51 | 20 | 5.5 | 25.5 | 5 |
| 3 | 40 | 15 | 55 | 13.3 | 5 | 18.3 | 4 |
| 4 | 40 | 20 | 60 | 10 | 5 | 15 | 5 |
| 5 | 40 | 26 | 66 | 8 | 5.2 | 13.2 | 6 |

## Exam practice

**1** (c)

**2** (a)

**3** Diminishing returns occur when a variable factor is added to a fixed factor. In this case the Costa coffee shop is a fixed factor and labour is the variable factor. As more and more labour is added to the coffee shop the additional return from the last person to be employed will eventually start to diminish. This is due to the combination of labour to the fixed factor as workers will start to get in each other's way and it will be difficult for workers to be as efficient.

**4** The marginal cost is the additional cost from producing the last unit, in this case a cup of coffee. Diminishing returns set in as more of the variable factor – labour – is added to the coffee shop. This results in the additional number of customers served, the marginal product, starting to fall. As the marginal product starts to fall then it follows that the cost of producing the last unit, the marginal cost, will start to rise as a result. If fewer customers are served by the last worker employed, then the wage cost is being spread over a smaller number of customers served and therefore the cost of serving the additional customer increases.

**5**

Introduction

- Marginal cost is the addition to total cost from the production of one more unit of output; that is, the cost of the last unit produced or in this case the cost of one additional cup of coffee served in a Costa coffee shop.
- The average cost is the cost per unit and is calculated by dividing the total cost (fixed cost plus total variable cost) by the number of units produced. In this case it will be calculated by dividing the total cost of running a Costa coffee shop by the number of cups of coffee served (in a given time period). This is assuming a short-run analysis.

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First point

- The relationship between marginal cost and average cost is shown in Figure 1.

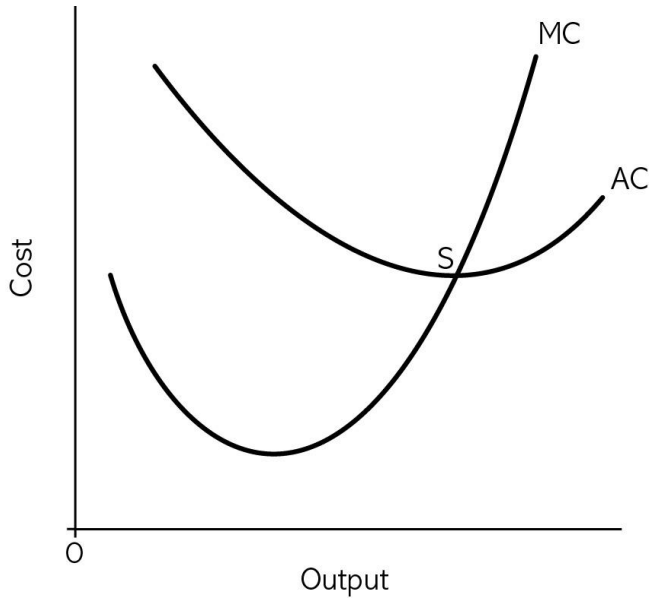


Figure 1

- This shows that average costs begin to fall as output increases and the marginal cost of one additional unit is less than the average cost.
- If one additional cup of coffee costs less to produce than the average cost, then the average cost per cup will be pulled down by the lower marginal cost.
- Shown on the diagram before the point S on the average cost curve – when average cost is at a minimum.

Second point

- When the cost of an additional cup of coffee is higher than the average then it will pull up the average cost.
- If MC is greater than AC then the total cost is rising at a faster rate and the cost per unit is increasing.
- Diminishing returns have set in, causing marginal cost to increase.

Evaluation point 1

- This is not the most efficient point so may reduce profit.
- The average cost of each cup of coffee is increasing as output increases so the coffee shop should serve fewer customers if it is to operate at its minimum average cost.
- Costa will not want to serve fewer customers as expansion in China is one of its objectives.

Evaluation point 2

- This is a short-run analysis and assumes that at least one factor of production is fixed. In this case it is the size of the coffee shop itself.

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- However, if Costa moves the coffee shop to a larger shop then there may be a movement to a lower set of cost curves. Both average and marginal cost will be at lower levels and at the current output MC may no longer be above AC.

Conclusion

- The impact of MC being above AC is that the cost of each cup of coffee is increasing; in other words, AC is rising. Suggests that output is at too high a level and above its most efficient point. However, Costa may not be able to measure the MC of each cup of coffee and therefore not reduce output.
- However, as Costa intends to expand its operations in China, it may choose to do nothing in the short-run. In the long-run it may choose to move this Costa coffee shop to larger premises to ensure that diminishing returns do not set in. Hence this will reduce the impact of increasing unit costs and allow output to be increased without causing average costs to rise.

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# 6 Economies and diseconomies of scale

## Activity 1

**1**

**(a)** Economies of scale exist for:

- Firm A between 1 and 3 million units
- Firm B between 1 and 5 million units
- Firm C between 1 and 2 million units
- Firm D between 1 and at least 7 million units
- Firm E between 1 and 4 million units.

**(b)** Diseconomies of scale exist for:

- Firm A from 6 million units
- Firm B from 6 million units
- Firm C from 2 million units.

Firms D and E show no range of levels of output over which diseconomies occur.

**2** The optimum level of output occurs for:

- Firm A between 3 and 6 million units of output
- Firm B between 5 and 6 million units of output
- Firm C at 2 million units of output.

It is not possible to determine whether the optimum level of output occurs at 7 million units of output for Firm D or between 4 and 7 million units of output for Firm E because higher levels of output might lead to even lower average costs. However, it is likely, at least for Firm E, that the optimum level of production occurs from 4 million units of output onwards.

**3** The minimum efficient scale of production occurs at:

- 3 million units of output for Firm A
- 5 million units of output for Firm B
- 2 million units of output for Firm C.

It is not possible to say whether it occurs at 7 million units of output for Firm D for the reasons put in (2). For the same reasons, it may occur at 4 million units of output for Firm E but this is not certain.

## Activity 2

**1** IAG is likely to enjoy a number of economies of scale compared to BA, Iberia and Norwegian Air Shuttle as separate airlines.

IAG is likely to experience some technical economies:

- Each flight of a plane represents an indivisibility. The costs of carrying passengers with the flight two-thirds full are almost the same as carrying it with a full load of passengers. The data state that following the merger of BA and Iberia ‘flight services could be combined when planes were less than full’.
- Equally, ‘back office’ functions can represent indivisibilities. Combining functions such as administration, IT services and support services for planes, as well as desk

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services, is likely to raise the percentage of time that equipment, building space and workers are utilised.

IAG is likely to have experienced managerial economies:

- Compared to BA, Iberia and Norwegian Air Shuttle as separate airlines, IAG only needs one chief executive, one board of directors and so on down the line of senior management compared to three separate airlines.

There will also be purchasing and marketing economies:

- As a significantly larger company, IAG will be able to squeeze some price reductions from its suppliers. There will also be marketing economies through 'advertising BA and Iberia flights together'.

IAG may also experience financial economies of scale:

- A larger company will have more options when it comes to raising money to finance its day-to-day operations as well as investing in new planes.

## Exam practice

**1** Economies of scale which arise because of a growth in the scale of production within the firm.

**2** Fixed costs are costs that do not vary with output. For example, a JD.com warehouse is a fixed cost; whether it is used to deliver $10 worth of goods or $10 million worth of goods, the build cost is the same. Equally, the cost of a physical drone delivery airport is the same however much JD.com delivers each week. Variable costs are costs that change as output changes. So for JD.com, the cost of deliveries varies according to how many deliveries are made.

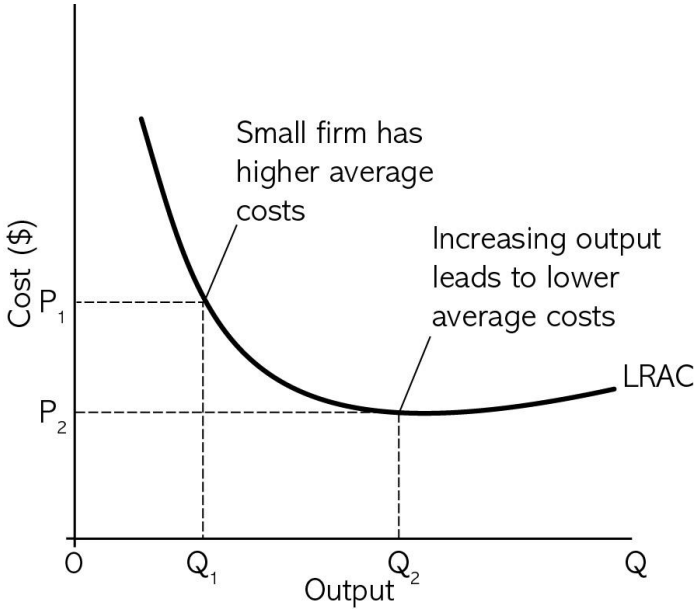


Figure 1

**3** See Figure 1. Economies of scale occur when there is a fall in the long-run average cost of production as output rises. JD.com and Google operate online shopping services and

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Google has bought a large stake in the Chinese company so it can enter the Chinese market.

For Google and JD.com, it could be argued that they reap technical economies of scale through combining delivery of online orders. It is possible to combine the administration of the online orders and save costs by reducing the number of employees required.

The much larger business should also experience some managerial, purchasing and marketing economies. Higher sales do not necessarily lead to a rise in costs for management time for example. Large sales could allow them to put even more pressure on suppliers to reduce their prices. Marketing costs may not increase as much as sales although internet shopping will need the maintenance of a website. JD.com can use Google's vast database of customers for marketing.

**4** The answer to this question to some extent depends on whether costs incurred are in the short run or the long run.

JD.com has the choice to use several smaller warehouses or invest in a more central warehouse and it has chosen the much larger centralised warehouse. It has also invested in an automated warehouse to reduce wage costs. By having the larger centralised warehouse JD.com would not have the fixed cost of building several smaller dedicated warehouses, each operating on a smaller scale. Consider Figure 2. A smaller warehouse could be operating at point A once it is up and running. However, there may have been high start-up costs for the smaller warehouse and it may take time to get the warehouse up and running. In Figure 2, its average long-run cost was OA. However, because there would be spare capacity initially, it will have higher average short run costs of OD. As production increases in the smaller warehouses the AC would fall and move to point B as shown in Figure 3. However, this point is at a higher average cost than if the warehouse was larger and a lower short run AC curve could be achieved.

Therefore, expansion by JD.com to using a much larger automated warehouse to store and process orders moves it onto a lower SRAC curve, which is much further down the long-run average cost curve. Further down than point C in Figure 2. AC will be lower and may be at the most efficient scale of operations. This may be where long-run average cost is at a minimum. JD.com's larger warehouse will be able to give the benefit of lower AC both in the short run and long run, as the larger warehouse would be on a lower short-run average cost curve and could be tangential to the long-run curve at the minimum efficient scale; that is, where long-run average cost is at a minimum. This is shown as AC4 in Figure 3. The new warehouse saves a huge amount on wage costs as it only employs four workers but the investment in capital to purchase the automated warehouse is very high.

This would suggest that in the long run, centralised warehouses will achieve lower average costs than several smaller warehouses. Figure 3 shows several sizes of warehouses on AC1 through to AC4. Assume the larger warehouse moves JD.com onto the lowest short-run curve – AC4 therefore, once up and running, will achieve the lowest long-run average cost. Also the investment in automation could possibly lower the long-run average cost curve, which could bring further reductions in average cost.

In the short run, making a large investment like this will reduce profits and the warehouse may not be operating at full capacity initially, similar to the situation in the smaller warehouses. It is also assuming that the repayment of the investment in the long term is less than the reduction in costs from employing fewer workers. By making this large long-term

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investment then average costs should definitely be lower and help return JD.com to profitability, although it may take some time to recover the huge investment.

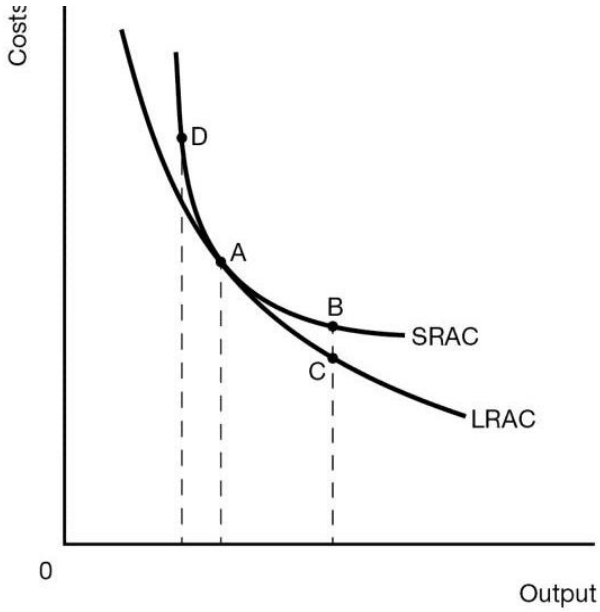


Figure 2

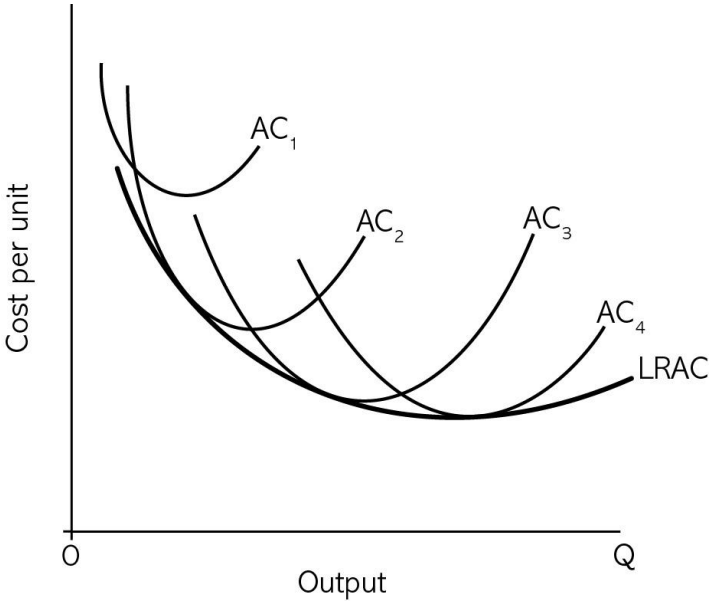


Figure 3

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# 7 Profits and losses

## Activity 1

**1**

**(a)** The accounting profit is the difference between accounting revenues and accounting costs. So:

Year 1 is $270,000 – $250,000 = $20,000

Year 2 is $310,000 – $280,000 = $30,000

Year 3 is $450,000 – $350,000 = $100,000

**(b)** The normal profit of the firm is the profit that the resources used in the firm could have made in their next best occupation. Liam could have made $70,000 in his next best occupation and received $5,000 a year in interest. Hence the normal profit of the firm would have been $75,000.

## Activity 2

**1** See Table 1, column 4.

| **million units** | **$ millions** | | | | |
|---|---|---|---|---|---|
| **Output** | **Total revenue** | **Total cost** | **Total profit** | **Marginal revenue** | **Marginal cost** |
| 1 | 10 | 8 | 2 | 10 | 8 |
| 2 | 20 | 14 | 6 | 10 | 6 |
| 3 | 30 | 20 | 10 | 10 | 6 |
| 4 | 40 | 30 | 10 | 10 | 10 |
| 5 | 50 | 50 | 0 | 10 | 20 |
| 6 | 60 | 80 | –20 | 10 | 30 |

Table 1

**2** 4 million units.

Supernormal profit is $10 million. The firm will produce 4 million rather than 3 million units because normal profits will be higher.

**3** See Table 1, columns 5 and 6.

**4** MC = MR at the profit maximising level of output of 4 million units. If the company only produces 3 million units, marginal revenue is greater than marginal cost. By expanding output by another million units, the firm can increase its profit. If the firm produces 5 million units, the marginal cost is greater than marginal revenue. By cutting back production by 1 million units, the firm could reduce its losses. Hence the point where MC = MR is the profit maximising level of output.

## Activity 3

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**1** See Figures 1 and 2.

**2** See Figures 1 and 2.

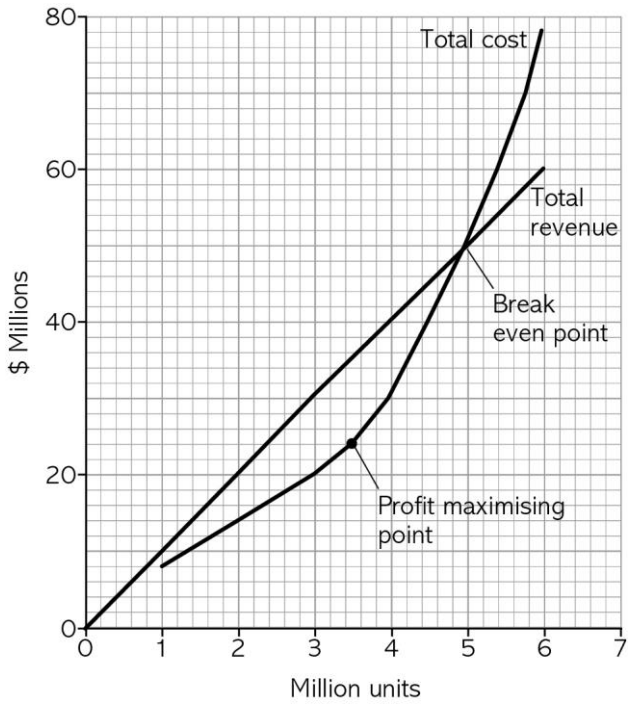


Figure 1

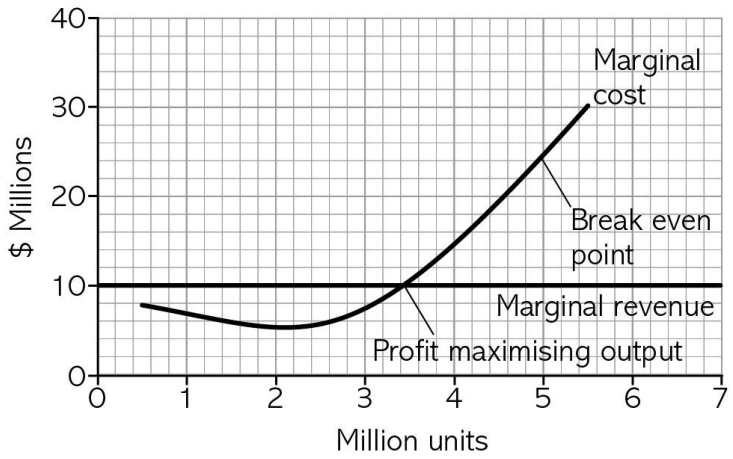


Figure 2

**Note:** The profit maximising level of output in Figure 1 is 3.5 million units whereas in Question 2 in the Students' book it is given as 4 million units. The answer in Question 2 in the Students' book is an approximation, figures for an output of 3.5 million units not being given. Notice that total profit at output of 3.5 million units is approximately $16 million in Figure 1, greater than the $10 million profit at an output of either 3 or 4 million units.

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### Activity 4

**1** 3 million units

This is where MC = MR = $6 million (at the highest level of output).

**2** 5 million units

This is where MC = MR = $20 million (at the highest level of output).

**3** 3 million units

This is where MC = MR = $10 million (at the highest level of output).

**4** 4 million units.

The profit maximising level of output remains the same as in Question 2.This is because an increase in total cost of $5 million at each level of output has no effect on marginal cost except on the first 1 million units produced. The profit maximising level of output remains at 4 million units because this is where MC = MR = $10 million.

**5** 5 million units.

If total revenue doubles at each level of output, then so does marginal revenue. The profit maximising level of output is therefore where MC = MR = $20 million.

### Activity 5

**1** The total cost of producing 10 units is made up of the variable cost of $10 million (10 × $1 million) and the fixed cost of $10 million. With total revenue of $30 million, profit is $10 million ($30 million – $20 million) and therefore the firm will produce 10 units.

**2** The total cost of producing 15 units is $15 million of variable cost and $10 million of fixed cost. The firm will produce if it receives a revenue of $25 million because it breaks even at this level of output.

**3** The total cost of producing 20 units is $20 million of variable cost and $10 million of fixed cost. With potential revenues of only $22 million, the firm would choose to continue to produce. This is because it will make a contribution of $2 million ($22 million – $20 million) to paying its fixed costs of $10 million.

### Activity 6

**1** $5

The total cost of producing 300 units is made up of $900 of fixed cost and $300 of variable cost. A 25 per cent mark-up would add $300 to the $1,200, making a total of $1,500.The price per unit would therefore be $5 ($1,500 ÷ $300).

**2** 225 units

To break even the company would need to just cover its costs excluding profit. Its fixed costs are $900. Its variable costs are $1 per unit. Its price is $5. Therefore every unit sold contributes $4 to paying off its fixed costs up to the level of output that covers all costs. So this is 225 units (900 ÷ 4). Alternatively, with 225 units sold, total cost is fixed cost of $900

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plus variable cost of $225 (225 × $1) which equals $1,125. Total revenue with 225 units is also $1,125 (225 × $5). Therefore total revenue equals total cost at 225 units.

**3** In the short term the firm could sell 500 units (150 + 350) a week at $3.The total cost of production would be $900 of fixed costs and $500 of variable costs. Total revenues of $1,500 ($3 × 500) would therefore give a profit of $100. If it refused the order and sold just 150 units it would make a loss of $300 (revenues of $5 × 150 minus costs of $900 + $150). However, in the long term, if demand did increase to 300 units at a price of $5, it could make a profit of $300.

So the firm is faced with a choice. It could increase short-term profit from –$300 to +$100 but it would then find it difficult subsequently to increase price to the original planned level of $5. There is no guarantee that the extra order of 350 would continue in the long term. If it were lost, the company would face selling low volumes at low prices. It might prefer to maintain the higher price of $5 and establish itself in the market, even though this means short-term losses, for the sake of making a long-term secure profit.

## Exam practice

**1** (d)

**2** Profit is the difference between total revenue and total costs. For example, in the US retail industry, firms earn revenues from selling products to customers. They incur costs because they have to buy the products, employ labour and pay taxes. When profit becomes negative (when costs become greater than revenues), firms make losses.

**3** In the short run, some costs are fixed, while others are variable. In the long run, all costs are variable. A US retail firm such as Sears has a variety of costs, some of which are variable and some fixed in the short run. For example, the cost of buying products such as clothing items to sell in the stores, are likely to be variable costs – costs that vary with output. The overtime of staff is another variable cost. Other costs, such as essential maintenance on stores or interest repayments on loans already taken out, are fixed costs. These do not vary with output. In the short run, a retailer has to keep paying their fixed costs. For example, they have to keep paying costs associated with the running of a store whether or not it is selling its stock. So the decision as to whether to keep a store open depends on whether its revenues exceed its variable costs in the short run. If its total variable costs are $20 million, but its total revenues are $21 million, then in the short run the $1 million difference can be used to make a contribution to paying its fixed costs. However, if total variable costs are $18 million and total revenues are $21 million, then the retailer should close the store. It not only has to pay its fixed costs, but it is making a $3 million loss on its variable costs.

**4**

Introduction

- In the short run, retailers will close their stores if they fail to cover their variable costs of production.

First point

- By 2018, a number of stores had been closed to take account of the fall in demand for high street stores.

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- Sears planned to close 103 stores in 2018 after it closed many hundreds of stores the previous year.
- The fall in demand is worsening as more customers use ecommerce to make purchases instead of using brick-and-mortar stores. The fall in demand has moved the demand curve down and therefore revenue from sales in the stores has fallen.
- Demand falling for high street stores pushes down the prices they charge and hence reduces both marginal and average revenue. This is shown in Figure 3.
-

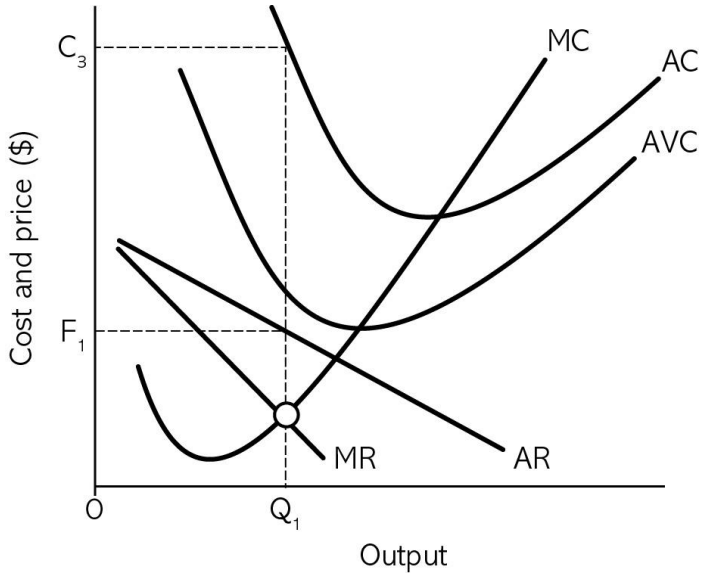


Figure 3

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Second point

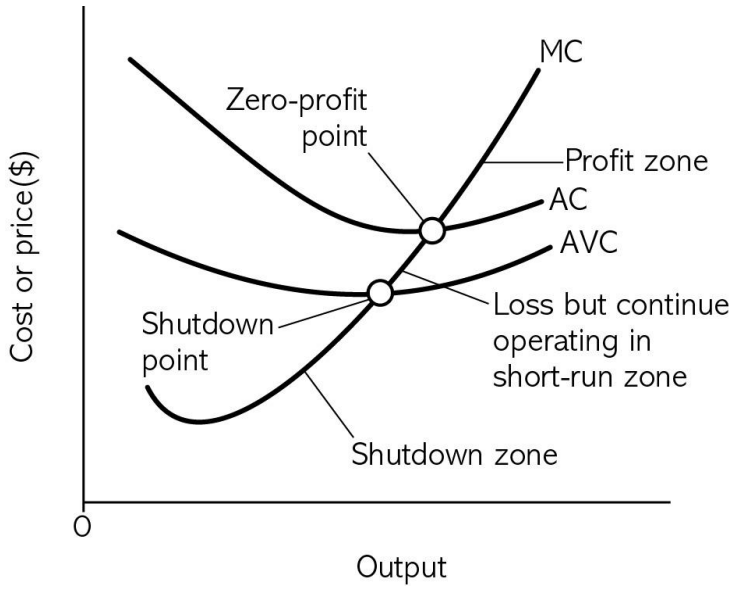


Figure 4

- Figure 4 shows the costs for one store and that when demand falls below average variable cost then the store will be closed. The business can no longer cover the necessary payments to keep the store open in the short run.
- If existing stores were to remain open then Sears will continue to make huge losses as shown by the losses of $11bn made over the past 7 years.

Evaluation point 1

- If Sears had been able to increase demand in its stores by offering a better service that kept customers loyal to its stores then demand may not have fallen as far.
- If Sears could have increased its revenue from online sales it may have been able to recover some of its demand in its stores with a click and collect service and raised its AR and MR curves.

Evaluation point 2

- On the costs side, if Sears could have become more efficient and benefited from the cost saving from the earlier closure of stores then it might have be able to reduce fixed costs which would have moved down AC.
- If Sears had been able to reduce the costs of its inventory then its variable costs would have been reduced – lowering AC, MC and AVC – this may have removed the loss-making stores.
- Some of these stores may not have been closed if AVC could have been lowered to below the AR curve.

Conclusion

- Because online sales are part of a growing trend in retailing in America it is unlikely that demand could be increased. So the only way for the number of closures not to be inevitable is if the cost curves could have been lowered so that they move them to a point below the AR curve and therefore above the shutdown point.

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- It is also likely that there will be further closures if no other changes take place. However, this is not inevitable. It depends upon Sears' decisions and how demand, costs and prices change.

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# 8 Efficiency

## Activity 1

**1** Allocative efficiency is concerned with whether resources are used to produce the goods and services that consumers wish to buy. At present, in the state school market, it could be argued that there is allocative inefficiency. Children are chosen for most places on the basis of criteria such as living within a catchment area. This is a crude form of rationing for oversubscribed schools. It might be more allocatively efficient to ration on price, allowing schools to charge for admission. Schools which are undersubscribed would make no charges. Schools which are oversubscribed would charge to the point where the fee was just equal to the benefit gained by the parents of the last child to be admitted. This benefit would be shown by the amount these parents were prepared to pay for admission. Schools that are oversubscribed would be able to use the money obtained to expand, increasing the resources available to successful schools. Schools that are very undersubscribed might be forced to close, releasing resources for a more efficient use elsewhere in the school system or the wider economy.

That allocative inefficiency exists with oversubscribed schools at present can be shown by what would happen if parents could buy and sell places at schools. With undersubscribed schools, a place would be worthless. However, with oversubscribed schools, some parents who obtained a place for their child might be prepared to sell it to the highest bidder. They would therefore be better off since the money received is more valuable than the place for their child at the school. The parents buying the place too would be better off since they would prefer to have the place at the school than the money they use to buy the place.

**2** The advantage of a voucher system is that allocative efficiency could be improved. If parents wished to send their children to an oversubscribed school, they would have to bid for places. Only those parents who were prepared to pay the fee would gain a place for the child. There are disadvantages, though. The first is that the system relies upon parents allocating their resources to maximise their welfare. However, schooling should be for the benefit of the child, not the parents. Children may put very different values on education than their parents. They may prefer to go to school X when their parents send them to school Y. There could therefore be a misallocation of resources if the preferences of the child differ from that of the parents.

Another problem is that it can be argued that education is a universal right that should not be bought and sold. Every child should have access to the same education regardless of their parents' income. On equality grounds, the children of the less well-off should have the same chance of getting into an oversubscribed school as the children of the better-off. A fee system gives a distinct advantage to the children of the better-off, reducing social mobility in Sri Lanka.

## Activity 2

**1** Productive efficiency is where output is at minimum average cost. Outsourcing services, such as check-in staff and baggage handlers, will mean costs in the aviation industry can be reduced. This will move the average costs of the aviation industry to a lower level and hence it should move to a productively efficient level as it should be closer to minimum AC, if not at minimum AC. Increasing use of outsourcing will also allow specialist

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firms to become more efficient and this may lead to further reductions in average cost, improving efficiency further.

**Activity 3**

**1**

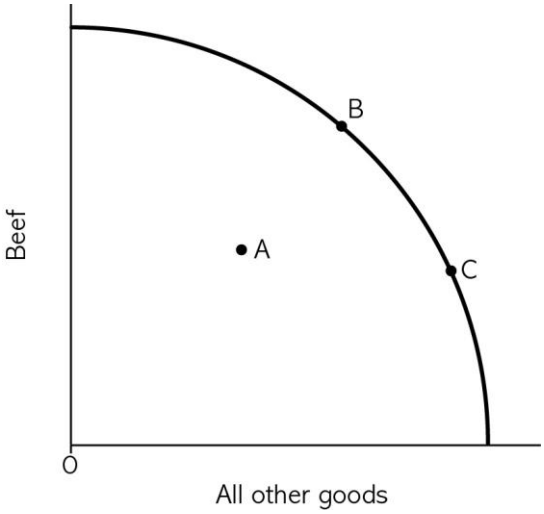


Figure 1

**2** 'A' is a position inside the PPF that shows that resources are not being used efficiently because more output could be produced with the given amount of resources. This can be any position inside the PPF.

'B' is a position on the PPF that shows that resources are being used efficiently because no more output could be produced with the given amount of resources – more of one product can be produced only if less of the other product is produced.

**3** 'C' is a position of allocative efficiency if this represents what consumers most want producing.

**4**

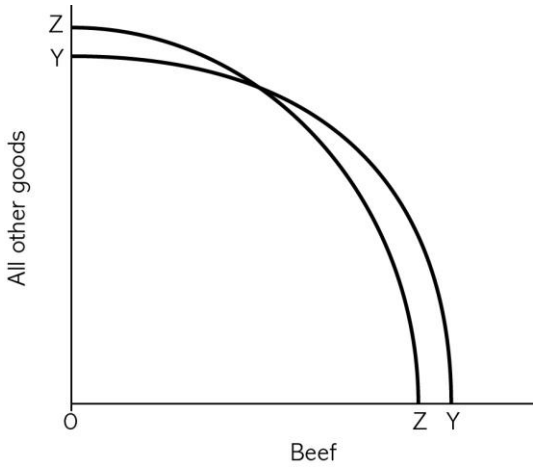


Figure 2

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Dynamic efficiency occurs when resources are allocated efficiently over time. The data state that growth in the production of beef over time is leading to the destruction of the Brazilian rainforest. It could be argued that this is leading to global warming. Cutting down the trees is releasing greenhouse gases captured in the trees. It also reduces the ability of the forest to take in greenhouse gases from the atmosphere because there are fewer growing trees. Global warming imposes costs on economies worldwide. Higher temperatures and more frequent extreme weather associated with global warming are causing major disruption to agriculture, as well as floods, desertification and loss of wildlife habitats.

In Figure 2, a production possibility frontier ZZ is drawn for the world economy. Assume that production of beef increases but at a cost of significant loss to the Brazilian rainforest. The resulting increase in global warming leads to less of all other goods being produced because of the destructive effects of global warming. The production possibility frontier shifts to YY. There is therefore a trade-off between extra production of beef and extra production of all other goods over time.

The extent to which there will be dynamic efficiency will depend on how great the contribution is to global warming of the destruction of the Brazilian rainforest due to increased beef production. It could be that the impact on global warming will be positive but so small as to be negligible. It will therefore have almost no impact on the production of other goods. Therefore banning the felling of trees in the Brazilian rainforest will not lead to dynamic efficiency. If, however, the destruction of the Brazilian rainforest has a significant impact on the production of all other goods, then almost certainly it will be worth the trade-off of higher production of beef.

## Exam practice

**1** (b)

**2** X-ineffiency is sometimes called organisational slack. It is inefficiency arising because a firm or other productive organisation fails to minimise its average costs of production at a given level of output. This is often because there is a lack of competition in the market and the management of firms do not feel threatened by other firms producing at a lower cost and taking away some of their market. This means managers may not focus on keeping costs down which may allow them to rise, for example managers may not worry about buying raw materials at the lowest cost as long as the cost is reasonable and the quality of the materials is suitable.

**3** Productive efficiency is achieved when production is operating at lowest average cost. Automation enables Nike to produce running shoes using less labour and fewer materials than the production of most running shoes. This means Nike can produce these shoes at a lower unit cost than previously. The position on the AC curve, if not at the minimum, will move towards the lowest point on the AC curve. It may move the whole AC curve downwards due to lower labour costs by 50 per cent because fewer employees are needed. Variable costs will also decrease by 20 per cent, as less material is needed to produce each shoe. VC and AC will be lower and so unit costs are reduced at all levels of output leading to output being produced at a more productively efficient level.

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**4**

Introduction

- Allocative efficiency is when scarce resources are used to produce goods that satisfy consumer preferences and maximise welfare. Goods produced are what consumers most want.
- Dynamic efficiency occurs when resources are allocated efficiently over time. If innovation occurs it may lead to improvements in both the range and performance of products.

First point

- All other running shoes.

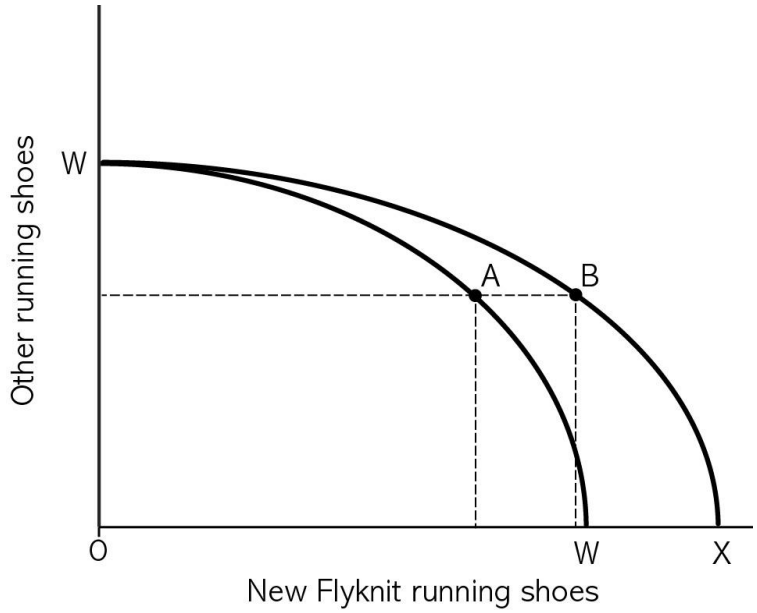


Figure 3

- Point A on Figure 3 shows the original combination of Flyknit and all other running shoes demanded by consumers.
- If A is at a position that reflects demand in a competitive market then the position should be allocatively efficient as it most satisfies consumer wants.

Second point

- Over time the production techniques used by Nike and Adidas have sped up the supply of shoes to meet the rapidly changing consumer need for running shoes.
- Automation in the Nike factories, using new automated processes, has improved allocative efficiency as the Flyknit shoes being produced meet consumer need as shown by the growing demand for these products and the high price consumers are willing to pay; for example, $130 instead of $75 without the Flyknit uppers.
- Point B in Figure 3 shows that the PPF curve has moved outwards for Nike shoes as it has innovative automated production techniques that have allowed output and consumption to be at B.
- Adidas will be able to produce customer-made shoes on-the-spot to meet the individual needs of consumers.

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- Developments with the use of 3D printing will bring further innovations to meet changing customer needs quickly.

Evaluation point 1

- But are all these changes in the design of running shoes definitely what consumers want? It may be extensive marketing by Nike that has influenced consumers. It is certainly beneficial for Nike when looking at the much lower costs of production for its shoes.
- Many consumers may not be willing to pay the higher prices charged for personally designed shoes.
- So there may not be allocative efficiency if the market for running shoes is not competitive and reflected in consumer demand.

Evaluation point 2

- Producing a new shoe in five hours instead of several weeks may not benefit consumers by very much. Fast fashion may be less important for running shoes.
- Automation will reduce employment in many different countries; it is likely to be in developing countries as production moves back to developed countries where the main markets are to be found – there may not be benefits overall.

Conclusion

- The extent to which consumers benefit by automation speeding up the production process of making running shoes and producing designs that meet their needs will depend on the competitiveness in the sports shoe market and whether cost savings are passed on to consumers.
- Shareholders are likely to benefit from automation as it results in huge cost savings and increased profit.
- The extent to which dynamic efficiency is improved depends on whether the new innovations produce designs that meet changing consumer needs and enable output to be increased from existing resources.

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# 9 Market structures and concentration ratios

## Activity 1

**1** Students' own answers.

2 Students' own answers.

## Activity 2

**1** Perfect competition as they appear to be price takers.

**2** An increased number of firms have entered the market and are making supernormal profit. It has become a more monopolistically competitive market. With increased use of product differentiation the market might move to become an oligopoly in the future if barriers to entry are raised due to marketing economies.

## Activity 3

**1**

| | | | |
|---|---|---|---|
| Industry 1 | (a) 85 per cent | (b) 95 per cent | (c) 97 per cent |
| Industry 2 | (a) 71 per cent | (b) 93 per cent | (c) 95 per cent |
| Industry 3 | (a) 15 per cent | (b) 23 per cent | (c) 33 per cent |

**2**

| | |
|---|---|
| Industry 1 | Monopoly or oligopoly |
| Industry 2 | Oligopoly |
| Industry 3 | Monopolistic competition |

**3** Industry 2 is an oligopoly and therefore firms may not compete in terms of price. The firms are more likely to compete using non-price competition such a advertising. It cannot be determined for definite how firms in this market will behave.

Industry 3 is monopolistic competition. This means firms will compete by differentiating the product and will compete in terms of price. If supernormal profits are earned then firms will be attracted into this industry as there are low barriers to entry. In the long run only normal profit will be earned.

## Exam practice

**1** Market share is the proportion of the market controlled by a particular manufacturer or product. In this case, Samsung has the largest market share at 21.7 per cent of the market while Apple has the second largest share of the market at 14.5 per cent. This means that for every 100 smartphones sold, nearly 22 will have been sold by Samsung and about 14 will have been sold by Apple.

**2** 3-firm = 47.1 per cent

5-firm = 60.7 per cent

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10-firm = 75 per cent

**3** Market structure refers to the assumptions of the particular market. In this case there are a few large dominant producers such as Samsung and Apple. 75 per cent of the global market is dominated by just ten firms. Both these characteristics suggest that the market is an oligopoly. A monopoly would have a single dominant supplier and monopolistic competition would have many more producers supplying a wider range of products.

The product, a smartphone, is differentiated by branding and is heavily advertised. Features of each smartphone are slightly different, again suggesting that the market is an oligopoly. Although monopolistic competition would have differentiated products, perfect competition would have a homogeneous product.

The market demand is growing in emerging markets and consumers are starting to demand higher quality smartphones. This increased demand has resulted in prices for smartphones increasing. This is less likely to occur in an oligopoly although firms have tended to compete on the quantity of the phones and their features and less on the price, again suggesting an oligopoly as perfect competition and monopolistic competition would be more price competitive.

Overall, this would suggest that the global market for smartphones is an oligopoly.

**4**

Introduction

- A 3-firm concentration ratio measures how much of a market is taken up by the three largest firms in that market. In this case the three largest firms in the global smartphone market are Samsung, Apple and Huawei.

First point

- The market share of these top three firms is 47.1 per cent – nearly half the global market.
- The top ten firms dominate the market with 75 per cent of global sales – indicates an oligopoly.
- An oligopoly often has barriers to entry in production and marketing economies of scale and smartphones have customers that are often brand loyal, especially in developed markets.
- Likely that the largest firms will remain dominant in the market due to barriers to entry.

Second point

- The global market is increasing in emerging markets while it is static or declining in developed markets.
- Sales of smartphones have been declining in developed markets as people keep their phones for longer due to less innovative new models.
- Sales in emerging markets, such as African markets, are growing as incomes rise – potential for smaller firms to expand in these markets.
- Chinese brands such as Oppo and vivo have been investing outside of China to increase sales and offset declining sales in China.
- Smaller firms are targeting emerging markets such as India, South-East Asia, Africa.

Evaluation point 1

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- If consumers remain brand loyal to firms such as Samsung and Apple then their high market share is likely to remain.
- New technologies are developed by the largest firms and so remain more competitive than smaller rivals.
- However, Chinese firms also targeting more established markets in Europe and the Middle East.

Evaluation point 2

- Increasing sales of OMEs phones may lead to market share of the largest firms reducing.
- Increased demand for higher priced basic phones may enable smaller companies to increase demand for their brands in the emerging markets – as less brand loyal and more price sensitive.

Conclusion

- Apple, Xiaomi and Huawei saw increased market share between 2017 and 2018.
- Samsung static market share between 2017 and 2018.
- If these trends continue then the dominant top three companies may well change places, although they are likely to remain dominant overall even if they change their rank.
- So market share may depend on which markets are static, which markets are growing and which smartphones are the most popular in these individual markets.

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# 10 Perfect competition

## Activity 1

**1** One reason why producers in the world soya bean market could be said to operate in a perfectly competitive market is because there are many firms in the market selling to a large number of buyers. 'Hundreds of thousands of soya bean farmers worldwide' sell to a large number of buyers.

As Figure 1 shows, there can be wide fluctuations in the price of soya beans. This suggests growers have no control over the price they get for their soya beans. Hence growers are price takers.

There is freedom of entry and exit to the industry. Soya bean growers can move in and out of the soya bean market. Most soya beans are a standard product like rice or coffee. The product is therefore homogeneous, a condition for perfect competition. Information about prices and production methods is widely available. Buyers and sellers can access this information relatively easily if they so wish. Hence, it could be argued that there is perfect knowledge.

Therefore, the market for soya beans could be seen as a perfectly competitive market.

## Activity 2

**1**

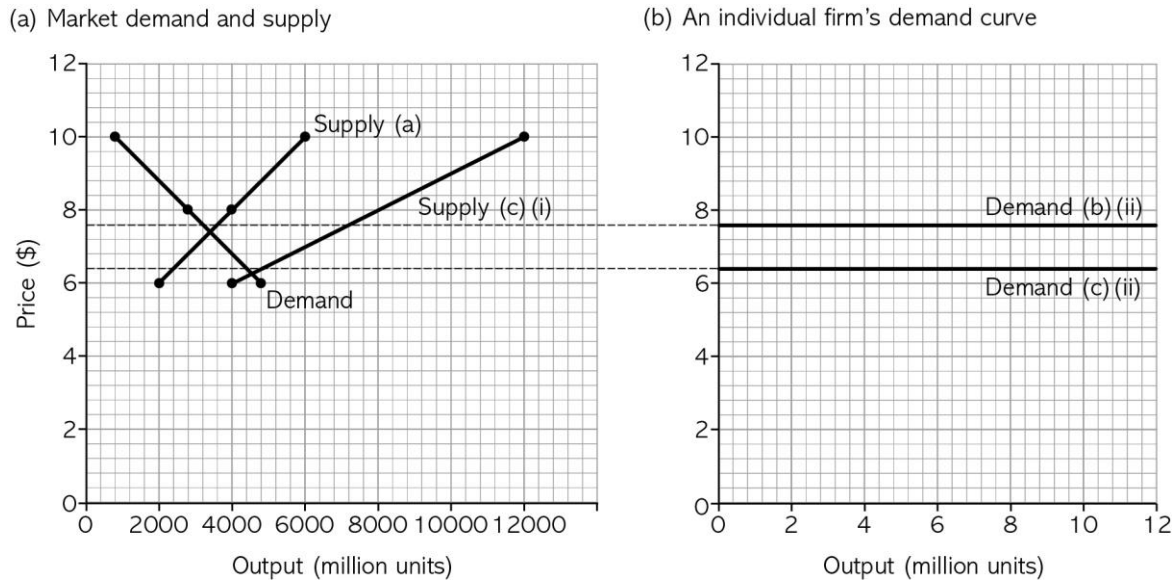


Figure 1(a) and Figure 1(b)

**2**

**(a)** The effect on the market supply curve (a shift to the right) is so small that it cannot be shown on the diagram. Hence there will be no change in total quantity demanded or supplied.

**(b)** See Figure 1(b).

**3**

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**(a)** See Figure 1(a).

**(b)** The demand curve for the individual firm will shift down as shown in Figure 1(b).

## Activity 3

**1** See Table 1.

| **Units** | **$** | | | | | |
|---|---|---|---|---|---|---|
| **Output average** | **Total fixed cost** | **Total variable cost** | **Total cost** | **Average variable cost** | **Average (total) cost** | **Marginal cost** |
| 2 | 100 | 100 | 200 | 50.0 | 100 | |
| 3 | 100 | 140 | 240 | 46.7 | 80.0 | 40 |
| 4 | 100 | 170 | 270 | 42.5 | 67.5 | 30 |
| 5 | 100 | 210 | 310 | 42.0 | 62.0 | 40 |
| 6 | 100 | 270 | 370 | 45.0 | 61.7 | 60 |
| 7 | 100 | 370 | 470 | 52.9 | 67.1 | 100 |

Table 1

**2** The firm's short-run supply curve is the MC curve above the AVC curve, as shown in Figure 2. Below the point where AVC and MC cross the firm would shut down production.

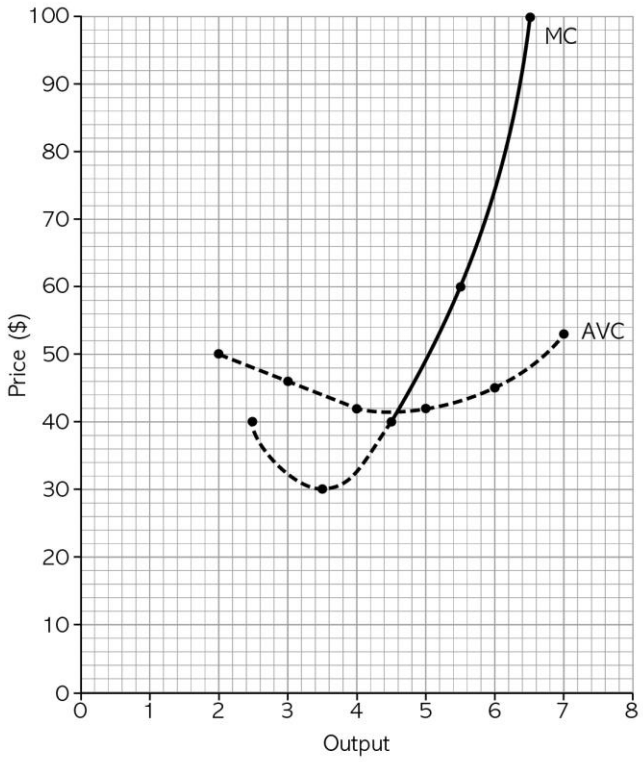


Figure 2

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**3** In the short run, the firm would cease production if the average price did not cover average variable cost. Hence it would continue in production if the sales price per unit was \$80, \$70, \$60, or \$50 but would cease production if the sales price per unit was \$40 or \$30.

In the long run, the firm would cease production if price did not cover average total cost. Hence, it would continue in production if the price was \$80 or \$70, but would cease production if the price was \$60, \$50, \$40 or \$30.

## Activity 4

**1** The data state that, for iron ore, 'the growth in supply has outstripped the growth in demand, leading to excess supply'. This can be seen in Figure 3(a). The demand curve for iron ore has shifted to the right from $D_1$ to $D_2$. However, the supply curve has shifted even further to the right from $S_1$ to $S_2$. The result has been a fall in the equilibrium price from OA to OB. This fall in price has affected iron ore producers. In Figure 3(b), the fall in price is shown by the shift downwards in the horizontal demand curve facing an individual producer. In this case, the producer goes from making supernormal profit to making a loss in the short run. Exactly how individual producers will be affected depends on their costs. The higher the cost, the more likely it is that the fall in price will have forced the producer into making losses.

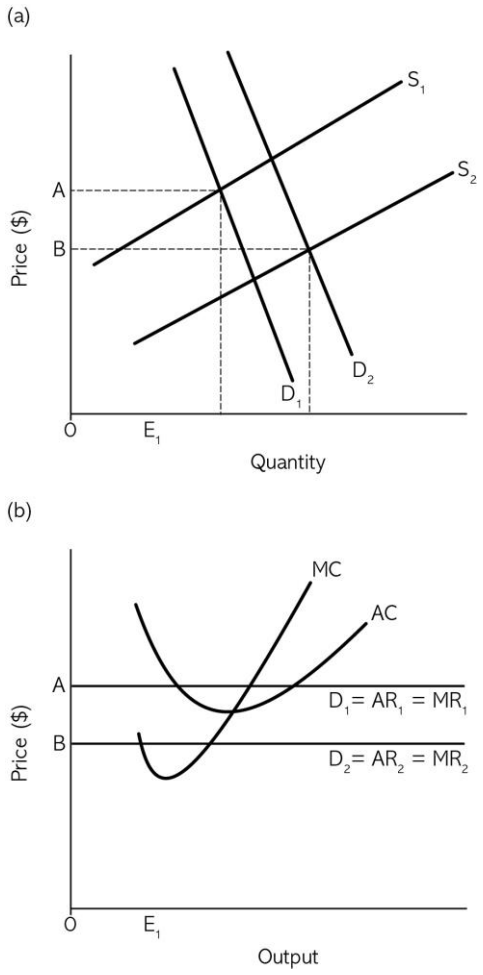


Figure 3(a) and Figure 3(b)

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**2** A firm might be prepared to operate at a loss in the short run. This will happen if it is able to cover at least its variable costs. For example, assume that the price of iron ore is $50 per tonne. If the average variable cost of an iron ore producer is $40 per tonne, then selling at a price of $50 per tonne will allow it to make a contribution towards paying its fixed costs of $10 per tonne.

However, if its variable cost is $60 per tonne, then it will close down. This is because it will make a larger loss by staying open than if it closed. It will have to pay its fixed costs and will make a loss of $10 per tonne by staying open when its average variable cost is $60 per tonne.

Therefore, a firm will remain open in the short run so long as it is at least covering its variable costs of production.

## Exam practice

**1** (d)

**2** The coffee market is arguably a perfectly competitive industry. There is a large number of producers in the industry, selling to a large number of buyers. There is freedom of entry to and exit from the industry. Firms can enter the coffee market and set up new farms growing coffee and they can stop growing coffee and leave the market if they so wish. Coffee growing techniques are not protected by patents and there is widespread knowledge of the best production techniques. Therefore, it can be argued there is perfect knowledge among coffee growers. There is also perfect knowledge among coffee processing firms which are able to shop around for the best prices. While there are many different types and grades of coffee, it is essentially a homogeneous product and coffee growing farmers find it difficult to brand their products in any way.

**3** Figure 10 in the Students' book shows that between the end of 2016 and 2018 the world price of coffee fell from a high of nearly 180 cents per pound to a low of less than 120 cents per pound. This will have had a significant impact on the profitability of coffee growers and their equilibrium output.

Figure 4 shows an individual coffee farm firm in a perfectly competitive coffee growing industry. The 2016 price is shown by the horizontal line $D_{2016} = AR_{2016} = MR_{2016}$. At this price, the firm is able to make supernormal profit. Its profit maximising level of output is OA. At this level of output, its average revenue is OE, but its average cost is only OG. So its total supernormal profit is the profit per unit EG times the quantity sold OA. By 2018, however, the price has fallen to OH, shown by the horizontal line $D_{2018} = AR_{2018} = MR_{2018}$. The profit maximising/loss minimising level of output is OB where MC = MR. Its average cost is OF, which is higher than its average revenue of OH. As a result, the firm now makes a loss of FH, the loss per unit, multiplied by OB, the quantity sold.

Coffee farmers face different costs. Figure 4 shows an individual coffee farm that was profitable in 2016, but was unprofitable in 2018. If its average cost curve had been significantly lower, it might still be able to earn supernormal profit even at 2018 prices. However, its profits would have been considerably lower. The lower the price of coffee, the more likely it is that coffee farmers will fall into making losses and leave the industry.

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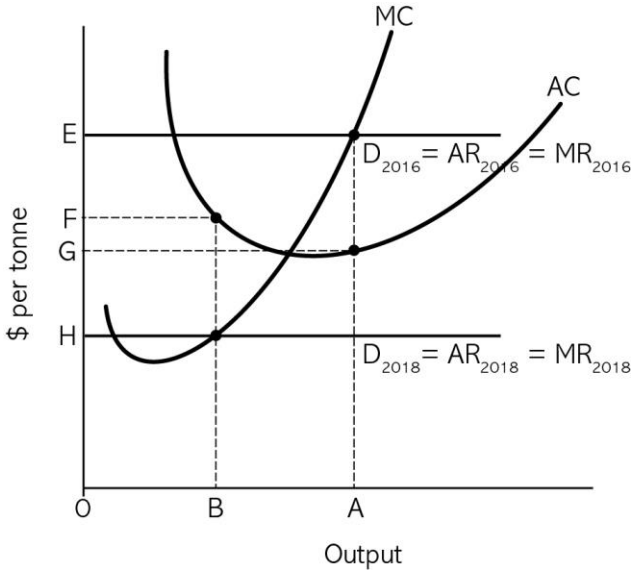


Figure 4

**4** If there are fewer farmers supplying coffee there will be a fall in the market supply curve.

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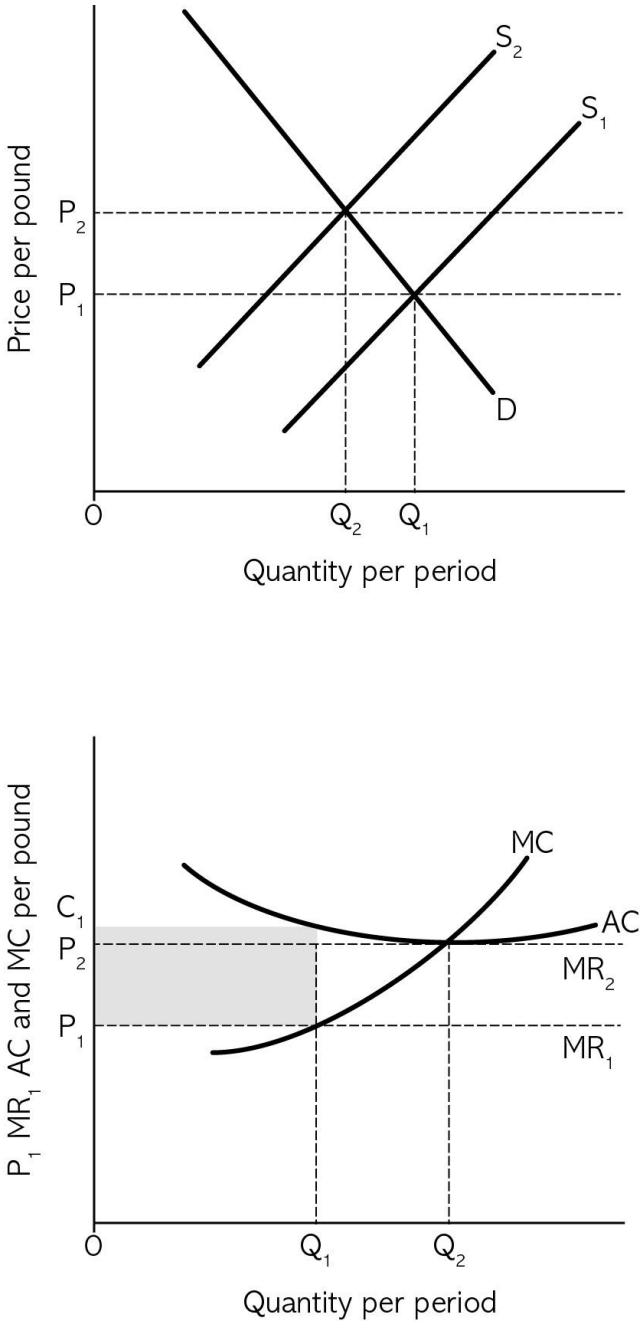


Figure 5

Figure 5 shows the diagrams for the coffee market and an individual coffee farmer. If the original supply curve is at $S_1$ then the market output is $Q_1$ and market price is $P_1$. The farmer will be producing at the most profitable output where MC = MR and that is at an output of $Q_4$ when the market price is $P_1$. An individual coffee farmer will be making a loss (as shown by the shaded area). With no barriers to entry or exit many farmers will stop producing coffee and this will reduce the market supply curve to $S_2$. The output will fall to $Q_2$ and the market price will rise to $P_2$.

The increase in the market price to $P_2$ will also raise up the AR and MR curves for the individual coffee farmer. If this increase in price results in those farmers who remain growing coffee being at the minimum AC curve, then this will be in long-run equilibrium at an output

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of $Q_3$ – where AR = MR = AC = MC. If nothing else changes then these coffee farmers will remain in business and not exit the industry.

If the original price of $P_1$ is below the AVC then this is when individual farmers will leave the industry in the short run. However, if the price is above AVC but below AC then the loss-making farmers may remain growing coffee in the short run in the hope that demand may increase and price may rise again. If prices did increase sufficiently to move farmers out of making losses and into making at least normal profit, it would keep them in the industry. In the long run, farmers must be receiving a price for coffee at or above AC to remain in the industry.

If demand for coffee increased then the AR and MR curves would rise and may reach a point at AC where farmers are making normal profit, or above AC where farmers are making supernormal profit. Farmers would then have no incentive to leave the industry.

A bad harvest is likely to cause the market supply curve to be reduced even more and then price would increase even more. There is then likely to be an incentive for other farmers to enter the industry and start growing coffee if the price rises above AC and supernormal profit is earned.

In conclusion, a large number of firms leaving the industry are likely to move farmers that remain in the industry out of making losses and back to making normal profit. Theory would suggest that at this point the market would be in long-run equilibrium. However, it may depend on whether there is a large enough number of farmers leaving the industry for the market price to rise sufficiently for existing farmers to return to profit in the short run. In the long run though, if farmers are making losses then the number of farmers leaving the industry must be of a high enough number for price to ensure normal profit is earned.

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# 11 Monopolistic competition

## Activity 1

**1** See Figure 1(a).

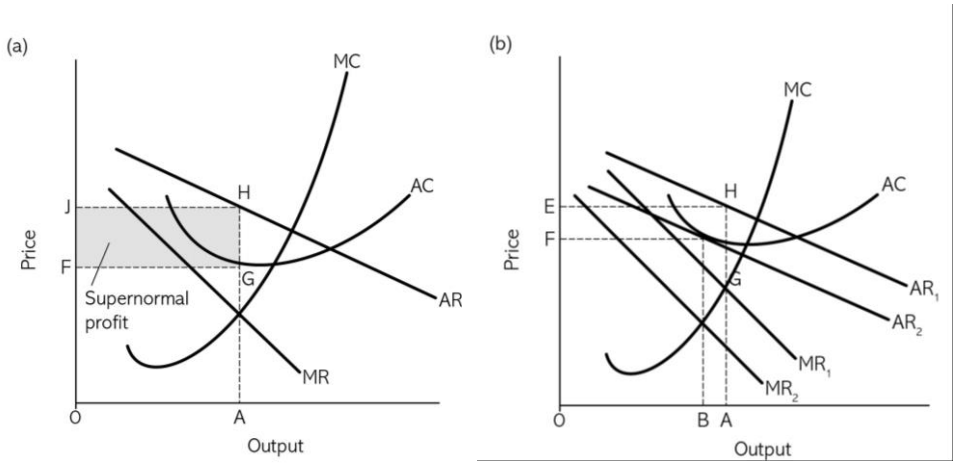


Figure 1(a) and Figure 1(b)

**2** The new profit maximising level of output is OB shown in Figure 1(b). Note that the question asks students to draw the extra lines contained in Figure 1(a) and Figure 1(b) onto Figure 4 from the Students' book.

**3** Her revenue curves have shifted because of the new competition. At any given price, fewer customers are visiting her restaurant because some are now going to the new restaurant a few doors away. Her revenue curves have shifted to the left to such an extent that she is no longer earning supernormal profit. This is the level of output OB where average cost equals average revenue. The data suggest that she is no longer earning supernormal profit because 'if another restaurant opens in her town, she would probably sell up and move on'. If another restaurant came to town, her average revenue curve would fall even more. The passage suggests that she would then be earning less than normal profit, the profit needed for her to remain in business.

## Exam practice

**1** A monopolistically competitive industry has a number of characteristics. There are many firms in the industry that are independent of each other. Barriers to entry and exit are low and there is perfect knowledge. On the other hand, in comparison with perfect competition, each firm produces a slightly different product. So goods are non-homogeneous.

The furniture market in Malaysia could be argued to be monopolistically competitive. There is a large number of firms in the industry, including many small manufacturers. Barriers to entry and exit are low. It is relatively easy and cheap to set up as a manufacturer of furniture. There is little knowledge that cannot be found out by manufacturers. However, each manufacturer is providing a slightly different product as designs vary from manufacturer to manufacturer.

**2**

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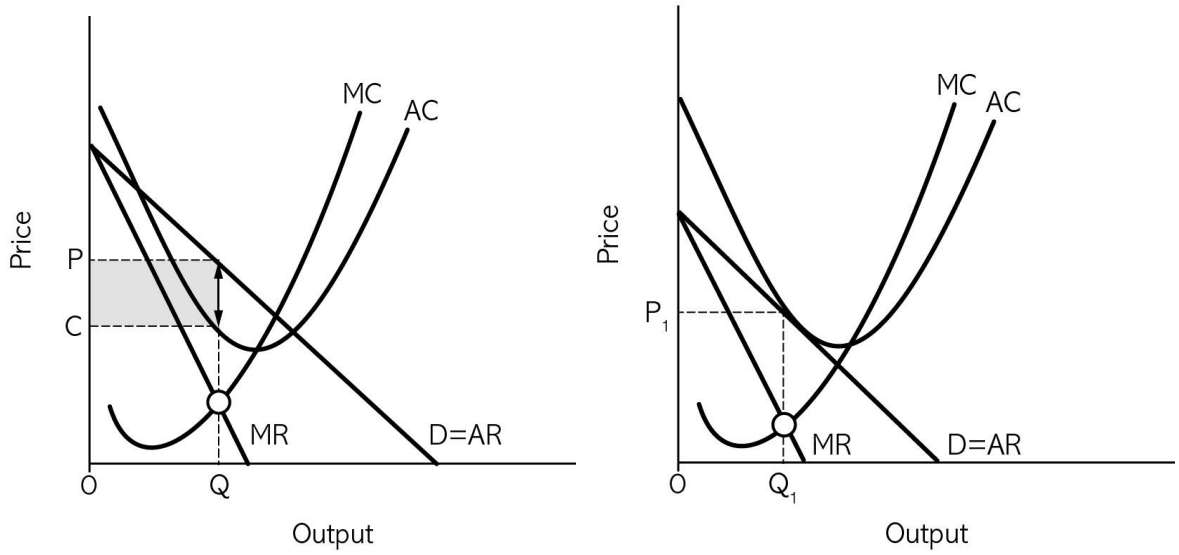


Figure 2

Assuming that individual furniture manufacturers are only making normal profit, then an increase in demand in the furniture market should lead to the AR and MR curves for individual furniture manufacturers shifting to the right. This will result in an individual furniture manufacturer making supernormal profit in the short run, as shown by the shaded area in the diagram in Figure 2.

**3**

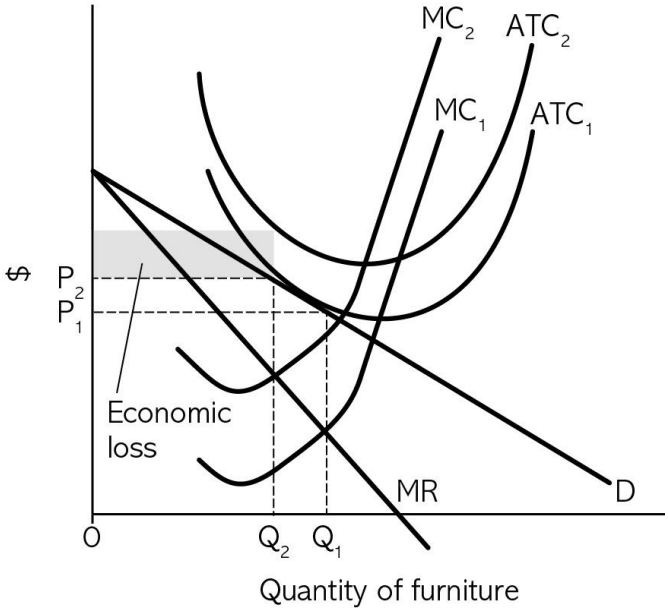


Figure 3

Assuming that individual furniture manufacturers are only making normal profit, then an increase in the cost of wages in the furniture market should lead to the AC and MC curves for individual furniture manufacturers shifting upwards. This will result in an individual furniture manufacturer making an economic loss in the short run, as shown by the shaded area in the diagram in Figure 3.

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Remember that an economic loss does not necessarily mean an accounting loss because total cost includes normal profit. This means higher wage costs may reduce profit to below normal profit. In the long run, firms will need to find ways to raise demand and prices or reduce costs to return to earning normal profit.

**4** Productive efficiency is where output is at minimum AC. In the case of furniture manufacturing in Malaysia, this is an industry that is monopolistically competitive. The short run is where MC = MR and this will not be where AC is at a minimum because MC cuts AC at its minimum point and this is unlikely to be at the same position where MC = MR. The long-run equilibrium will be where AR = AC and again this will not coincide with minimum A. Therefore it will not be productively efficient.

Allocative efficiency is P = MC. Again this will not happen in a monopolistically competitive industry as MC = MR at a point below the AR curve.

**5**

Introduction

- Monopolistic competition is where there are many firms in the market, there are low or no barriers to entry and the product is differentiated. Furniture manufacturing in Malaysia is a monopolistically competitive industry.

First point

- Refer to the diagrams in the answer to Q2. Explain the impact on a furniture manufacturer in Malaysia of increasing demand for furniture.
- In the short run, theory says that many existing firms should be making supernormal profit and other furniture manufacturers will be attracted into the industry.
- Each firm will be making a slightly different product.

Second point

- Refer to diagram in Q2 to explain that increasing demand for furniture manufacturers in the long run should settle at an equilibrium where AR = AC. Demand for each furniture manufacturer will fall and demand (AR) and MR will move to the left.
- No more furniture manufacturers should be attracted into the industry in Malaysia.
- In the long run, assuming no other changes, then firms should only be making normal profit.

Evaluation point 1

- It is unlikely that every furniture manufacturer in Malaysia is making supernormal profit in an economic sense. Not all firms are run as efficiently as others and unit costs for some firms may be higher than others.

Evaluation point 2

- The furniture industry in Malaysia might be affected by increasing competition from other countries. This could affect demand in Malaysia or in the overseas markets for Malaysian furniture.
- Individual furniture manufacturers may be able to create customer loyalty by selling matching sets of furniture so that customers buy all their furniture from one manufacturer.

Conclusion

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- The long-run position of furniture manufacturers in Malaysia should, in theory, be at equilibrium where each firm is making normal profit.
- However, there may be the effects of competition from firms in other countries and changes in demand from customers in different countries across the world.

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# 12 Oligopoly

## Activity 1

1 Students' own answers.

2 Students' own answers.

3 Students' own answers.

## Activity 2

**1** The soft drinks market is arguably oligopolistic and dominated by a few large firms. The soft drinks market comprises a variety of different products, including cola drinks, lemonade, and still and sparkling water. In the United States, two companies dominate the cola segment of the soft drinks market. According to the data, Coca-Cola had 42 per cent of the cola market in 2018, while Pepsi Cola (PepsiCo) had 28 per cent; an indication of an oligopolistic market.

Coca-Cola and PepsiCo are interdependent. Extra sales of Coca-Cola tend to come at the expense of fewer sales of Pepsi Cola. Growth of non-cola drinks in recent years has come at the expense of fewer cola drink sales. If Coca-Cola launches a new product, sales of this new product might come at the expense of lower existing Coca-Cola sales.

Marketing is a major barrier to entry to the soft drinks market. To create a successful brand, firms tend to engage in heavy advertising and other forms of marketing. Small independent firms find it difficult to gain any market share when faced with the large marketing budgets of dominant firms like Coca-Cola and PepsiCo.

Product differentiation is also a key characteristic of the soft drinks market. Firms attempt to create strong brands with customers choosing, for example, Coca-Cola rather than any cola drink, or Sprite instead of any lemonade and lime drink. Product differentiation allows soft drinks companies to charge higher prices for their products.

High concentration ratios, interdependence between firms, high barriers to entry and product differentiation are all characteristics of the soft drinks market and therefore the market can be categorised as being oligopolistic.

## Activity 3

**1** De Beers raised prices and profits for diamond producers by controlling supply. Reducing supply to the market meant that the equilibrium price of diamonds rose. Higher prices also meant that producers could earn higher profits.

**2** There was an incentive for producers to move outside of the cartel because they could sell their diamonds onto the open market at a higher price than they could sell to the Central Selling Organisation. The CSO had costs such as maintaining a stockpile of diamonds which it recovered through paying lower prices for diamonds from producers. It also attempted to regulate fluctuations in price in the market which would sometimes have given other producers an opportunity to sell at a higher price.

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**3**

**(i)** In a period of rising demand, it would be difficult to persuade non-cartel producers to remain in the cartel because they can sell all their products at a high price.

**(ii)** The issue of 'blood diamonds' was causing De Beers increasing problems. It did not want a product which is associated with love, romance, weddings and special occasions to be tainted with negative images of war. To control the market before 2000, it needed to buy up these diamonds. Once the cartel was dismantled, it was no longer obliged to buy them and hence could project a 'clean' image to customers about buying De Beers' diamonds. In the long term, it gambled that sales and profits would increase without the need to buy blood diamonds.

## Activity 4

**1** A brand, such as Dyson, has a recognised name and is associated with a particular image. Dyson has an image of manufacturing innovative products that are of high quality.

**2** Consumers benefit because they know the brand will be of a high quality and will know what they are getting. Buying branded products, such as the Dyson Cyclone V10, is reassuring to customers as they will be buying a product they are confident will meet their expectations for the price paid. However, consumers might not be aware of other products that may perform as well, or nearly as well, as the branded products but for a much lower price.

## Exam practice

**1** (b)

**2** The industry is concentrated in the hands of a few large companies. There are only relatively few very large pharmaceutical companies across the world that sell the main drugs available to treat diseases and medical conditions. The industry requires very large amounts of money to be invested into the development of new drugs and it takes many years for a new drug to gain approval and be sold on the market.

Firms must be interdependent. The pharmaceutical companies will each take notice of what rival drugs companies are developing. If all companies developed drugs to treat the same diseases or conditions then they would not be able to charge as high a price for the new drugs if there were many competing treatments. Firms would also find it more difficult to recover research and development costs and make a profit.

**3** The development of a new drug for the treatment of leukaemia will have taken many years of research and development and will have cost huge sums of money. The drug will have needed to go through many trials to make sure it is safe to give to patients and only after these many tests will the drug have been given approval for sale to medical establishments across the world. Assuming the new drug is more effective than existing drugs, then Pfizer will be able to charge a high price for the drug. It will be protected by a patent, which will prevent other firms copying the drug and selling it for a lower price. So the high price can keep being charged and Pfizer will eventually earn supernormal profit from the sale of this drug after all R&D costs have been recovered. This is assuming no other substitute drugs are developed to compete with this drug and assuming other firms in other countries do not break the patent (copy the drug and sell it for a lower price).

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**4**

Introduction

- Profit is the difference between revenues and costs. Collusion is where firms come together to make agreements between themselves to restrict competition. This assumes formal collusion where the firms come together to sign agreements, rather than tacit collusion where there is no formal agreement and there is no actual communication between the firms, such as price leadership.

First point

- Theory would say that collusion should benefit these US pharmaceutical firms. US firms could reduce R&D expenditure if they colluded.
- For example, US firms could agree which diseases each of them could develop drugs to treat, so they are not in competition with each other.
- Costs could also be saved by firms sharing R&D facilities/knowledge.
- Firms could collude to keep foreign competitors out of the US market.

Second point

- Patents are a barrier to entry in the market and will allow the firms to make supernormal profit on new drugs.
- Higher prices could be charged for drugs if there were fewer substitute drugs available for the treatment of particular conditions.
- Firms could agree on higher prices which would increase competition.

Evaluation point 1

- However, the market for pharmaceutical products is becoming more competitive, as firms in countries such as China become more established in the global market, possibly increasing the number of substitute drugs becoming available in the USA.

Evaluation point 2

- The US firms may not trust each other to not try to become dominant and ignore the agreements.
- Game theory shows that if firms ignore the agreements they may gain higher rewards than if they stayed with the agreements.

Conclusion

- In the long term as the market is changing and new firms from countries such as China are entering the global market, the high profit earned from collusion is likely to be reduced.
- US government may take action against the US firms as collusion is illegal in the USA. This may reduce the profit of these US firms, especially if they are fined high amounts of money.

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# 13 Monopoly and monopsony

## Activity 1

1 Students' own answers.

2 Students' own answers.

3 Students' own answers.

## Activity 2

1 See Table 1, columns 3 and 4.

| Output (units per week) | Marginal revenue ($) | Total revenue ($) | Average revenue ($) |
|---|---|---|---|
| 0 | | 0 | 0 |
| 1 | 10 | 10 | 10 |
| 2 | 7 | 17 | 8.5 |
| 3 | 4 | 21 | 7 |
| 4 | 1 | 22 | 5.5 |
| 5 | –2 | 20 | 4 |

Table 1

**2**

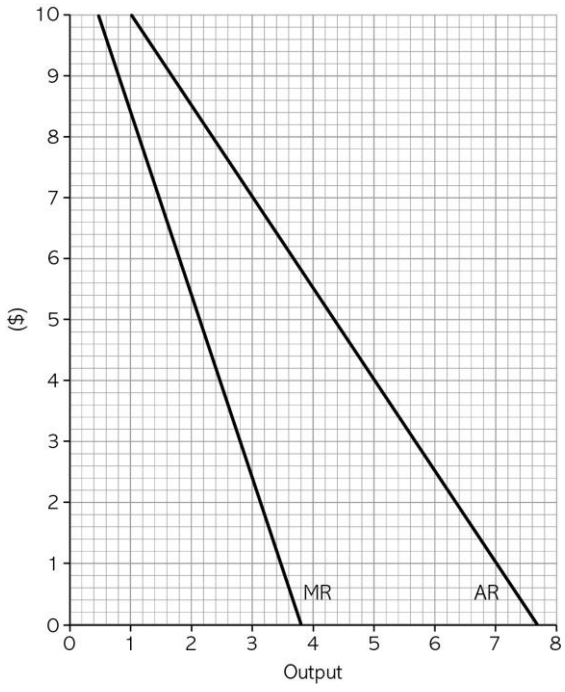


Figure 1

**3** Marginal revenue cuts the horizontal output axis when total revenue is at a maximum. Hence, marginal revenue is zero.

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## Activity 3

**1** Trademarks are very important to firms that own them. They act as a barrier to entry to a market, protecting the firm with the trademark from firms that seek to produce copycat goods and services. For example, the Armani brand is fiercely defended by its owners. The firm that attempted to sell products under the name of 'Benjamin Armani' was almost certainly attempting to associate its range of baby products with the more famous brand. It could then get consumers to think it was selling a range of upmarket, high quality, fashionably designed baby products. Building a brand like Armani is difficult and expensive. The cost is justified to the firm owning the trade mark if it can then sell its products at a premium price, or persuade customers to buy more of its products because of their perceived good value.

Firms that don't own trademarks lose out because they cannot copy those trademarks. They lose the ability to share the market with goods and services associated with that trademark.

Consumers benefit in two ways. First, trademarked goods tend to be of a known consistent quality. This is one reason why they are popular with consumers. Second, consumers benefit from the investment that firms put into trademarked goods and services. If firms were unable to protect trademarks, they would invest less and be more reluctant to engage in research and development of products. However, consumers tend to be charged premium prices for trademarked goods. Firms gain part of the consumer surplus that consumers would have earned by increasing their producer surplus, earning higher profits.

## Activity 4

**1** Three different prices are charged for different age groups – adults under 65; adults over 65, children, disabled; and infants. These groups can be kept separate by the age differences.

Different prices are also charged at different times of the year. When demand is higher, such as the Chinese New Year period, then higher prices are charged than at other times of the year when demand is lower.

**2** The theme park offers different tariffs to customers because it can increase its profits compared to a situation where it only offers one tariff. Some customers are prepared to pay a higher price for holiday times during the year. In Figure 2, for example, the theme park faces a downward sloping demand curve for its services. It sells OH of these services. Without price discrimination, it would charge a price of OA to all its customers because this is the highest price at which it can sell these services. However, it finds that it can split the market into two by offering two different tariffs for different age groups. It can sell OK theme park entrance to one group of customers on Tariff A at an average price of OB (Regular Admission). It can sell the rest, KH, on a different tariff, Tariff B (lower price for seniors, disabled people and children), at a price of OA. The result is that it appropriates the consumer surplus of ABEG from customers on Tariff A converting that into higher profit.

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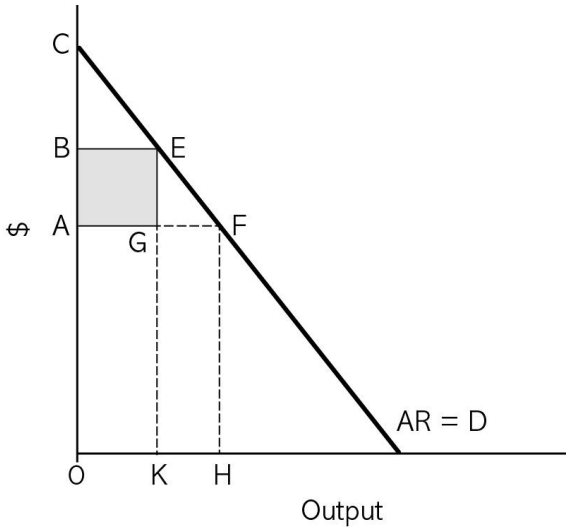


Figure 2

This works because different customers have different price elasticities of demand. As long as the theme park can separate out different groups of customers with different price elasticities at a relatively low cost, it can increase profits by price discriminating. Figure 3 shows a situation where the theme park charges just two different tariffs to two distinct groups of customers. It splits its total sales of OT between Market A (peak holiday periods) where it sells OR and Market B (non-peak days) where it sells a quantity of OS. In each market, these sales are determined by where MC = MR, the profit maximising level of output. Overall, its average cost is OF at the output where MC = MR in the whole market. It then makes a profit of FG per unit of output in Market A because it sells at a price of OG. In Market B, it makes a profit per unit of output of FH, selling each unit at a price of OH. The total profit in each market is shown by the shaded area. This is higher than the total profit it would have made had it sold each unit of output at the same price in one single market.

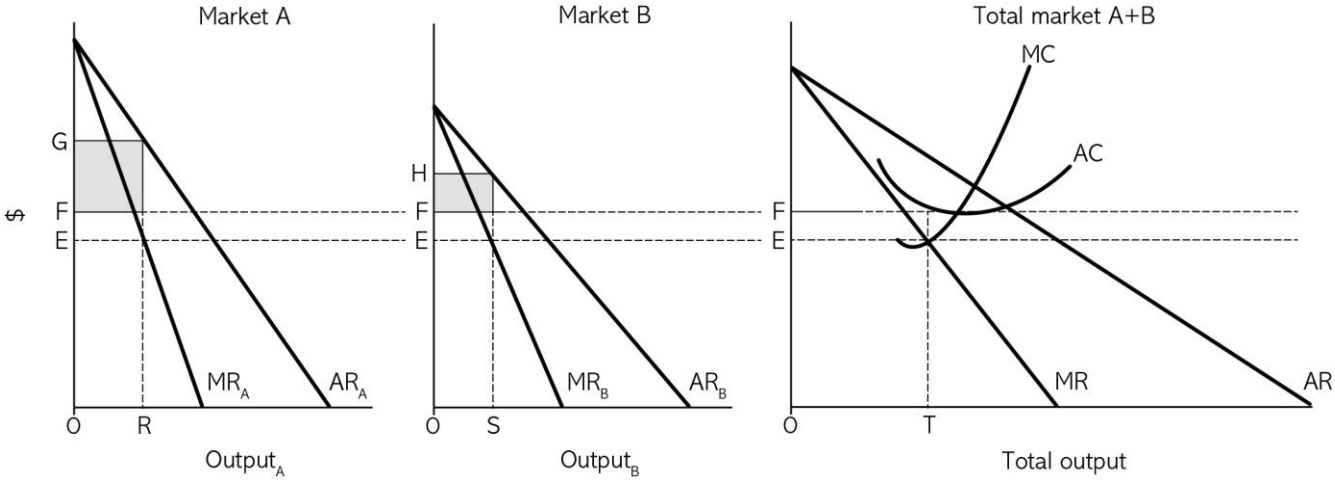


Figure 3

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## Exam practice

**1** (b)

**2** Safaricom has a huge database of customers that it can market its products to. This restricts the ability of new entrants to reach these customers and market their services to them.

Safaricom already has 71 per cent of users in Kenya signed up to its mobile phone network. This will be a high barrier for new entrants as users are often tied to contracts for a certain length of time and cannot change straight away even if they wanted to. Consumers may not want to change, as they may be brand loyal to Safaricom.

**3** It may be beneficial to consumers as it is so large it is likely to benefit from economies of scale and its lower unit costs may be passed on to customers in the form of lower prices. These prices may be lower than new entrants can charge and therefore consumer surplus will be higher, benefitting consumers. Safaricom may offer more extensive services and offer a more reliable service as it is so large and covers so many countries. Network coverage may be better and more up-to-date technology may be used, making the service better.

However, because Safaricom is so dominant in the mobile phone market it may use its position to exploit consumers and charge higher prices more than if the market was competitive. Consumer surplus may be reduced and Safaricom may earn supernormal profit. It may also use its dominant position in the market to keep out competitors, leaving consumers with little choice than to choose Safaricom.

**4**

Introduction

- Supernormal profit is profit above normal profit. Safaricom earned increasing profit in 2017, an increase of 27 per cent, which may indicate that it is earning supernormal profit.

First point

- Revenue has increased for its money platform by 32 per cent in 2017 suggesting increased number of customers or increased revenue from existing customers.
- Expansion is planned across other African countries that should lead to further increases in revenue.
- Plans to expand ecommerce across African countries.
- Higher revenue curves as a result of increased demand for the services of Safaricom.
- Growth in revenue likely to continue if barriers to entry remain high.

Second point

- Expects to continue to benefit from economies of scale – lower unit costs to operate its services.
- Moves to a lower position on the long-run average cost curve as it operates on a larger scale.
- Possible for increased research and development to improve the service.

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Evaluation point 1

- However, growth in other African countries depends on continued economic growth in these countries raising incomes.
- Also growth and increased revenue depends on Safaricom maintaining its dominant position and competitors not taking some of its market share.
- Existing customers may not stay loyal to Safaricom if a cheaper competitor enters the market.

Evaluation point 2

- Has Safaricom reached the lowest point on the long-run average cost curve?
- Benefits of lower unit costs may not be so beneficial if larger global businesses enter the market.

Conclusion

- The extent to which Safaricom can maintain its dominant market position and earn supernormal profit depends on being more competitive than the existing smaller companies in Kenya and other markets in which it is growing.
- Other changes might reduce its ability to keep its dominant position and maintain supernormal profit in the future, such as the pending report by the Communications Authority in Kenya into whether it has abused its dominant position – possible action the Authority might take against Safaricom and its operations to limit its ability to remain dominant and earn supernormal profit.

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# 14 Contestability

## Activity 1

**(a)** Clothing manufacturing is characterised by the existence of large numbers of relatively small firms. The vast majority of these produce unbranded products, making goods to order often from large retail chains. A few manufacturers own strong brands. Gucci and Levi are examples. Even these companies, however, tend to outsource production to other firms rather than produce all their own clothing in company factories. So branding is not a significant barrier to entry to the market, nor are start up costs. It is relatively cheap in manufacturing terms to set up in the industry, operating a small firm. Given that manufacturing is often labour intensive in small firms, sunk costs are usually small. Hence there is freedom of entry to and exit from the industry. With good knowledge in the industry, clothing manufacturing can be said to be a contestable market.

**(b)** Clothing retailers could also arguably be said to operate in a contestable market. It is relatively cheap to enter the market on a small scale and there is a large number of clothes retailers. A shop on a high street can be rented and fitted out at relatively low cost. The internet also now provides a way for new entrants to come into the market at very low cost. However, chains such as Zara tend to take a larger proportion of the market than branded manufacturers. It could therefore be argued that clothing retailing is slightly less contestable than clothing manufacturing.

## Activity 2

**1**

**(a)** The inability of firms in an industry to lease capital equipment for short periods of time is likely to make the market less contestable. This is because it will force new entrants either to buy capital equipment – which they might have problems reselling – or lease for long periods. Consequently, sunk costs are likely to be higher.

**(b)** High second-hand prices for capital equipment are likely to make the market more contestable. This is because they make the existing costs for any unsuccessful new entrant lower than they would be if second-hand prices were low.

**(c)** Extensive advertising by existing firms in the industry will make the market less contestable. Extensive advertising will create a considerable barrier to entry, making it difficult for any new entrant to gain a profitable share of the market.

**(d)** There are two contradictory features in this example. On the one hand, a market in which a firm which has a natural monopoly has high barriers to entry. In the long term, only one firm can survive in a natural monopoly market. On the other hand, if the natural monopolist is highly inefficient, it may create an opportunity for a new entrant to raid the market, setting up in competition and exploiting the fact that the natural monopolist is charging high prices. As long as sunk costs are not too high, entrants will be attracted to and stay in the industry while the natural monopolist continues to be inefficient. It is likely that this competition will lead to the natural monopolist tightening its costs and becoming more efficient. The new entrant can then withdraw, having made short-term profits.

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**(e)** Patents will lead to a market being less contestable. If they are crucial to the manufacturing process, it will be impossible for new entrants to establish themselves unless they secure a licence to use the patents from the patent holder. This, however, may push up their costs to the point where they are unable to compete in the market.

**(f)** Government legislation which gives monopoly rights to a single producer in the industry will lead to a market being completely incontestable. Monopoly rights means that no other firm can enter the industry.

## Exam practice

**1** (d)

**2** The potential for hit and run entry is a characteristic of a contestable market. If the prices charged for taxi services were high and firms were making supernormal profit it would be relatively easy for new entrants to enter the market and earn supernormal profit in the short run.

A second characteristic is that firms compete with each other and do not collude. This is usually a characteristic of taxi services and suggests that they compete on price as there are often many taxi firms offering their services to customers.

**3** The barriers to entry and exit in the taxi service market are usually low. To be able to enter the market and offer taxi services a firm would usually need a licence to operate. However, the cost of these licences may be high and there may be waiting lists of people wanting them. This will raise the barriers high to entry into the taxi service industry in these circumstances. The licence may be sold to other operators in certain circumstances – for example if the firm left the industry – or at least be paid for annually so it is only the annual cost that is lost if the firm exits the industry. This means exit costs are likely to be low.

Firms will also need vehicles to be able to offer these services. The vehicles may be purchased using loans from family members or a bank. The exit costs of the vehicle will be the depreciation on the cost of the vehicle when it is sold. This is often relatively low compared to other industries. The vehicles will also need to be fitted with a meter at a cost of Rs. 10,000. However, the cost of buying these meters can be repaid in installments and they can be sold if necessary, reducing the exit costs.

**4** Contestable markets have characteristics such as freedom of entry and exit into the industry but there is no specific number of firms in a contestable market. It is more about whether firms can easily enter and exit the industry. There should also be the potential for firms to enter the industry and gain a share of supernormal profit, if being earned by existing firms in the market, and then exit when the profit falls. This characteristic means that there may be many firms or just one firm in a contestable market. For the taxi industry in Sri Lanka, it is relatively easy to enter and exit the industry. A licence and a vehicle with a meter fitted is required in order to enter the industry and start providing taxi services. It is also relatively easy to exit the industry as there are low sunk costs, meaning the amount of money lost when exiting the industry is low, including loss of the licence fee and depreciation on the vehicles.

Firms in contestable markets compete with each other and they do not collude to fix prices. The products can be homogeneous or branded and knowledge should be perfect. In the taxi business in Sri Lanka the service is essentially the same, in that a person is taken from one

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location to another – though the type of vehicle may make the journey feel different, as being transported in a three-wheeler vehicle will not be the same as being in a car or a minibus. However, the journeys in three-wheeler vehicles are likely to be the same and the taxi firms do not brand themselves.

This seems to suggest that the taxi service business in Sri Lanka is a contestable market. This means supernormal profit is only earned in the short run and not the long run. This is because with a fair degree of freedom of entry and exit into the industry, any taxi firms earning supernormal profit will attract other firms into the industry and they will start providing taxi services and compete with existing firms in the market. Prices will start to fall due to the additional firms offering taxi services. This reduction in price happens up to the point where firms are only earning normal profit. There is then no more incentive for firms to enter the industry. The absence of, or low, sunk costs is also not a deterrent to firms to enter the industry.

So in the short run, taxi service businesses in Sri Lanka could earn supernormal profit but in the long run the characteristics of ease of entry and exit mean that only normal profit will be earned.

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# 15 The demand for labour

## Activity 1

**1** This is shown in Table 1 in column 3.

**2** This is shown in Table 1 in column 4.

| Number of workers employed | Total physical product per week | Total revenue product (TRP) ($ per week) | Marginal revenue product (MRP) ($ per week) |
|---|---|---|---|
| 1 | 10 | 100 | 100 |
| 2 | 24 | 240 | 140 |
| 3 | 36 | 360 | 120 |
| 4 | 44 | 440 | 80 |
| 5 | 50 | 500 | 60 |
| 6 | 53 | 530 | 30 |

Table 1

**3**

**(a)** The firm will employ up to the point where the weekly wage per worker (the marginal cost of labour) equals the marginal revenue product of the last worker employed. For instance, if the weekly wage were $60, then the firm would employ the first worker because her MRP is greater than $60. The same is true of the second, third and fourth workers. The MRP of the fifth worker is $60. The firm will therefore neither gain nor lose by employing that worker: hence, the profit maximising level of employment at a wage of $60 is either four or five workers.

**(b)** Employing up to five workers will mean that the marginal revenue product of each worker is greater than $30. Therefore the firm will definitely employ five workers. The marginal revenue product of the sixth worker is $30. The firm will therefore neither gain nor lose by employing that worker: hence, the profit maximising level of employment at a wage of $30 is either five or six workers.

**(c)** Employing up to two workers will mean that the marginal revenue product of each worker is greater than $120. Therefore the firm will definitely employ two workers. The marginal revenue product of the third worker is $120. The firm will therefore neither gain nor lose by employing that worker: hence, the profit maximising level of employment at a wage of $120 is either two or three workers.

**(d)** With a wage of $100, the firm will employ three workers because the marginal revenue product of each worker is greater than $100. However, it will not employ a fourth worker because the marginal product of the fourth worker of $80 is less than the wage paid of $100.

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## Activity 2

**1** The answers are shown in the last two columns of Table 2.

| Number of workers employed | Number of units produced and sold per week | Price per unit ($) | TRP ($) | MRP ($) |
|---|---|---|---|---|
| 1 | 10 | 15 | 150 | 150 |
| 2 | 24 | 14 | 336 | 186 |
| 3 | 36 | 12 | 432 | 96 |
| 4 | 44 | 11 | 484 | 52 |
| 5 | 50 | 10 | 500 | 16 |
| 6 | 53 | 9 | 477 | –23 |

Table 2

**2** The firm will employ workers as long as their marginal revenue product exceeds or is equal to their wage. Hence, the answers are:

**(a)** four workers

**(b)** four workers

**(c)** three workers

**(d)** three workers

**(e)** two workers

**(f)** two workers

## Activity 3

**1** The elasticity of demand for labour for lorry drivers will be affected by a number of factors, including time, availability of substitutes, elasticity of demand for the product and the proportion of labour cost to total cost.

In the short term it is more difficult for employers to recruit lorry drivers than in the long term. To be a lorry driver requires that the worker has a relevant driving licence to drive heavy goods vehicles. In the short term, employers will recruit from an existing pool of lorry drivers. In the long term, they can train workers to drive lorries. So the elasticity of demand for labour for lorry drivers is likely to higher in the long run than in the short run.

Most firms wanting to have their goods transported have almost no alternative to road transport. Air transport is not suitable for short distances or for heavy goods. Rail transport tends to be viable only on long journeys. So there are no substitutes for road transport in most cases. Hence, it is difficult for firms to substitute lorry drivers with any other type of labour or factor of production. This would tend to lower the elasticity of demand for labour for lorry drivers.

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Lorry drivers are in derived demand from the demand for the transport of goods. The price elasticity of demand for the transport of goods is relatively low in the short run. If a shipment needs to be made to a customer tomorrow, then a firm will be prepared to pay a relatively high price to make that shipment. Again, this would suggest a relatively low elasticity of demand for lorry drivers.

For a firm shipping goods to a customer, the cost of the shipment is likely to be a relatively small proportion of total cost. Hence, the cost of the lorry driver's wages is also likely to be a relatively small proportion of total cost. For a haulage company, labour costs are a relatively high proportion of their total costs, which also include the cost of vehicles, depots and office workers. So for haulage companies, the elasticity of demand for lorry drivers is likely to be high but will be lower for their customers.

Overall, the elasticity of demand for lorry drivers is likely to be relatively inelastic in the short term. A 10 per cent pay rise for lorry drivers is unlikely to have much impact on the quantity demanded. Firms need to have their goods moved. In the longer term, it will be higher as firms optimise their transport systems to move more goods with fewer lorry drivers.

**2** The elasticity of demand for labour for doctors will be affected by a number of factors, including time, availability of substitutes and elasticity of demand for the product.

Most people who want to be treated by a doctor will have almost no alternative to consulting them. Alternative medicines may not be suitable for the medical condition. There are no forms of capital that will totally replace a doctor, so there are no substitutes for being seen by a doctor in most cases. Hence, it is difficult for hospitals to substitute doctors with any other type of labour or factor of production. This would tend to make the elasticity of demand for labour for doctors more inelastic.

Doctors are in derived demand from the demand for medical treatment. The price elasticity of demand for the treatment is relatively inelastic in the short run. If a person is ill and they need to be treated straight away, then a person will be prepared to pay a relatively high price to be seen by the doctor (if at a private hospital or clinic). Again, this would suggest a relatively inelastic demand for doctors.

Overall, the elasticity of demand for doctors is likely to be relatively inelastic in the short term and possibly quite inelastic in the long term as well.

**3** The elasticity of demand for labour for farm workers will be affected by a number of factors, including time, availability of substitutes, elasticity of demand for the product and the proportion of labour cost to total cost.

In the short term it may be more difficult for farmers to recruit farm workers than in the long term. To be a farm worker requires little training and experience.

Most farmers who want to produce farming products could use capital to help harvest crops or feed animals. So there are substitutes for harvesting or feeding animals in many cases for farmers. Hence, it is relatively easy for farmers to substitute capital for farm workers. This would tend to make the elasticity of demand for labour for farm workers more elastic.

The price elasticity of demand for the farm products is relatively elastic as there are many alternatives available in the short run. Again, this would suggest a relatively elastic demand for farm workers.

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For a farmer producing crops or animals, the cost of employing the farm worker is likely to be a relatively small proportion of total cost. Hence, the cost of the farm worker's wages is also likely to be a relatively small proportion of total cost. For a farmer, labour costs are a relatively low proportion of their total costs. So for farmers, the elasticity of demand for farm workers is likely to be more elastic.

Overall, the elasticity of demand for farm workers is likely to be relatively elastic in both the short term and the long term.

## Exam practice

**1** (c)

**2** (b)

**3** Demand for labour is derived from the demand for the product.

**4** In the short run there may be skill shortages for specific occupations and it will take time for additional workers to become trained and offer themselves for work. Firms may have to increase wage rates to retain these skilled workers and deter them from moving to another firm. Therefore demand will be less elastic, or more inelastic, in the short run.

Secondly, if it becomes more difficult to substitute capital for labour for high skilled occupations then the elasticity of demand for labour will become less elastic as firms will need to keep employment levels at a similar level even if wage rates increase.

**5** The article suggests that China has a growing economy and with this it is likely that the prices of goods and services will rise. This will increase the marginal revenue product of labour as the output of each additional worker becomes more valuable due to the higher price charged for the output. This increase in the price of the goods produced will lead to an increase in demand for labour. There will be a shift in the demand for labour to the right and this will show that at each wage rate more workers will be demanded. This is shown in Figure 1. However, the article also suggests that labour has become more skilled and productive, which could also increase the MRP. This may lead to even more increases in the demand for labour in these industries in China.

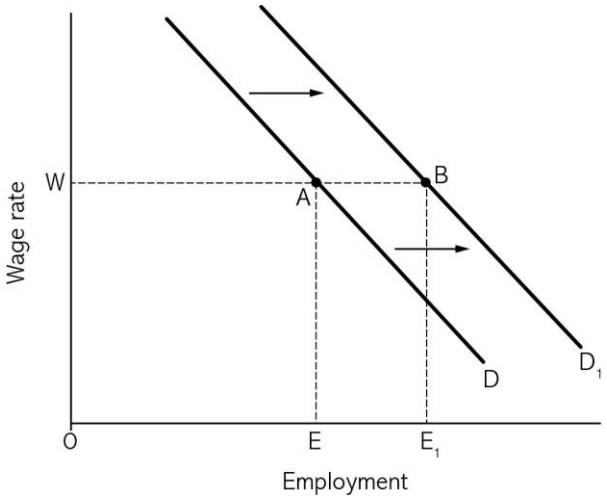


Figure 1

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# 16 The supply of labour

## Activity 1

Students' own answers.

## Activity 2

**1** Supply will increase – supply curve shifts to the right as net migration is positive.

**2** Supply will increase – supply curve shifts to the right – although this may not be for many years until the children are old enough to join the working population.

**3** The supply curve for surgeons may decrease as surgeons reduce the number of hours they are willing to work – supply curve shifts to the left. However, this assumes surgeons have some flexibility over the hours they work.

**4** This may lead to the supply of labour increasing – shifting the supply curve to the right – as the occupation may become more attractive to workers if the trade union is able to improve working conditions.

## Exam practice

**1** Net migration is the total number of people coming into a country (immigration), minus the total number of people leaving the country to work abroad (emigration).

**2** One influence is the number of people willing to go to China to work in domestic service there. The more people willing to travel from countries around China to work there, the higher the supply of labour to this occupation.

A second influence is the wage rates of domestic service relative to other occupations that these workers could transfer to. If the wage rates of domestic service in China are higher than comparable occupations in China then the supply of labour to domestic service will increase.

**3** If the Philippine government increased welfare payments to the unemployed it is likely to encourage people to remain in the Philippines and be unemployed rather than move to another country to work as a domestic servant. Domestic servants are low skilled and may receive only low wages. If these workers are unemployed in the Philippines then they may prefer to remain with their families and be unemployed rather than leave to work in another country as a domestic servant. Therefore, the supply of domestic servants to other countries is likely to decrease.

However, the effect will depend on the level of welfare payments made to the unemployed and the relative difference between this welfare payment and the wages paid to domestic servants in other countries. If the difference is high and the wages paid to domestic servants are high, then there may be little or no effect on the supply of domestic servants to other countries.

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**4**

Introduction

- Elasticity of supply is the responsiveness of the quantity of labour supplied, to a change in the wage rate.

First point

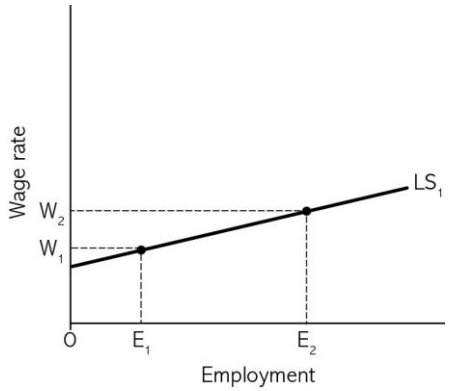
- Elasticity of supply will be more elastic; that is the increase in the quantity supplied will be a greater percentage than the percentage increase in the wage rate, depending on a number of factors. An elastic supply of labour is shown below in Figure 1(a).
- If there is a large available supply of suitable labour in other industries – this means if there are workers in other industries that have the necessary skills and qualifications to be nurses – then supply will be elastic.

Second point

- If the time period under consideration is the long run then supply is likely to be more elastic as supply of nurses has time to adjust to a change in the wage rate.

Third point

- If there is a large number of unemployed nurses then the elasticity of supply is likely to be more elastic because any increase in the wage rate can attract nurses that are unemployed to offer their services.



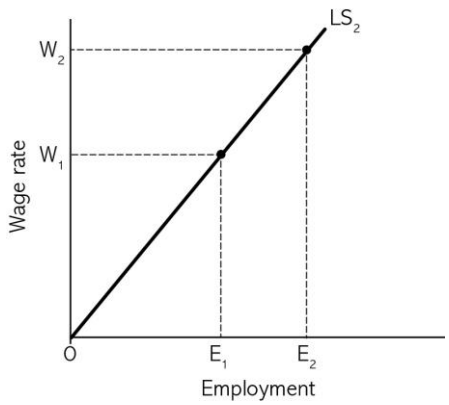




Figure 1(a) and Figure 1(b)

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Evaluation point 1

- However, because nursing requires workers to have undertaken a long training period and acquired qualifications then the elasticity of supply may be more inelastic. It is less likely for nurses to be employed in other occupations given the specific nature of their training and some people consider it a vocation.

Evaluation point 2

- If the time period is the short run then supply will be more inelastic as the training of nurses will take several years and the supply of nurses cannot be quickly increased.

Evaluation point 3

- The level of unemployed nurses may affect the elasticity of supply but the article suggests that there is a shortage of nurses, which is why Hong Kong has opened its borders to foreign nurses. Therefore it is unlikely for there to be many unemployed nurses in Hong Kong.

Conclusion

- It might be concluded that the elasticity of supply of nurses in Hong Kong is likely to be inelastic rather than elastic. This is shown in Figure 1(b). This shows that if the wage rate increases there will be a smaller percentage increase in the quantity of nurses supplied, as it is a skilled occupation and takes many years to increase the supply of trained nurses. Therefore there is unlikely to be an available supply of suitable labour from other industries to offer their supply to this occupation.

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# 17 The determination of wage rates in competitive and non-competitive markets

## Activity 1

**1** This is shown in Figure 1.

**2** In Figure 1, the equilibrium wage rate is WE and the equilibrium level of employment is $Q_{Equilibrium}$.

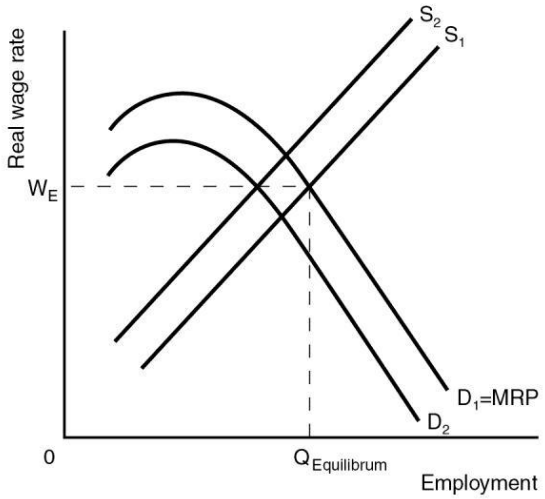


Figure 1

**3**

**(a)** There will be a shift to the left in the demand curve from $D_1$ to $D_2$ in Figure 1.

**(b)** There will be a shift to the left in the supply curve from $S_1$ to $S_2$ in Figure 1.

**(c)** There will be a shift to the left in the demand curve from $D_1$ to $D_2$ in Figure 1.

**(d)** There will be a shift to the left in the demand curve from $D_1$ to $D_2$ in Figure 1.

**(e)** There will be a shift to the left in the supply curve from $S_1$ to $S_2$ and a shift to the left in the demand curve from $D_1$ to $D_2$ in Figure 1.

## Activity 2

**1** The earnings of a worker in a market are determined by the forces of demand and supply. On the demand side, the four workers are likely to have different marginal revenue products. Mike Sellers, the 19-year-old fast food worker, for instance, is likely to have a far lower MRP than, say, Addo Tower; the 45-year-old finance director. Partly this is because of age. Mike Sellers will have far less experience than Addo Tower. Mike Sellers is also likely to be less productive than Petra Ellis, the 29-year-old personal assistant. She is likely to be able to perform a much wider range of tasks than Mike Sellers.

On the supply side, Addo Tower and Geena Miles are likely to be far more qualified, and therefore in shorter supply, than the other two workers. Mike Sellers lives in Boston and may have relatively higher unemployment than New York, and this factor has almost certainly

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helped depress his wages relative to Addo Tower's wages; Addo lives in New York, a relatively low unemployment and high-earning city.

### Activity 3

**1** The marginal revenue curve is shown in Figure 2, plotted from the data in Table 1.

| Number of workers employed | Total revenue product ($ per month) | Marginal revenue product ($ per month) |
|---|---|---|
| 1 | 700 | 700 |
| 2 | 1,300 | 600 |
| 3 | 1,800 | 500 |
| 4 | 2,200 | 400 |

Table 1

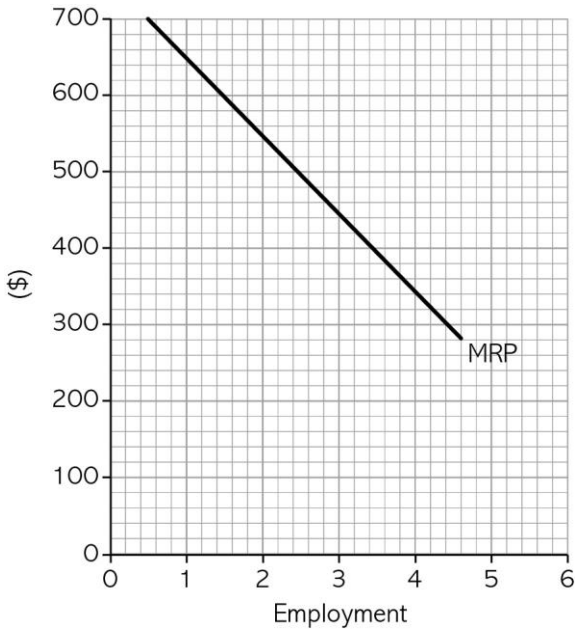


Figure 2

**2**

**(a)** One worker

**(b)** Three workers

**(c)** Three workers

**(d)** Zero workers

**(e)** Two workers

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## Activity 4

**1** See Figure 3.

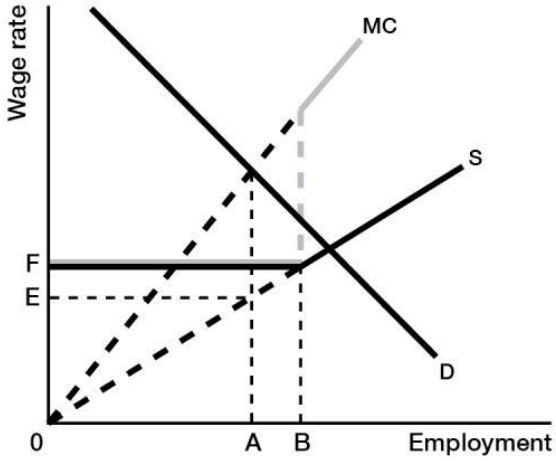


Figure 3

**Note:** Equilibrium employment with a monopsonist employer but many employees is OA. With a monopsonist employer facing a trade union, it is OB.

**2** In the labour market for teachers, it can be argued that the teacher unions are so weak that effectively a monopsonist employer faces a competitive supply of teachers. Assume that all teachers are identical in terms of subjects taught and skills. In Figure 4, the equilibrium wage would therefore be OE and employment would be OA.

If individual bargaining were to take place, employers would attempt to pay individual teachers the minimum needed to retain them in the job. This minimum is shown by the supply curve of labour. So some teachers would be employed for very little. The OAth worker would have to be paid OE in Figure 4. If employment were OB, marginal teachers would have to be paid OF. The marginal cost of employing extra labour would not be shown by the MC curve but by the supply curve line. This is because employing an extra teacher at a higher rate of pay does not mean that existing teachers have to be paid any more under individual bargaining. The total cost of employing OB workers is therefore the triangle OHB, the sum of the minimum amounts for which teachers are prepared to work.

Under national wage bargaining, the total wage bill would be OEJA. Under individual bargaining, OA workers could be employed for just the triangle OJA. If employment were to remain the same, the government could save money. However, what if the government chose instead to use the savings per teacher on employing AB more teachers? As long as the AJHB, the extra cost of employing OB teachers rather than OA teachers, was equal to or less than OEJ, the savings on changing to individual bargaining, the government would not have to spend more money employing more teachers and might indeed be able to save money.

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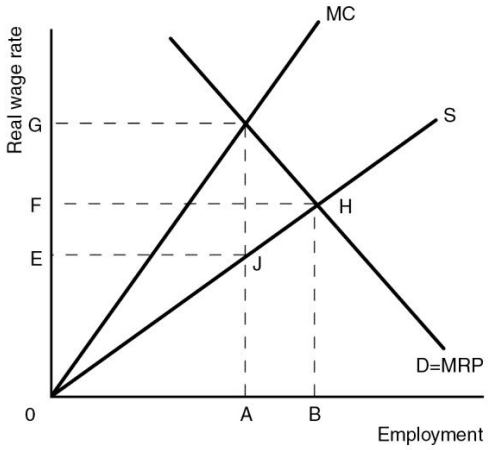


Figure 4

## Exam practice

**1** (a)

**2** (b)

**3** Wage rates increase either due to supply decreasing and the supply curve shifting to the left, or because demand increases and the demand curve shifts to the right. It could be a combination of the two changes.

In China between 2005 and 2016 the supply of labour increased from S to S1 due to the migration of workers from rural areas into the cities to find work in manufacturing. However, the demand for labour increased from D to D1, by more than the increase in supply, leading to an overall increase in wage rates from W to W1 and employment from E to E1 between these two years. See Figure 5.

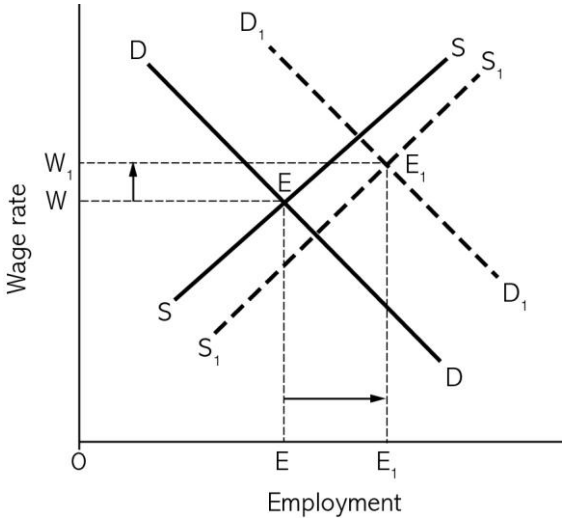


Figure 5

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**4**

Introduction

- Wage rates are determined by supply and demand for labour in a competitive labour market.

First point

- In the past, wage rates have increased due to increases in demand being greater than increases in supply of labour in China.
- Explain Figure 5 (if Q3 had not been asked).
- Productivity growth is increasing demand for labour and helping to increase wage rates, particularly as Chinese exported manufactured goods are becoming more technologically advanced.

Second point

- China is still experiencing economic growth and demand for labour is still increasing. However, supply of labour for rural areas in China is coming to an end, suggesting supply of labour to manufacturing will not increase in the future.
- The one child policy has meant that the population growth has been reduced and it is not increasing now the policy has been removed – so supply of labour is not likely to increase in the next 10 years as a result of population increases.

Evaluation point 1

- However, the manufacturing industry in China operates in the global economy and the relatively low wage rates in China have boosted manufacturing exports in the past. This increase in wage rates may lead to manufacturing jobs in the future moving to other lower wage countries, such as Brazil, Argentina or Mexico, as firms open new plants in these countries instead of China.

Evaluation point 2

- There may be labour shortages in China as a result of the lack of workers coming from these areas, leading to wage rates rising still higher.
- There is no information provided about the skill level of these manufacturing workers in China and they may be very productive, which would justify higher wage rates being paid and unit labour costs not increasing.

Conclusion

- Whether wage rates in China continue with large increases in the next 10 years will depend on the productivity of this labour, the level of automation in the manufacturing industry in China and the wage rates in other countries, such as Mexico.

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# 18 Market failure in the labour market

## Activity 1

Students' own answers.

## Activity 2

Students' own answers.

## Exam practice

**1** A situation when workers find it difficult to transfer from one occupation to another.

**2** Time and money is required to retrain for another occupation. This makes it more difficult for workers to retrain if they do not have the money to do this.

A lack of knowledge about the qualifications required to retrain may mean workers do not move to another occupation. These workers may not realise that even if they do not have the necessary qualifications, they may have the experience necessary to enable them to be accepted onto a training course for a new occupation.

**3** A shortage of nurses is a result of demand being greater than the supply of nurses. The labour market does not seem to be responding to this shortage, as a large number of vacancies remain unfilled across the three countries mentioned. Because vacancies go unfilled it will be more difficult to provide the health services demanded. There is a growing demand for nursing care due to ageing populations and advanced treatments that are available in many countries such as America, the UK and Malaysia. This demand cannot be met if there are unfilled vacancies and therefore some form of rationing or long waiting lists will have to take place. Economics would suggest that the wage rate for nurses will have to increase to attract more people into nursing. However, increased pay would have an impact on health service budgets as the budget would have to increase or the money spent on other costs of providing health services would have to be reduced.

**4**

Introduction

- Staff shortages occur because demand is greater than supply. There is market failure as the shortages persist – likely to be due to occupational immobility of labour.

First point

- There is an excess demand for labour in the market.
- Figure 1 shows the excess demand and the market failure.

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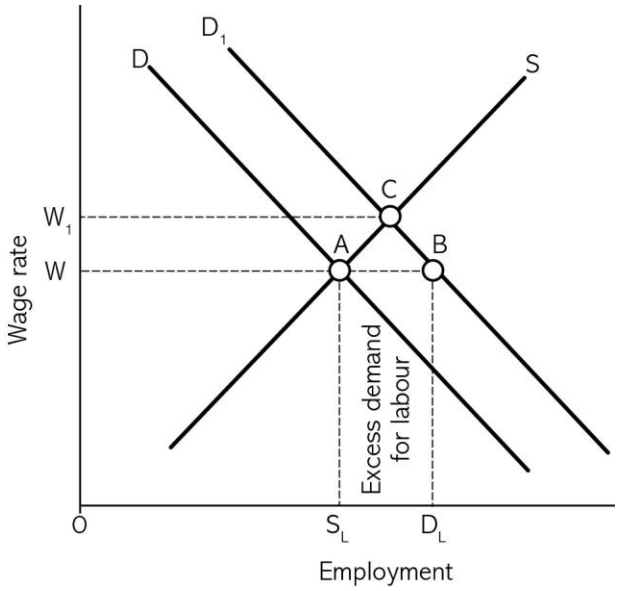


Figure 1

- Increased demand moves market from the equilibrium at 'A' to the point 'B'.
- The wage rate should rise to W1 and the shortage of nurses should go as the equilibrium 'C' is achieved.

Second point

- However, occupational immobility means that point 'C' is not reached.
- Shortages of nurses persist and vacancies go unfilled.

Evaluation point 1

- Higher wages should help to reduce some of the shortages of nurses and attract more labour into this occupation – but this will take time.
- However, the effectiveness of higher wages will depend on how much wage rates are increased (for example, whether the increase in wage rates will cover the higher cost of living in London).

Evaluation point 2

- There are other factors that are deterring people from entering this occupation, such as the slow down in the number of nursing places for training nurses (as in Malaysia); the attraction of higher rates of pay in other countries leading to migration; and high work pressures as identified in the UK's NHS.

Conclusion

- Higher wage rates alone are unlikely to solve the shortages of nurses as there are several reasons for the high level of unfilled vacancies, not just pay.
- More training places need to be provided and a longer term view of recruitment needs to be adopted in many countries. A strong recruitment drive to attract people into the nursing profession is needed and the finance found for this.
- Occupational immobility also needs to be reduced and information provided so that people are attracted into nursing from other occupations.

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# 19 Government intervention in product markets

## Activity 1

**1** Neo-classical theory suggests that firms are profit maximisers. When a firm is a monopolist, it will set prices and produce a level of output that will enable it to earn maximum profits. However, the monopolist will earn these profits at the expense of its customers who will pay higher prices and consume less than if the industry were competitive. Therefore, monopolists need regulating to prevent them from exploiting their customers.

**2** In India 46 per cent of electricity is generated by privately owned businesses. They are in business to make a profit for their owners. Customers may have very little choice of which firm they buy electricity from, as there may be few electricity companies supplying electricity in their area, then prices may be set higher than if the market is competitive. Therefore, in order to encourage investment in this industry to meet the growing demand for electricity, firms may be allowed by government regulators to set prices high enough to earn supernormal profit.

## Activity 2

Students' own answers.

## Exam practice

**1** A drug patent gives the owner exclusive rights to sell the drug. No other firm can copy the drug and sell it to the market without getting the permission of the owner of the patent. The patent is backed by law. Any firm infringing the patent can be sued for damages. The patent therefore gives monopoly power to the owner of the patent.

**2** The pharmaceutical industry in America has very large companies that invest huge amounts of money in the research and development of new drugs. The US government agencies can investigate and file lawsuits against companies but these firms have large amounts of money to pay fines or fight court cases. The US agencies which investigate the pharmaceutical industry are small, relative to the size of any of the individual pharmaceutical companies. It costs a lot of time and money to investigate the practices of pharmaceutical companies and it is also difficult to gain all the necessary information to prosecute a firm for anti-competitive practices.

In terms of regulatory power, US government agencies can conduct studies on pharmaceutical patent abuse and advise Congress on potential new laws that might be required but it cannot take action itself. Again, this takes time and in the meantime these firms can abuse their monopoly power from being sole suppliers of particular drugs.

**3** Firms exploit customers by raising prices and restricting output in order to earn supernormal profit. The data give an example of how a monopolist can exploit its power. Servier, the drug manufacturer, has attempted to create a monopoly on production of drugs which have been going out of patent. It has done this by paying other drug manufacturers not to produce generic drugs identical to its own-patented drugs. To explain how this works, consider Figure 2. It is the diagram for a monopolist and can be used to illustrate the situation with Servier. If the industry were perfectly competitive, many firms would produce identical generic drugs. Firms would not be able to earn supernormal profit in the long run because prices would be as low as possible to allow firms just to earn normal profit. The

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market is not allocatively efficient. If it were, production would take place where price equals marginal cost at output OC. Equilibrium price is OT. If the industry becomes a monopoly, with Servier paying other firms to stay out of the market, the monopolist will restrict output by producing at the profit maximising level of output of OA, where marginal cost equals marginal revenue. It can then price at OS on the demand curve for this production. By restricting output by AC, the monopoly is able to earn supernormal profit of SHKF. Part of this supernormal profit will then be paid to firms who would otherwise have attempted to enter the market producing generic versions of the drug.

The higher price of OS means that customers have to pay more for their drugs, compared with the price in a competitive market where price equals OT. Also the output is lower at OA whereas if this was a competitive market, output would be OC. Consumer surplus at output OA compared to OC falls by the area TSHJ. There is a deadweight welfare loss to society (both producer and consumer surplus) of the triangle LHJ.

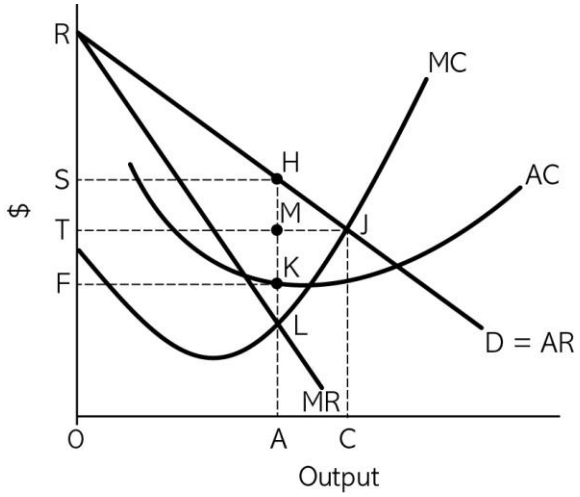


Figure 2

**4** There is a variety of ways in which monopolists can be controlled. The aim of control is to prevent them from exploiting customers, typically by restricting output and raising prices. Restricting output allows monopolists to earn supernormal profit.

One way is for governments to impose price controls. This has happened with electricity prices in countries where electricity is supplied by private sector firms. One of the disadvantages of price controls is that the monopolist may restrict investment and innovation due to the possibility of earning lower profits. Electricity firms could cut back on investment in building new energy generation plants as a result of the price controls. Another problem is regulators may find it difficult to identify future costs and revenues of the monopolist. Too harsh a settlement or too generous a settlement can lead to allocative inefficiency.

Sometimes it is possible to break up a monopoly. This is effectively what happened with Servier and other drug companies that were paying potential competitors not to enter the market. Servier was attempting to retain monopoly control of its drugs by preventing new entrants from coming into the market. European regulators broke up this monopoly arrangement by preventing Servier from paying other companies not to supply.

Lowering barriers to entry encourages firms to enter a market which was previously monopolistic in nature. In the case of patented drugs, the patents allow manufacturers to

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earn high profits on successful drugs for a limited amount of time. This is designed to ensure dynamic efficiency by encouraging innovation. However, putting a time limit on the patent, which is effectively lowering the barrier to entry to the market after a fixed amount of time, allows competition to occur. Consumers then benefit from much cheaper generic drugs. This assumes that lowering barriers to entry will lead to more entrants coming into the market. Sometimes, as with natural monopolists, it is impossible to lower the key barrier to entry to the market.

Another way of controlling monopolies is to prevent their creation in the first place by preventing mergers that create them. Preventing mergers and forcing demergers of assets can be an effective way of preventing the creation of a monopoly.

There are many different ways in which firms with monopoly power can be controlled. There are examples of ways that have arguably been effective in the past. They rely upon government competition authorities being strong and standing up to firms that, sometimes, can have revenues larger than the GDP of many countries. Monopolies will always resist having their market powers reduced. It is also fair to say that sometimes regulation makes situations worse for the consumer, for example when a monopoly ceases to produce a given product. However, on balance, monopolies need to be strongly regulated to prevent inefficiencies developing in the market.

(**Note:** There should just be a selection of different methods discussed in the answer and it should not include all possible methods to control monopoly power. Therefore, answers may also cover a number of other ways of controlling monopolies including the following.)

An alternative to price controls are profit controls. These have been extensively used in the USA to control utility companies. Profit controls provide incentives for monopolies to employ too much capital if they are being permitted to make profit on capital employed. There is also little incentive to minimise costs if they are allowed to cover their costs and earn a profit on capital employed. As with price controls, they require regulators to have a good understanding of future costs and revenues for the industry to make an accurate judgement of what is a fair profit.

Regulators can set quality standards and performance targets. These are widely used in the public sector where there is little incentive to maximise profit. They require regulators to have a good understanding of what is in the best interests of ‘customers’, whether they are hospital patients or school children or rail passengers. It is important not to allow monopolies to unfairly meet targets at the expense of providing a poorer service elsewhere. It is also important not to allow regulatory capture, where those bodies that are supposed to be regulated effectively set their own standards and regulations.

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Governments can accept that monopolies exist and then put windfall taxes on their supernormal profits. This will not necessarily benefit consumers if the taxes are not used to compensate consumers who have had to pay high prices. Windfall taxes can also be arbitrary, making it difficult for firms to plan for the future and possibly result in dynamic inefficiency.

Monopolies can be privatised if they are in the public sector, or nationalised if they are in the private sector. Privatisation tends to be associated with lower costs due to the elimination of inefficiencies but higher profits. Customers will not necessarily benefit if the lower costs are not passed on in the form of lower prices. It also does not solve the problem of how to regulate a monopoly. If it is privatised as a monopoly, it will act against the interests of consumers. As for nationalisation, this tends to lead to inefficiencies even if prices and profits are lower. Again, a nationalised monopoly still needs regulating, for example through quality standards and performance targets.

It is possible for governments to subsidise monopolies. By giving a subsidy, the monopoly will be encouraged to lower its price and raise output. The right level of subsidy could result in the monopoly being allocatively efficient if output is where price equals marginal cost. However, subsidies to monopolies are difficult to justify politically. It is also very difficult to know what level of subsidy to give in practice to ensure an efficient level of output.

When threatened with regulation monopolies often offer to regulate themselves, for example through codes of practice. In some cases, this can lead to a satisfactory outcome. However, most times, arguably, the monopoly sets regulations that interfere as little as possible with its ability to maximise profits.

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# 20 Government intervention in labour markets

## Activity 1

**1** Students' own answers.

**2** Students' own answers.

## Activity 2

**1**

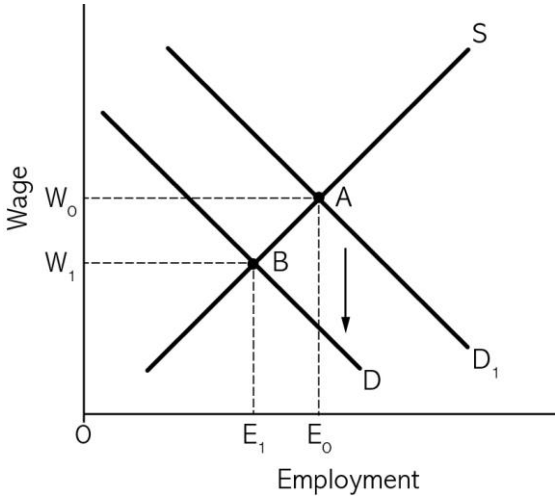


Figure 1

**2** A national insurance type tax imposed on the employers will shift the demand curve down by the amount of the tax. This is because employers will reduce demand for labour as effectively the cost of employing workers has risen. This is shown by the shift downwards from D to $D_1$. The original quantity of labour employed is $E_0$ at a wage rate of $W_0$. The equilibrium employment moves from A to B.

The impact of this tax is that employees now are paid a lower wage rate of $W_1$ down from $W_0$ and employment will fall from $E_0$ to $E_1$.

The increased cost for firms is likely to be passed on to consumers in the form of higher prices. Government revenue will increase from the additional contributions paid by employers on each employee.

## Exam practice

**1** This is a legal maximum wage per hour or total pay that can be paid to workers. Total pay above this level cannot be paid to anyone employed by the business.

**2** At a ratio of 20:1 then the highest paid worker cannot be paid more than 20 times more than the lowest paid worker. Therefore, \$10,500 per year × 20 = \$210,000.

The highest paid worker cannot be paid more than \$210,000 per year.

**3**

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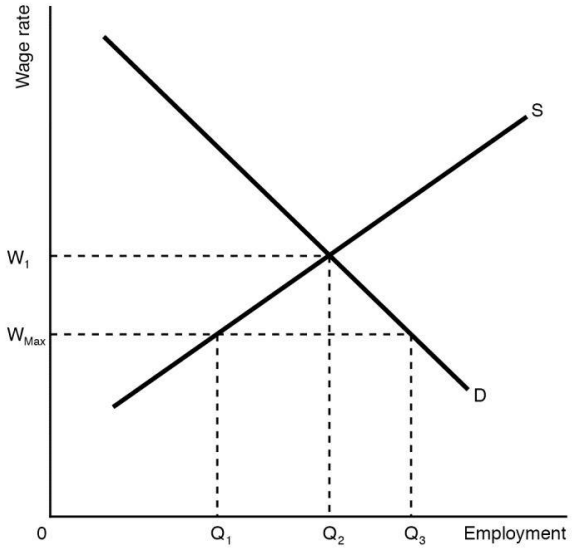


Figure 2

There would be a maximum wage in each firm for top executives. If this maximum wage is below the equilibrium wage rate for top executives, as shown in Figure 2, then the wage rate will be lower at $W_{Max}$ than the equilibrium wage of $W_1$ and the level of employment will also be lowered from $Q_2$ to $Q_1$.

However, if the maximum wage for top executives calculated from the lowest-paid employees is at, or above, the equilibrium wage rate then it will have no effect.

Or if the lowest-paid employees receive an increase in their wage rates then this will move the maximum wage rate higher than $W_{Max}$ in Figure 2 and move the wage rate for top executives closer to the equilibrium wage rate.

So the possible effect on pay and employment will depend on the difference between the lowest-paid employees and the top executive pay.

**4**

Introduction

- Fixing the pay of top executives at a fixed multiple of lowest-paid employees is, in effect, imposing a maximum wage on top executives. If there is a statutory minimum wage in an economy, then the maximum pay of top executives of all companies will be a multiple of the minimum wage.

First point

- Maximum wage rates are needed to ensure executives are paid a fair rate for the job they do. Unfair pay adds to inequality in society.
- High pay is not always linked to the performance of the company they work for; an example would be Carillion and BHS where poor management decisions resulted in the collapse of the company but the executives were still paid high amounts. Hence, controls are needed to ensure this does not keep happening.
- The impact can be shown on diagrams. In Figure 2(a), demand and supply curves for top executives are shown. The equilibrium wage is $W_1$. However, the maximum

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wage, fixed according to the formula of a multiple of the minimum wage, is $W_{Max}$. At a wage rate of $W_{Max}$, $Q_3$ is demanded but only $Q_1$ is supplied. Hence, there is excess demand for top executives at this wage rate.

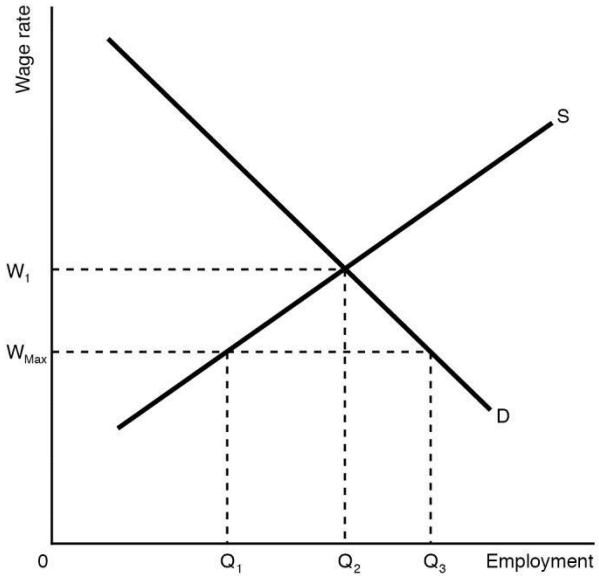


Figure 2(a)

Second point

- In practice, there is unlikely to be excess demand. If executive pay was only sixty times the average worker's pay packet, few if any problems are likely to be encountered recruiting top executives.
- It could also be argued that the elasticity of demand for top executives is almost zero. Rather like Premier League football players, employers may be prepared to pay whatever it takes to get what they consider to be the best in their field.
- To remain competitive, companies argue that they need to pay these high amounts of money to attract the best executives that are likely to make the best decisions for the company.

Evaluation point 1

- Figure 2(b) shows this scenario, with the demand and supply of top executives being highly inelastic. If this were the case, reducing executive pay from $W_1$ to $W_{Max}$ would have almost no effect on either demand or supply. Excess demand of $Q_1Q_2$ would open up, but this is so small it is negligible.
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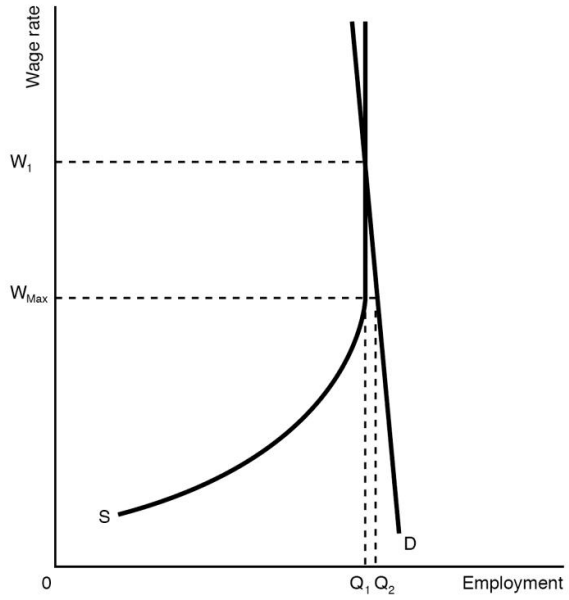


Figure 2(b)

Evaluation point 2

- Maximum wages may lead to a company moving its headquarters to a country where there is no legislation on executive pay and hence the legislation may be ineffective.

Conclusion

- Whether the competitiveness of a firm will be affected if maximum pay is applied to its directors depends on the industry and the international market in which it operates.
- The effectiveness of this legislation may be limited if it is difficult to establish the exact pay of executives. Pay is often made up of other payments, such as share ownership, and the exact price of this will vary as share prices fluctuate. Difficult to implement in practice, reducing its effectiveness.

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