



Rewarding Learning
ADVANCED
General Certificate of Education

Economics

Assessment Unit A2 1
assessing
Business Economics



AEC11

[AEC11] Assessment

TIME

2 hours.

Assessment Level of Control:

Tick the relevant box (✓)

Controlled Conditions	
Other	

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number on the Answer Booklet provided.
Answer **all** questions in Section **A** and **B** and **one** question in Section **C**.
You are permitted to use a calculator in this paper.

INFORMATION FOR CANDIDATES

The total mark for this paper is 90.

- Section A: 20 marks
- Section B: 40 marks
- Section C: 30 marks

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

ADVICE TO CANDIDATES

You are advised to take account of the marks for each part question in allocating the available examination time. In questions involving calculations, you are advised to show your workings. Quality of written communication will be assessed in Questions **4**, **5(b)**, **(c)** and **(d)**, **6** and **7**. Quantitative skills will be assessed where appropriate.

Section A (20 marks)

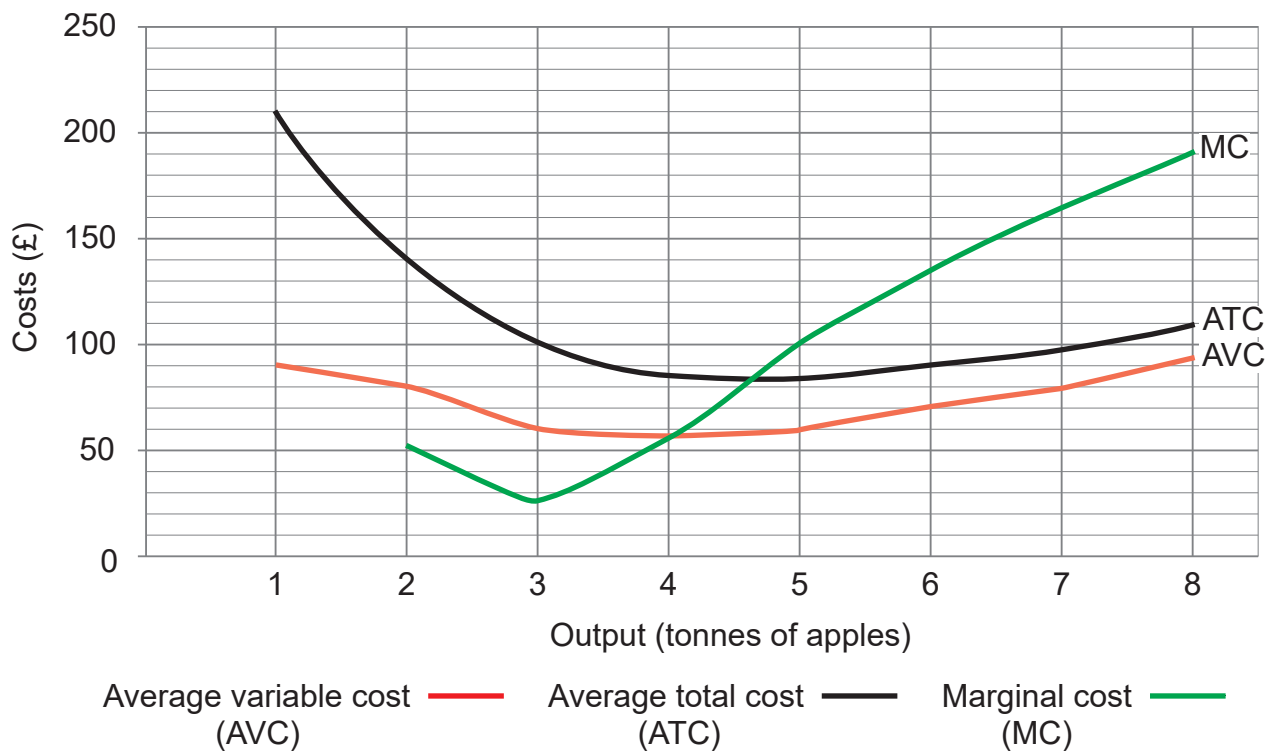
Answer all questions

- 1 A proposed £51 billion pound merger between Asda and Sainsbury's was blocked in April 2019 by the Competition and Markets Authority. Had it gone ahead the merged company would have had a 31.8% share of the UK grocery market. In October 2017, craft brewer Galway Bay Brewery bought a bar on Belfast's Ormeau Road. This was one of a number of bars the company has bought in the last nine years.

Using the information above explain the difference between vertical and horizontal integration.

[3]

- 2 The graph below shows selected costs for an apple farmer operating in a perfectly competitive market.



- (a) From the information in the graph calculate the firm's Total Fixed Costs. [3]
- (b) Explain whether the firm should continue to produce in the short run if the market price of apples was £70.00 per tonne. [4]

- 3 The profit payoff matrix below refers to two pharmaceutical companies, Eazee Drug and BR Laboratories. It illustrates the impact on their profit depending on whether or not each firm decides to invest in the production of a new drug.

		 BR Laboratories	
		Invest	Don't invest
Eazee Drug 	Invest	£10 million £10 million	-£5 million £60 million
	Don't invest	£60 million -£5 million	£3 million £3 million

Using the information in the profit payoff matrix above, explain the best investment strategy for Eazee Drug regardless of the decision of BR Laboratories. [4]

- 4 Looking Glass Windows is a double glazing company owned by Susan Donnelly. She is the sole shareholder and retains all the profit made by the company.

She employs Eric Magee as the sole sales representative. His earnings are calculated as 15% of sales revenue.

Using an appropriate diagram, explain why Susan and Eric might disagree over the appropriate price at which to sell the windows. [6]

Section B: Case Study (40 marks)

Answer all questions

The following passages were adapted from various sources in August 2018. Read the articles carefully and answer the questions which follow.

5 Case study: “Britain’s broken railways”

Source 1: “Unjustifiable” fare hike met with protests from commuters and unions

Transport Secretary Chris Grayling has dismissed calls for a freeze on rail fares, as it emerged the prices of many tickets are likely to increase by 3.2% next year. Mr Grayling conceded that recent services had been “unacceptable” and he was “hugely frustrated” by it all, but cautioned that introducing a freeze on ticket price increases would only result in “cuts in investment”.

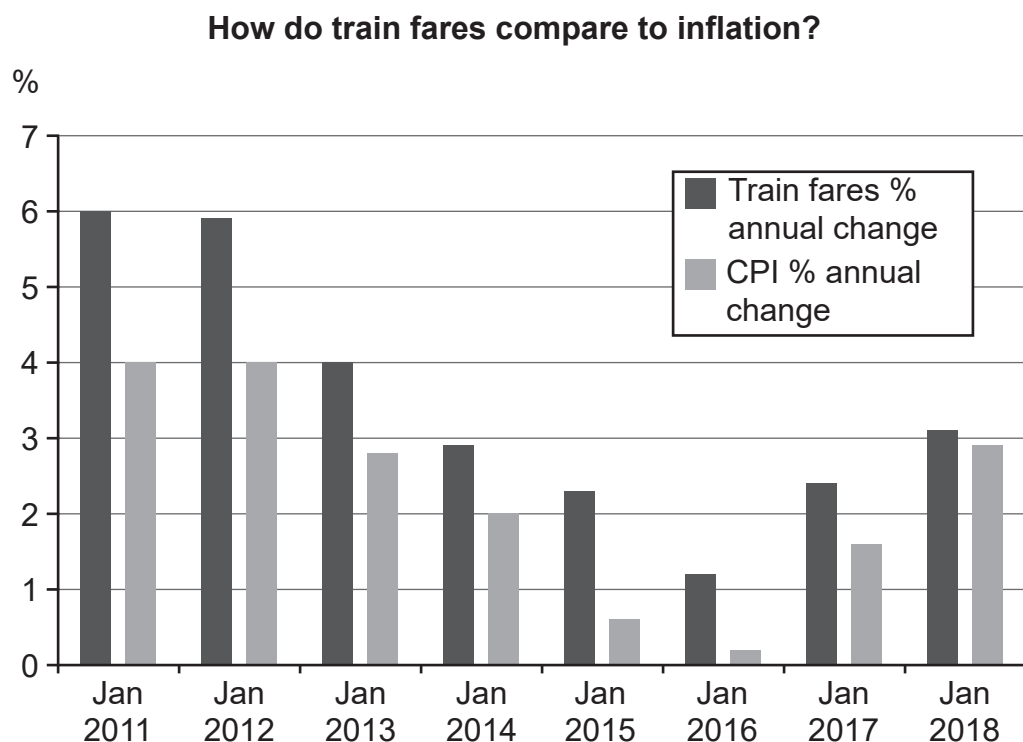


Fig. 1: Changes in train fares and Consumer Prices Index (CPI) inflation 2011–2018

Paul Plummer, Chief Executive of the Rail Delivery Group, which represents the railway industry, said: “Fares are underpinning a once-in-a-generation investment plan to improve the railway and it is politicians who effectively determine that season ticket prices should change in line with other day-to-day costs to help fund this.” Mr Plummer went on to claim that 98p of every pound was invested back into the railways. However, many experts question the accuracy of this and other statistics quoted in the railway debate!

Source 2: The structure of Britain's railways

The railways in Britain comprise a number of components.

Network Rail owns, operates and develops Britain's railway infrastructure; that's 20 000 miles of track, 30 000 bridges, tunnels and viaducts and the thousands of signals, level crossings and stations. All of this infrastructure leads to high fixed costs for Network Rail. Network Rail is a public sector arms-length body. Any profit made is reinvested in the rail network.

Train operating companies run passenger services, leasing and operating stations from Network Rail. They apply to the Department of Transport for franchises to run services on specific routes. For example, Southern runs services to the South of London, including Gatwick Airport. With the exception of LNER, which came under government control in 2018, the train operating companies are privately owned companies.

The Office of Rail and Road is responsible for regulating the railways. It promotes competition and ensures consumer rights are upheld.

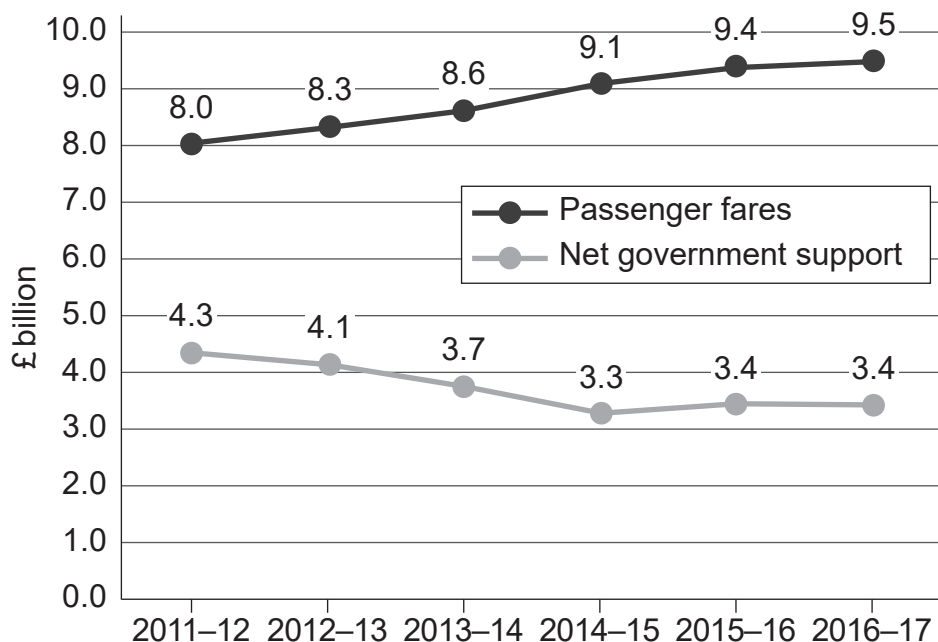


Fig. 2: Revenue from fares and net government support to train operating companies 2011–2017

Britain's privatised railways have been getting billions of pounds in government support over the last few years. Government support for the rail industry isn't the same thing as total public spending on rail. In 2016/17 about £15 billion was spent on railways in total. Part of that went to the government-owned Network Rail. However, as can be seen from **Fig. 2** above, the train operating companies are now receiving more of their income from passenger fares and less from government subsidy. In part this is due to a rise in passenger numbers, but the government has also reduced the amount of subsidy paid.

Source 3: Who should run the railways?

Critics argue that fare increases are only one aspect of the current failure in the rail industry. In 2018, following the failure of the franchise, the government took the East Coast mainline back into public ownership, renaming it LNER. The line had previously been renationalised in 2009 and only returned to private ownership in 2015. All of the railways receive a significant amount of government support.

Labour leader Jeremy Corbyn said of the train fare increase: "Today's train fare increases are an insult to everyone who has suffered from the chaos on Britain's railways. The Government's shambolic mismanagement of our railways has been a national embarrassment and they must now step in to freeze fares charged on the worst performing routes." He asserted that Labour would go even further by "bringing the railways into public ownership so they are run in the interests of passengers, not private profit".

However, not everyone is in favour of renationalisation. Eve Smith of the think tank Market First argued that: "People forget that the nationalised British Rail ran a poor service of filthy, outdated, late-running trains. More people than ever now travel by train and rail travel has never been safer. Competition on some lines, for example between Yorkshire and the North East of England, has helped to drive fares down. Nationalisation would lead to a poor service for consumers, a lack of investment in new trains and less well-off taxpayers in the North of England footing the bill to subsidise wealthy commuters in the South East."

- (a) Using the information in **Fig. 1**, explain what happened to the price of train fares in real terms between 2011 and 2018. [4]
- (b) Explain why Network Rail could be considered a natural monopoly. [9]
- (c) With the aid of an appropriate diagram, examine the impact of a maximum price for train fares on **both** consumers **and** the train operating companies. [12]
- (d) Critically examine whether the Labour Party policy of renationalising the railways would benefit the economy. [15]

Section C (30 marks)

Answer one question

- 6** Almost everyone wears glasses at some point in their lives. Just two companies have risen above all the rest to dominate the industry. Essilor, a French multinational, controls almost half of the world's prescription lens business. Luxxotica, controlling brands such as Ray-Ban, Prada and Sunglass Hut, makes 25% of the world's frames. Despite this high degree of concentration, regulators in the EU and USA decided that the merger of the two companies was in the public interest and permitted it to go ahead.

Critically examine the view that the merger of large companies can never be in the public interest.

[30]

- 7** The UK burger business is now worth £3.3 billion in annual sales. It has many of the characteristics of monopolistic competition. Because you just need a grill and meat, market entry is easy. But to be successful and have some price making power you need something unique – the monopolistic part. Recent years have seen a growth of smaller companies with more expensive burgers. Some companies emphasise the quality of their ingredients, perhaps using organic beef. Others may rely on a strong brand image with loud music and quirky designs.

Critically examine the view that monopolistic competition is preferable to any other form of market structure.

[30]

THIS IS THE END OF THE QUESTION PAPER

Sources

Section A, Q1.....Adapted from "Sainsbury's-Asda merger blocked by regulator", 25 April 2019 © BBC News
and Adapted from "Galway brewery taking over Belfast Brewbot bar on Ormeau Road" by John Mulgrew, 10 October 2017
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Section B, Q5 Text.....Adapted from "Transport Secretary Chris Grayling dismisses calls for rail fares freeze with prices likely to rise 3.2% next year" by Chris Choi. 15 August 2018 © ITV News / Adapted from "UK rail fares could rise by 3.2% as commuters voice frustration" by Gwyn Topham, 15 August 2018 © The Guardian / Adapted from "Anger as rail fares increase by 3.2% after months of commuter hell" by Andrew Gregory, 16 August 2018. Published by The Mirror

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Section B, Q5, Fig2.....© Copyright 2022 Office of Rail and Road

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Surname	<i>StemUp Model Solution</i>
Answer booklet	Write the question number in the left-hand margin at the start of each answer.

Question number	
1	<i>Horizontal integration is the merger of two firms in the same industry at the same stage of production. The proposed Asda and Sainsbury's merger is horizontal, as both are supermarkets at the retail stage of the grocery market.</i> <i>Vertical integration is the merger of firms in the same industry at different stages of production. Galway Bay Brewery, a producer of beer, buying a bar on the Ormeau Road (a retail outlet for its beer) is forward vertical integration.</i>
2(a)	<i>At 1 tonne: $ATC = £210$ and $AVC = £90$</i> <i>$AFC = ATC - AVC = £210 - £90 = £120$</i> <i>$TFC = AFC \times \text{output} = £120 \times 1 = £120$</i> <i>(Check at 2 tonnes: $(£140 - £80) \times 2 = £120$.) Total Fixed Costs = £120</i>
2(b)	<i>Yes, the firm should continue to produce in the short run. In the short run fixed costs (£120) must be paid even if output is zero, so the firm should produce as long as price covers average variable cost. The shutdown price is the minimum point of AVC, where MC cuts AVC, which is about £55 to £57 per tonne at around 4 tonnes. At £70 the price is above AVC, so every tonne covers its variable cost (about £57) and makes a contribution of about £13 towards fixed costs. Price is below minimum ATC (about £85), so the farmer makes a loss, e.g. at 4 tonnes $(£87 - £70) \times 4 = £68$, but this is smaller than the £120 loss from shutting down. In the long run, if price stays below ATC, the firm should leave the industry.</i>
3	<i>The best strategy for Eazee Drug is to invest; this is its dominant strategy.</i> <i>If BR Laboratories invests, Eazee earns £10 million by investing but loses £5</i>

million ($-\pounds 5m$) if it does not, so investing is better by $\pounds 15$ million. If BR Laboratories does not invest, Eazee earns $\pounds 60$ million by investing compared with only $\pounds 3$ million by not investing.

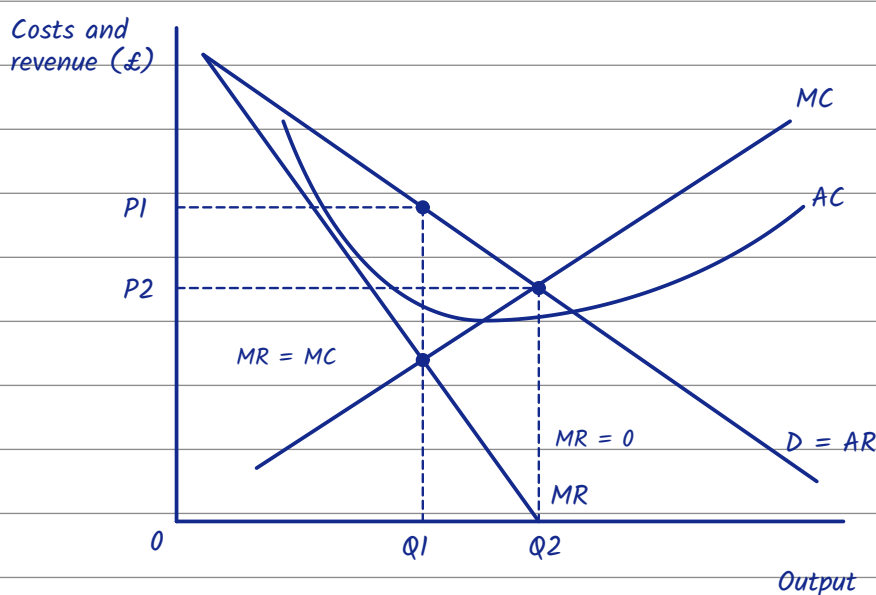
Whatever BR Laboratories decides, Eazee Drug earns a higher profit by investing, so investing is its dominant strategy.

4

This is an example of the principal-agent problem: Susan (the principal) and Eric (the agent) have different objectives because they are rewarded in different ways.

Susan is the sole shareholder and keeps all the profit, so she wants to maximise profit. Profit is maximised where marginal revenue equals marginal cost ($MR = MC$), because up to this point each extra window adds more to revenue than to cost. In the diagram below she wants output $Q1$ sold at the higher price $P1$.

Eric earns 15% of sales revenue, so his income is maximised when total revenue is maximised. Total revenue rises as long as MR is positive, so it is maximised where $MR = 0$, at output $Q2$ and the lower price $P2$.



As the diagram shows, Eric wants a lower price ($P2$) and higher output ($Q2$) than Susan ($P1$, $Q1$). Between $Q1$ and $Q2$, MR is still positive so revenue and

Eric's commission rise, but MR is less than MC so each extra window sold reduces Susan's profit. Eric might therefore offer customers discounts that Susan opposes. Because Eric is the sole sales representative, there is asymmetric information: Susan cannot easily monitor the prices he agrees. She could reduce the conflict by paying him a share of profit instead of revenue.

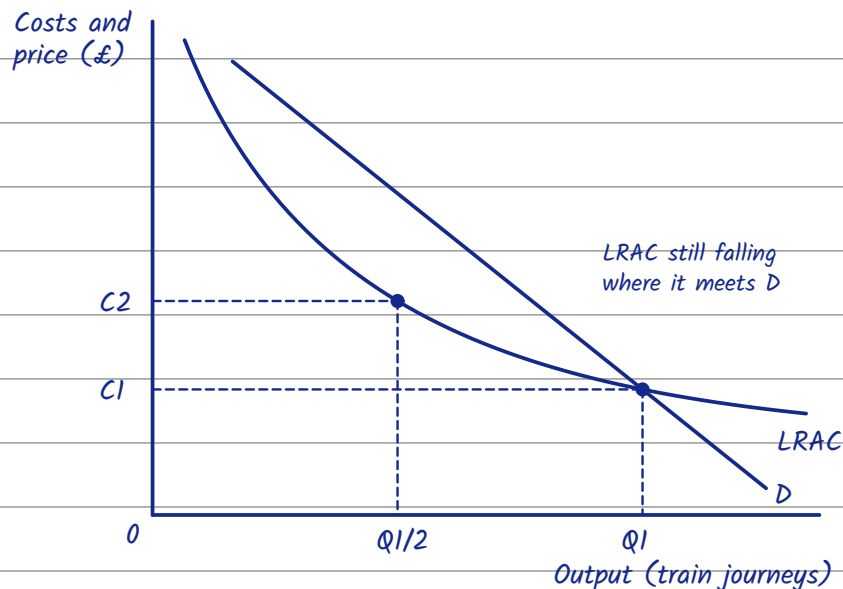
5(a)

Real train fares rose between 2011 and 2018 because in every year the annual increase in train fares was greater than CPI inflation. The real change is roughly the fare increase minus inflation. In Jan 2011 fares rose by 6% while CPI was 4%, a real rise of about 2%, and in 2016 fares rose 1.2% against CPI of 0.2%, a real rise of 1%. By Jan 2018 the gap had narrowed (3.1% against 2.9%), so real fares rose only slightly (0.2%). Adding the yearly gaps, real fares rose by roughly 10% over the period.

5(b)

A natural monopoly is an industry where long run average cost (LRAC) falls continuously over the whole range of output that the market demands, so the minimum efficient scale (MES) is so large that only one firm can produce at the lowest possible average cost. One firm can supply the whole market more cheaply than two or more firms.

Network Rail fits this because of its huge fixed costs. It owns and maintains 20 000 miles of track and 30 000 bridges, tunnels and viaducts, plus signals, level crossings and stations, and the source states that this infrastructure 'leads to high fixed costs'. The marginal cost of running one more train on existing track is very low, so as the number of train journeys rises, these fixed costs are spread over more output and average fixed cost and therefore average cost keep falling. These are large technical economies of scale.

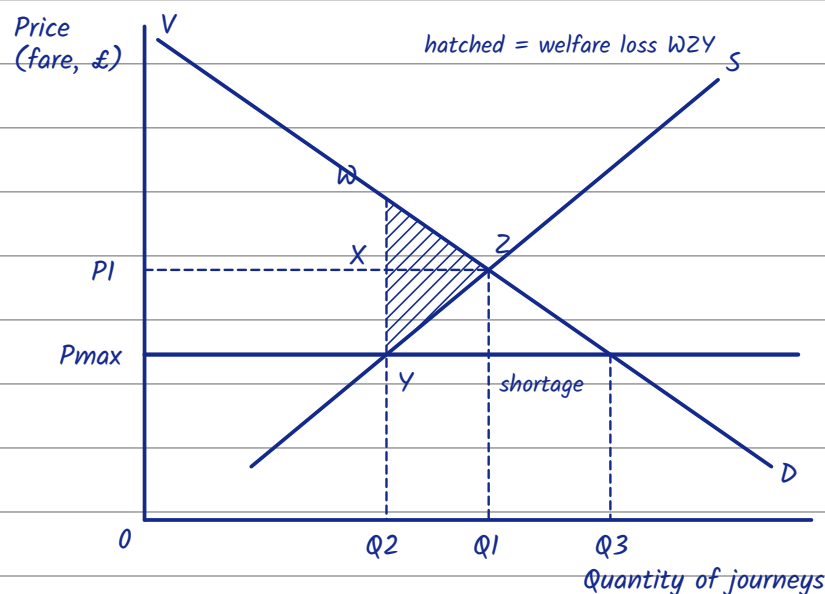


As the diagram shows, market demand D meets $LRAC$ at $Q1$ while $LRAC$ is still falling, so one firm supplies the market at average cost $C1$. If two firms each supplied $Q1/2$, each would have the higher average cost $C2$. Competition would mean wasteful duplication of resources: it would be inefficient to build two competing sets of track between Manchester and Liverpool, and each firm would be too small to reach MES.

High sunk costs also act as a barrier to entry, so no rival would enter. Because a natural monopoly could exploit consumers, the track is run by one body, Network Rail, which is in the public sector and reinvests any profit, while train operating companies compete for franchises to use it.

5(c)

A maximum price is a legal ceiling set by the government above which train fares cannot be charged. To have any effect it must be set below the free market equilibrium price; a maximum price above $P1$ would have no impact. In the diagram the market equilibrium is $P1$, $Q1$ and the maximum price is set at P_{max} .



Impact on consumers: consumers who still travel pay a lower fare, which matters as fares have risen faster than inflation (Fig. 1). Consumer surplus rises by the rectangle $PIXYP_{max}$ transferred from the train companies. However, at P_{max} quantity demanded rises to Q_3 while the quantity supplied falls to Q_2 , causing a shortage of Q_2 to Q_3 journeys, e.g. overcrowded trains or sold-out tickets. Consumers between Q_2 and Q_1 who would have travelled at P_1 can no longer do so, so they lose consumer surplus WXZ . There is a deadweight welfare loss of WZY (hatched), so community surplus falls and the market is allocatively inefficient. Fewer services may also mean a poorer quality service, and tickets may be rationed by queuing.

Impact on train operating companies: revenue and profit fall, as they sell fewer journeys (Q_2) at a lower price. They lose producer surplus $PIXYP_{max}$ to consumers and XZY as welfare loss. The industry says fares fund a 'once-in-a-generation investment plan' and Mr Grayling warned a freeze would mean 'cuts in investment'. As Fig. 2 shows, net government support fell from £4.3bn in 2011–12 to £3.4bn in 2016–17 while fares rose from £8.0bn to £9.5bn, so lower fare revenue could not easily be replaced and investment in new trains could be cut. Companies may reduce services or cut costs, including redundancies, although cost cutting could also force them to become more

productively efficient by removing X-inefficiency.

However, the impact depends on several factors. Firstly, the size of the gap between P_I and P_{max} : a small cut causes a small shortage. Secondly, elasticities: commuter demand for peak rail travel is price inelastic and supply is inelastic in the short run because of fixed timetables and track capacity, so the shortage and welfare loss may be small. Thirdly, train operators have price setting power on many routes, so the fare may already be above the competitive level; a maximum price could then move fares towards the competitive price, raising output and reducing the monopoly welfare loss rather than creating a shortage. Finally, if lost investment leads to worse services in the long run, consumers may lose more than they gain from lower fares.

Overall, consumers gain in the short run if the maximum price is close to equilibrium, but the train companies lose revenue, and in the long run consumers may suffer through lower investment unless the government raises subsidies.

5(d)

Renationalisation means bringing the privately owned train operating companies (TOCs) back into public ownership, so the railways are run by the state 'in the interests of passengers, not private profit'.

There are several possible benefits. Firstly, the current system is failing consumers: fares have risen faster than inflation every year since 2011 (Fig. 1) and services have been 'unacceptable'. The East Coast mainline failed in private hands and was taken back into public ownership twice, in 2009 and again as LNER in 2018, suggesting franchising is not working.

Secondly, a single unified rail company would gain economies of scale. Bulk buying of locomotives and rolling stock is a purchasing economy, and ticketing and advertising costs could be shared. Lower average costs could be passed on as lower fares. It would also end the fragmentation between Network Rail and many TOCs, improving co-ordination of timetables, track and trains and making one body accountable for delays.

Thirdly, the government already pays large subsidies, £3.4bn of net support in 2016–17 (Fig. 2) and about £15bn of total rail spending. Public ownership would mean this money is not paid out as dividends and would make its use more accountable. The state can also borrow more cheaply than private firms, so a nationalised railway could fund a higher level of investment. Without the need for profit, fares could be set closer to marginal cost, improving allocative efficiency, and the railways' positive externalities, such as less road congestion and pollution, could be taken into account. State railways such as SNCF in France and Iarnród Éireann work well.

However, there are strong arguments against. Without the profit motive there is less incentive to cut costs, so productive and X-inefficiency may rise, and managers may face political interference. Eve Smith argues that British Rail ran 'filthy, outdated, late-running trains', while since privatisation more people travel by train and safety has never been better. Competition on some routes, e.g. Yorkshire to the North East, has driven fares down.

Nationalisation also has an opportunity cost. Compensating TOC shareholders could cost billions that could have been spent on health or education, or would mean higher taxes or borrowing, although this could be avoided by taking over each franchise as it expires. Political pressure to freeze fares could create larger losses financed by taxpayers. This raises an equity issue: less well-off taxpayers in the North could end up subsidising wealthy commuters in the South East.

Government failure is possible, as politicians may prioritise marginal constituencies over efficiency, and lack of competition could mean less innovation and dynamic efficiency.

There are also alternatives: stronger regulation by the Office of Rail and Road with tougher price and quality controls and fines for poor service, more competition between TOCs on routes, or higher subsidies to hold fares down. Regulation, though, suffers from asymmetric information and regulatory capture. In conclusion, whether renationalisation benefits the economy depends on how efficiently it is managed and how it is done. If franchises are taken back as

they expire, compensation costs are low, and gains from co-ordination, economies of scale and cheaper borrowing could outweigh the loss of competition.

Consumers would benefit if the service becomes cheaper and more reliable, but private shareholders would lose and taxpayers may pay more. As the track is already in public hands, I think renationalising the TOCs gradually, with strict efficiency targets, is likely to give a net benefit, but only if the government avoids the underinvestment of the British Rail era.

6

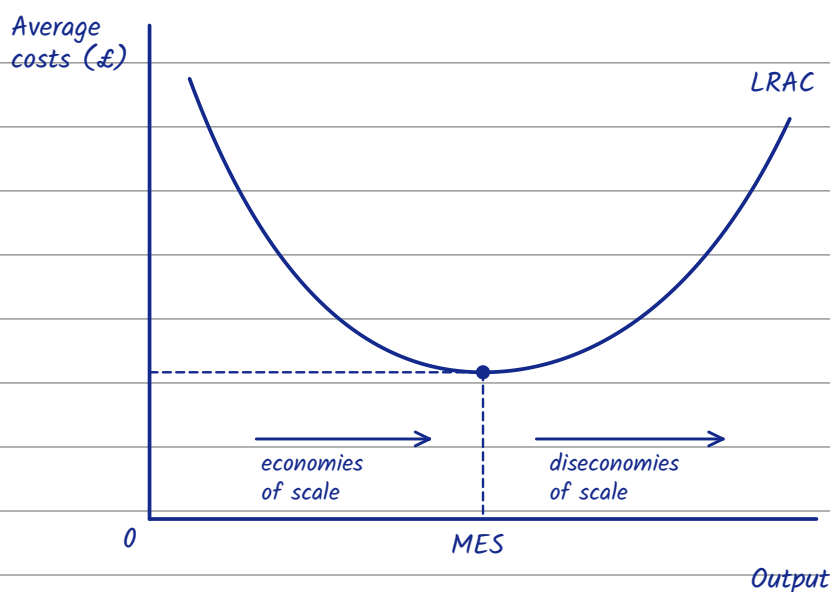
A merger occurs when two or more firms join together to form a single firm.

The merger of Essilor, which controls almost half of the world's prescription lens business, and Luxottica, which makes 25% of the world's frames and owns brands such as Ray-Ban, is a large merger. With over 25% of their markets, both already have monopoly power under the UK legal definition. The public interest means the welfare of society as a whole: consumers, workers, shareholders and the wider economy, and it is judged through efficiency (productive, allocative and dynamic) and community surplus.

There are strong arguments that mergers of large companies are against the public interest. Firstly, the merged firm gains more market power and faces a less elastic demand curve. As a profit maximiser producing where $MR = MC$, it can restrict output and raise price above marginal cost. Price is above MC so allocative efficiency is lost, and consumer surplus is transferred to the firm as producer surplus. The fall in output creates a deadweight loss of welfare, shown as triangle A in the second diagram below. Consumers who need glasses, which have price inelastic demand, could face much higher prices and less choice.

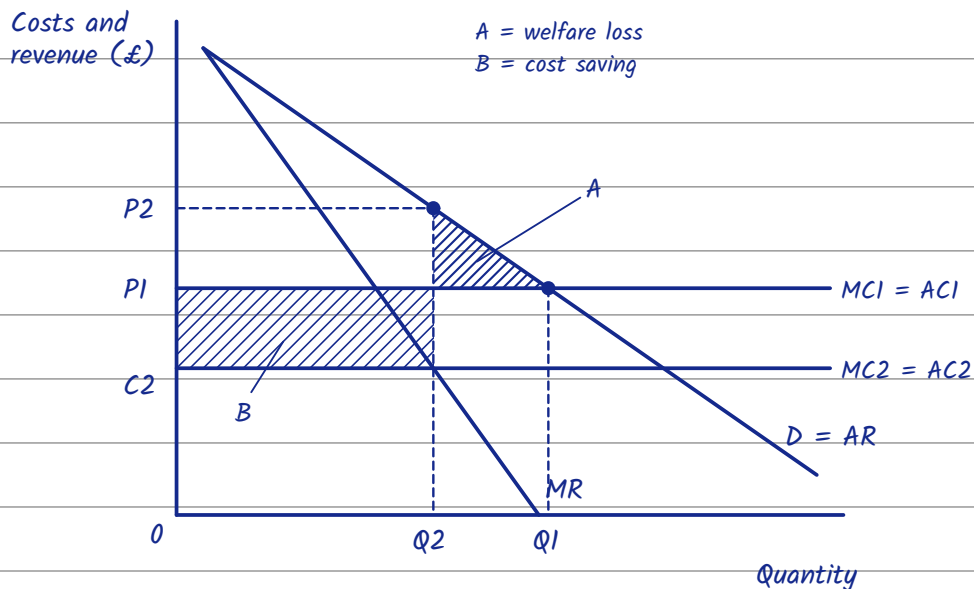
Secondly, without competitive pressure the firm may become X-inefficient, letting costs rise above the minimum, and it need not produce at the bottom of its average cost curve, so it is productively inefficient. Thirdly, the firm may grow so large that it suffers diseconomies of scale, as shown in the first diagram: beyond the minimum efficient scale (MES), co-ordination and communication problems between a French lens maker and an Italian frame

maker across many countries could push LRAC up.



Fourthly, a dominant firm may use anti-competitive behaviour to drive rivals out. For example, the merged company could restrict the supply of lenses to rival frame makers or opticians, or use predatory pricing, raising barriers to entry and reducing contestability. Finally, a very large firm may lobby and influence government policy to gain an unfair advantage. These are reasons why the CMA blocked the Asda and Sainsbury's merger.

On the other hand, there are strong arguments that mergers can be in the public interest. A larger firm may benefit from economies of scale, such as bulk buying of materials, technical economies in production and marketing economies across brands. Lower long run average costs improve productive efficiency, and the firm may pass some savings on as lower prices, increasing consumer surplus. Because costs fall, the merged firm can charge a lower price and still make supernormal profit, and the price may even be lower than in a more competitive market. This is Williamson's trade-off, shown below.



As the diagram shows, before the merger competitive firms produce $Q1$ at price $P1 = MC1$. The merger lowers costs to $MC2 = AC2$, and the merged firm produces $Q2$ where $MR = MC2$ at price $P2$. The fall in output causes the deadweight welfare loss A , but the cost saving on the output still produced is the rectangle B , resources released for other uses. If B is larger than A , the merger increases community surplus and is in the public interest, even though consumers pay more.

A larger firm can also raise finance for investment more cheaply and can use its supernormal profit to fund research and development into new lenses and frames, improving dynamic efficiency. Schumpeter's theory of creative destruction suggests that large firms keep innovating because they fear rivals developing new products that make them redundant, so monopoly power may only be temporary. A large European firm may also compete more effectively in global markets, protecting jobs and exports. This is presumably why the EU and US regulators decided the merger was in the public interest.

However, each benefit can be questioned. Economies of scale only benefit consumers if they are passed on as lower prices; the firm may keep them as higher profit. Why would the firm invest its profit in R&D when it could pay higher dividends to its shareholders? Dynamic efficiency gains are also uncertain

and long term, while price rises are immediate. If the merger leads to diseconomies of scale, the cost savings in the Williamson diagram disappear and only the welfare loss remains.

Whether a merger is in the public interest depends on several factors. It depends on the type of merger: this merger is partly vertical (lenses and frames are complementary) rather than horizontal, so it removes less direct competition than the Asda and Sainsbury's merger, where one firm would have had 31.8% of the grocery market. It depends on the size of the economies of scale relative to the price rise, the price elasticity of demand, and whether the market remains contestable: if barriers to entry are low, the threat of new entrants forces the firm to keep prices close to average cost. It also depends on regulation: competition authorities can approve a merger with conditions, such as selling off some brands or price controls.

It also depends on whose interest is considered. Shareholders may enjoy higher profits and workers may gain from secure jobs, while consumers face higher prices and less choice. A merger that benefits producers more than it harms consumers may raise total welfare but worsen equity. The public interest is therefore not simply 'competition is good and monopoly is bad'.

In conclusion, the view that mergers of large companies can never be in the public interest is too strong. Many large mergers do reduce competition, raise prices and cause welfare losses, which is why some, like Asda and Sainsbury's, are blocked. But where a merger creates significant economies of scale, funds innovation and the market stays contestable, the gains can outweigh the costs, as the EU and US regulators judged for Essilor and Luxottica. Mergers must therefore be judged on a case by case basis, weighing the effects on efficiency and on different economic agents, rather than being ruled out completely.