Please check the examination details below before entering your candidate information

Candidate surname	Other names
StemUp Model Solution	

Centre Number | Candidate Number

Pearson Edexcel Level 3 GCE

Monday 12 May 2025

Morning (Time: 2 hours)

Paper reference **9EC0/01**

Economics A

Advanced

PAPER 1: Markets and Business Behaviour

You must have:
Source Booklet (enclosed)

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- There are three sections in this question paper. Answer **all** questions from Section A and Section B. Answer **one** question from Section C.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*

Information

- The total mark for this paper is 100.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Calculators may be used.

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

Turn over ▶

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SECTION A

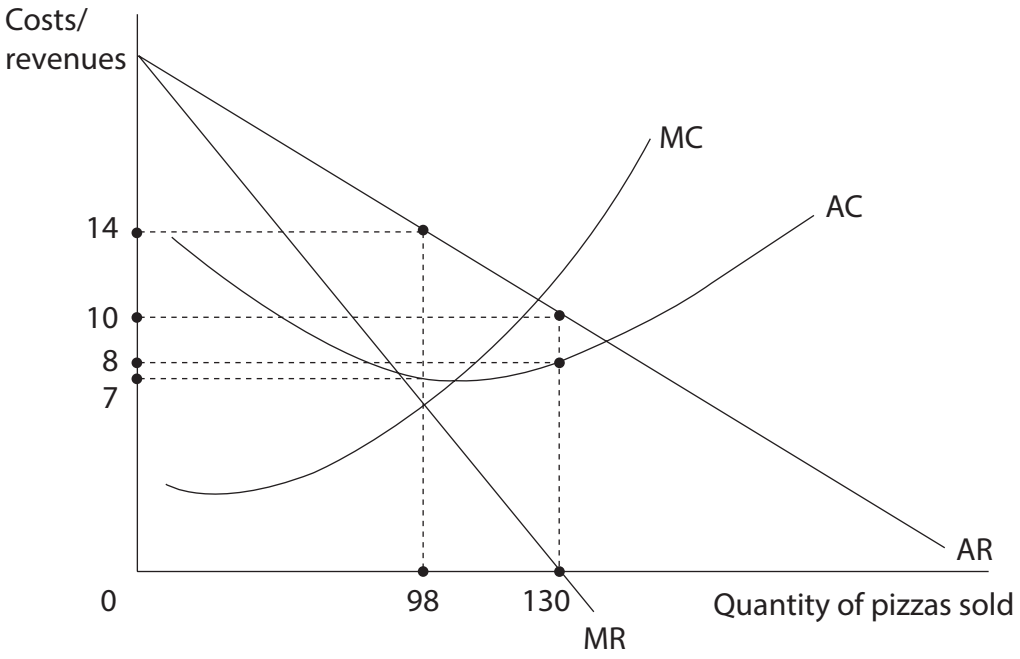
Answer ALL questions. Write your answers in the spaces provided.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

You are advised to spend 30 minutes on this section.

Use the data to support your answers where relevant.
You may annotate and include diagrams in your answers.

1 The diagram below shows the cost and revenue curves for a pizza in a popular high street restaurant. The restaurant currently pursues an objective of revenue maximisation.



(a) Calculate the **change** in total supernormal profit if the restaurant changes its objective from revenue maximisation to profit maximisation. You are advised to show your working.

(4)

Revenue maximisation is where MR = 0: output = 130 pizzas, price (AR) = £10, AC = £8.

Supernormal profit = (AR − AC) × Q = (£10 − £8) × 130 = £260 (TR £1300 − TC £1040).

Profit maximisation is where MC = MR: output = 98 pizzas, price (AR) = £14, AC = £7.

Supernormal profit = (£14 − £7) × 98 = £686 (TR £1372 − TC £686).

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Change in total supernormal profit = £686 − £260 = +£426

So total supernormal profit rises by £426.

(b) Refer to the previous diagram. There is a reduction in the demand for pizza.

Ceteris paribus, which **one** of the following will happen to the restaurant's average revenue and marginal revenue as a result of this change?

(1)

- ☒ **A** Average revenue and marginal revenue both fall
- ☐ **B** Average revenue and marginal revenue stay the same
- ☐ **C** Average revenue falls and marginal revenue increases
- ☐ **D** Average revenue increases and marginal revenue falls

(Total for Question 1 = 5 marks)

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2 In 2022 the UK government provided 130 new licences for North Sea oil and gas exploration, in order to reduce energy prices. However, companies can take 20 years to begin to extract oil. Furthermore, they often have to continue producing oil even when prices fall because the equipment has no other uses.

(Source: adapted from https://www.theguardian.com/environment/2022/dec/12/uk-ministers-face-legal-challenge-over-north-sea-oil-and-gas-licences)

(a) With reference to the data above, explain the likely numerical value of the price elasticity of supply for oil.

(4)

Price elasticity of supply (PES) measures the responsiveness of quantity supplied to a change in price. The PES of oil is likely to be between 0 and 1, so supply is price inelastic: a change in price causes a less than proportionate change in quantity supplied.

This is because of long time lags: even with 130 new licences, companies can take 20 years to begin to extract oil, so supply cannot respond quickly when prices rise. Supply is also inelastic when prices fall, as firms often have to continue producing oil because the equipment has no other uses. PES may be less inelastic in the long run, or for existing producers who can mothball oil fields.

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(b) The cross elasticity of demand for petrol cars with respect to the price of diesel cars is estimated to be +0.64.

Which **one** of the following is the most likely impact if the price of diesel cars falls by 10%?

(1)

- ☒ **A** The price of petrol cars falls by 6.4%
- ☒ **B** The price of petrol cars rises by 64%
- ☒ **C** The quantity demanded of petrol cars falls by 6.4%
- ☒ **D** The quantity demanded of petrol cars rises by 64%

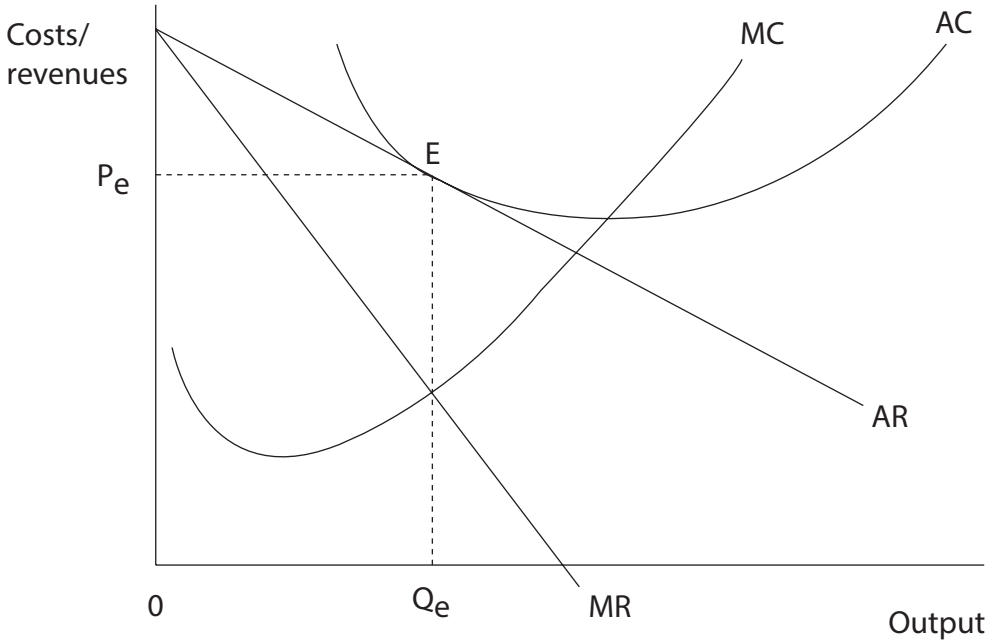
(Total for Question 2 = 5 marks)

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3 The diagram below shows the equilibrium position of a dental practice operating in a monopolistically competitive industry.



(a) Which **one** of the following applies to the dental practice's equilibrium at point E?

The dental practice is:

(1)

- ☒ **A** in long-run equilibrium
- ☒ **B** making normal profit because average revenue is greater than average cost
- ☒ **C** making supernormal profit because marginal cost equals marginal revenue
- ☒ **D** productively efficient

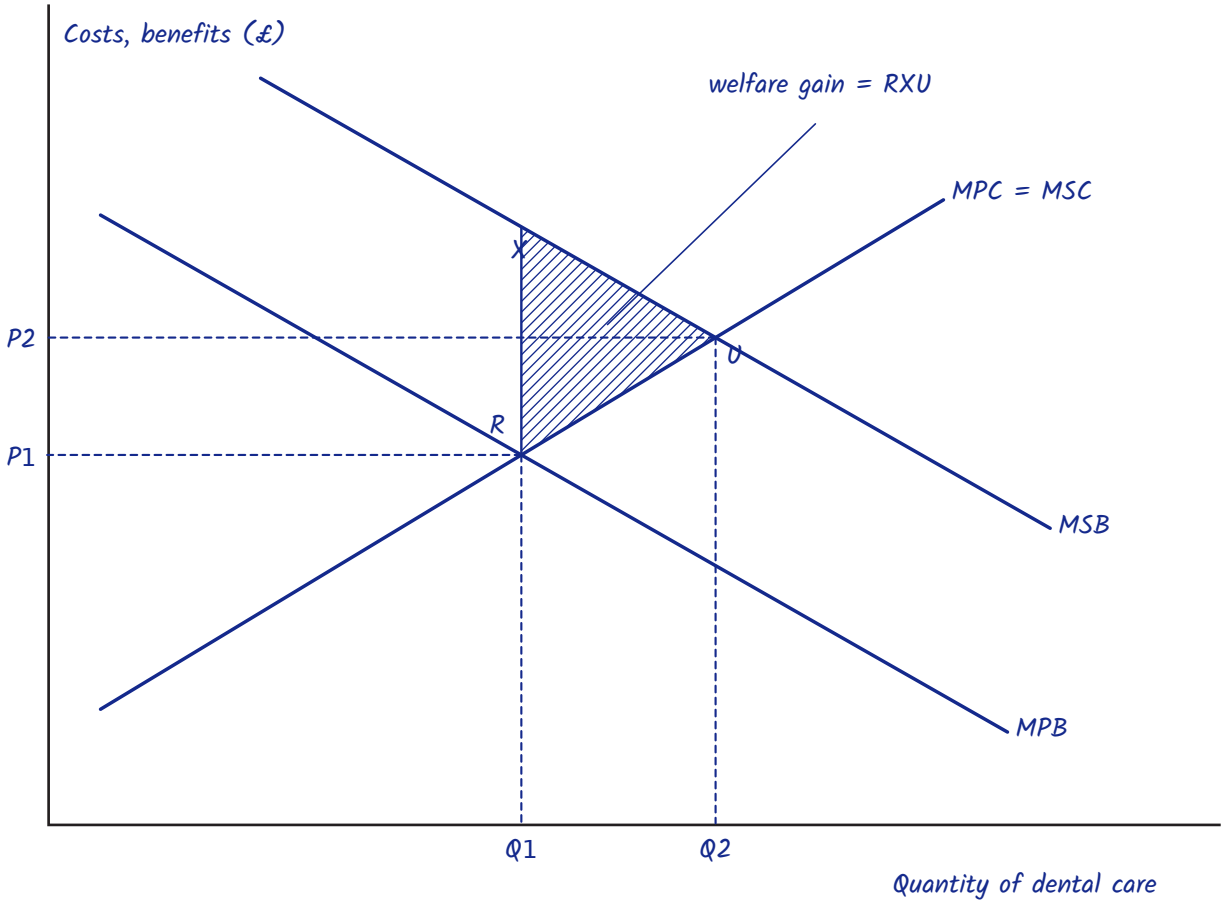
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(b) The government subsidises dental care in the UK through the National Health Service (NHS). There has been a large decrease in the work carried out by NHS dentists. Up to 90% of practices are not accepting new NHS patients.

(Source: adapted from https://www.theguardian.com/society/2023/jul/14/mps-demand-urgent-reform-nhs-dental-services-report)

Draw an externalities diagram to identify the welfare gain area from the consumption of dental care in the UK.

(4)



(Total for Question 3 = 5 marks)

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4 Nearly 750 000 consumers in Britain face unresolved problems with used car purchases every year. Older vehicles tend to have more faults and increase the risks facing a potential buyer.

(Source: adapted from https://www.gov.uk/government/news/new-approach-to-give-second-hand-car-buyers-a-better-deal)

(a) With reference to the data above, explain how imperfect market information may lead to a misallocation of resources in the used-car market.

(4)

Imperfect information is a market failure where buyers and sellers do not have full information. Here there is asymmetric information: the seller knows the history and faults of the vehicle, but the buyer finds it hard to distinguish between a high quality and a low quality car.

As older vehicles tend to have more faults, buyers face greater risks, and nearly 750 000 consumers a year face unresolved problems, so some buy faulty cars they would not have bought with full information. Uncertain of quality, buyers are only willing to pay an average price, which discourages sellers of high quality cars from participating (the 'lemons' problem), so too few good cars are traded. Resources are therefore not allocated to where they give the greatest welfare, a misallocation of resources.

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(b) In September 2022, the online retailer, Amazon, increased the price of its Prime service from £7.99 a month to £8.99. As a result, almost 600 000 people cancelled their subscriptions.

(Source: adapted from https://www.telegraph.co.uk/business/2022/08/17/hundreds-thousands-uk-households-ditch-amazon-prime/)

Which **one** of the following is the most likely explanation of this behaviour?

These consumers:

(1)

- ☒ **A** aim to maximise profits
- ☒ **B** aim to maximise utility
- ☒ **C** demonstrate habitual behaviour
- ☒ **D** demonstrate weakness at computation

(Total for Question 4 = 5 marks)

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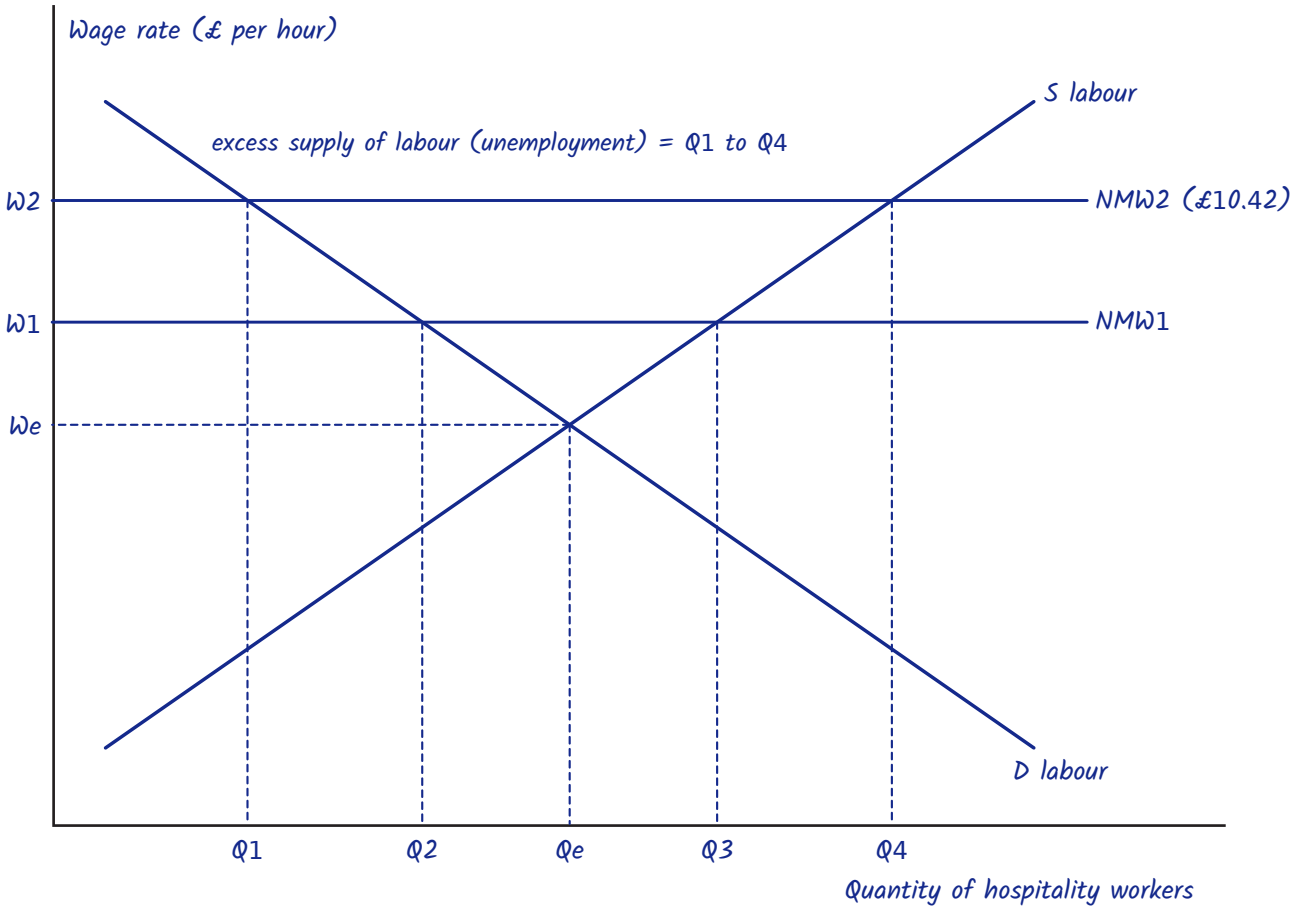
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5 The National Minimum Wage for people over 23 rose by 9.7% to £10.42 in April 2023. The industry most affected is hospitality.

(Source: adapted from https://www.gov.uk/government/publications/the-national-minimum-wage-in-2023/the-national-minimum-wage-in-2023)

(a) Draw a labour market diagram to show the likely impact of the **increase** in the National Minimum Wage for hospitality employees.

(4)



(b) There has been a significant decrease in the supply of agricultural workers in the UK. Which **one** of the following is the most likely cause of this decrease?

(1)

- ☒ **A** Increased demand for UK-grown strawberries
- ☒ **B** Increased job security for qualified workers in the industry
- ☒ **C** Increased productivity of workers in the industry
- ☒ **D** Increased wages in the retail industry

(Total for Question 5 = 5 marks)

TOTAL FOR SECTION A = 25 MARKS

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QUESTION 6 BEGINS ON THE NEXT PAGE

SECTION B

Read Figure 1 and the following extracts (A to C) in the Source Booklet before answering Question 6.

Write your answers in the spaces provided.

You are advised to spend 1 hour on this section.

6 (a) With reference to Extract A, explain **one** likely impact of the growth of digital markets on allocative efficiency.

(5)

(b) With reference to Extract C, examine **two** effects of increased 'automation' on the demand for labour.

(8)

(c) With reference to the information provided, discuss whether the price elasticity of demand for video games is elastic or inelastic.

(12)

(d) With reference to the information provided, assess whether the market for video game development is contestable.

(10)

(e) Discuss the likely benefits of mergers for firms such as Microsoft.

(15)

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6 (a) With reference to Extract A, explain **one** likely impact of the growth of digital markets on allocative efficiency.

(5)

Allocative efficiency occurs when resources are allocated to produce the goods and services that consumers most desire. It is achieved where price (AR) equals marginal cost, so the marginal utility to consumers of the last unit equals the marginal cost of producing it, maximising consumer welfare.

One likely impact of the growth of digital markets is to improve allocative efficiency. Extract A shows that digital markets have brought increased competition across a wide range of products and services, such as online retailing, digital banking, computer games and mobile apps. With more competition, firms lose market power and cannot keep price far above marginal cost, so prices are driven down towards MC and output rises. Consumers now have greater choice and access to higher-quality products at lower prices, for example fashion clothing and language tuition, and online banking saves time compared with going to a branch. Resources therefore move towards the products consumers value most, giving a more optimal distribution of resources and reducing the deadweight welfare loss.

However, increased concentration in some digital markets, which Extract A says challenges competition law enforcement, may let dominant firms set P > MC, which would worsen allocative efficiency.

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(b) With reference to Extract C, examine **two** effects of increased 'automation' on the demand for labour.

(8)

Automation is the use of technology to perform tasks previously carried out by humans. The demand for labour is a derived demand: it depends on the demand for the goods and services that workers produce and on their productivity.

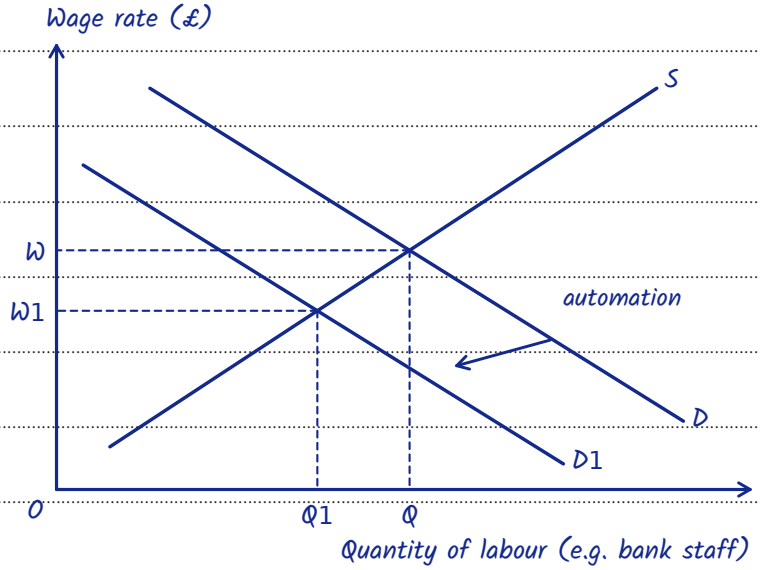
The first effect is a decrease in the demand for labour in jobs where machines and software can replace workers. Technology becomes cheaper and more productive relative to labour, so firms substitute capital for labour, shifting the demand for labour curve left from D to D1, as in my diagram, so employment falls from Q to Q1 and the wage from W to W1. Extract C shows that financial services jobs are most at risk in the shorter term, as the growth of online banking has already led to the closure of many high street bank branches, while transport jobs such as train drivers are at risk in the longer run. By the mid-2030s up to 30% of all jobs could be automated, with slightly more impact on men.

The second effect is an increase in the demand for labour in new industries. Automation could contribute up to £12 trillion to global GDP by 2030, and this extra income creates derived demand for many new jobs. The growth of AI programs such as ChatGPT requires highly skilled workers such as trainers and engineers, and workers who use the technology become more productive, raising their marginal revenue product, so demand for skilled labour shifts right and their wages rise, for example website designers and app developers.

However, the overall impact depends on the time period and magnitude: job losses may come in the short run, while new jobs take longer to appear. It also depends on occupational mobility: the jobs lost are often low skilled, while the jobs created are highly skilled, so displaced bank clerks may not have the skills for AI engineering without government education and retraining policy. Some workers, such

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as finance workers with transferable skills, are less affected, and trade unions may resist automation, for example on the London Underground, while drivers may still be needed to reassure passengers, so the fall in demand may be smaller than 30%.



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(c) With reference to the information provided, discuss whether the price elasticity of demand for video games is elastic or inelastic.

(12)

Price elasticity of demand (PED) measures the responsiveness of quantity demanded to a change in price. Demand is price inelastic if PED is between 0 and −1, so a change in price causes a less than proportionate change in quantity demanded, and price elastic if PED is greater than 1 in magnitude.

There are strong reasons to think that demand for video games is price inelastic. Extract B states that 'the high prices do not seem to deter many new buyers', especially in sports and multi-player action games. Figure 1 shows FIFA 23 sold 2 530 510 copies and COD: MW II 1 675 323 at £59.99, far more than Mario Kart 8 (426 748) at only £39.99, suggesting quantity depends more on brand and quality than on price.

Games are also addictive, with young players spending 10 to 16 hours a day on their games. This habitual and irrational behaviour means gamers treat games almost as necessities, so a rise in price causes only a small fall in quantity demanded. My diagram shows this: a large rise in price from P1 to P2 causes only a small contraction in demand from Q1 to Q2, so total revenue rises. Firms exploit this through price discrimination, as loyal players also pay a subscription of £13.99 a month and make in-game purchases such as a £9.99 Spiderman 'skin'.

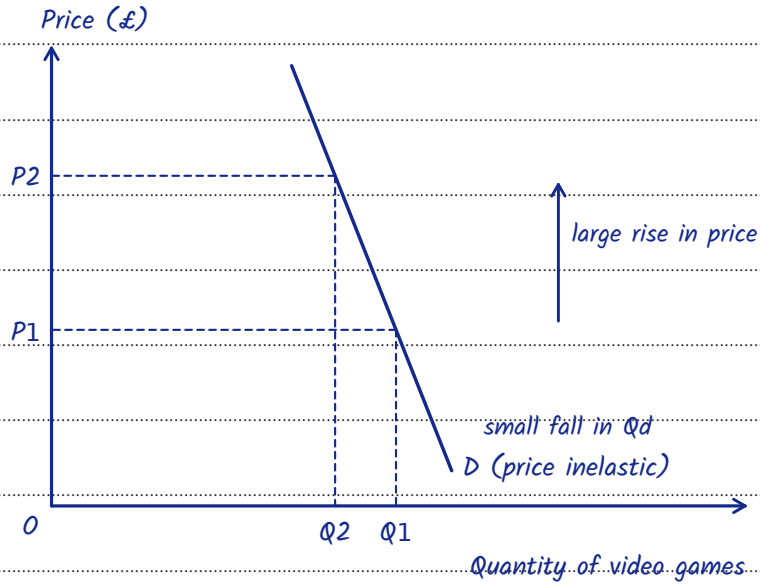
Brand loyalty and a lack of close substitutes add to this. The market is dominated by a few large firms, EA, Microsoft, Nintendo and Sony, and the £65 billion Microsoft-Activision merger may restrict access to popular games, reducing choice. A title like FIFA has no real substitute for fans who want to play online with friends, and influencers and sponsorship strengthen brand loyalty. For many adults a £59.99 game is a small proportion of income and very cheap per hour played compared with the cinema or other entertainment.

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However, demand may be price elastic in some cases. There are plenty of cheaper alternatives, such as Minecraft at £14.99, simple apps that cost as little as £23 000 to develop, and many freemium games that are free to play and funded by advertising. Subscription services that give access to new game releases are another substitute for buying individual games at full price.

PED also depends on the segment of the market and on income. For young players with low incomes, a £69.99 game such as Gran Turismo 7 is a large proportion of income, making demand more elastic, and it sold only 356 630 copies. PED varies over time too: it is very inelastic at the point of release for dedicated fans but more elastic later, and demand has fallen since the pandemic as consumers have less free time. Figure 1 does not show how quantity changed when the price of the same game changed, so it cannot prove inelasticity, as differences in sales reflect quality and popularity.

Overall, demand for best-selling sports and multi-player games is likely to be price inelastic because of addiction, brand loyalty and limited substitutes, but demand for video games in general, especially among casual gamers, is likely to be more price elastic because of the wide range of cheap and free alternatives.



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(d) With reference to the information provided, assess whether the market for video game development is contestable.

(10)

A contestable market is one with low barriers to entry and exit, so the threat of new firms entering, including hit-and-run competition, forces incumbent firms to keep prices low, improve efficiency and offer better products. Contestability depends not on the number of firms but on how they behave and how easily firms can enter and exit, especially the level of sunk costs.

The market for video game development is unlikely to be contestable because barriers to entry are high, so it is hard for new firms to enter. Extract B shows that major games can take up to five years to develop and cost over £150 million, with 200 full-time employees working on the software. Most of this is a sunk cost that cannot be recovered if the game fails, which deters entry. Specialist staff are scarce and expensive, with starting salaries for software developers of £100 000, so start-up costs are very high.

Large incumbents also enjoy economies of scale, strong brand loyalty and intellectual property in established franchises such as FIFA 23 (EA) and COD: MW II (Activision), which together sold over 4.2 million copies in the UK in 2022, so new entrants would need high advertising and marketing costs. Microsoft's annual gross profit of £146 billion in 2023, a 7.69% increase on 2022, shows supernormal profits persist without being competed away, a sign of low contestability. Subscription services are a further barrier: a small firm would struggle to have enough games to compete with the subscription libraries of EA, Microsoft, Nintendo and Sony, and the merger may restrict access to popular titles, as Sony fears.

However, some parts of the market are contestable. Some simple video games and apps cost as little as £23 000 to develop and take about six months, so small

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independent developers can enter with low sunk costs, and the internet lets firms distribute games at minimal cost. The high prices of many games, such as Gran Turismo 7 at £69.99, give entrants an incentive to enter profitably with cheaper games, and AI may lower the cost of development in future. Other large technology firms could diversify into games, and genuine technological advances can overcome barriers.

Contestability also depends on the competition authorities: the Microsoft-Activision merger took nearly two years to be approved, and future intervention could keep barriers lower. Overall, the market for blockbuster games is not contestable because of huge sunk costs and brand loyalty, but the market for simple mobile games and apps is fairly contestable, so it depends on which segment of the market is considered.

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(e) Discuss the likely benefits of mergers for firms such as Microsoft.

(15)

A merger is the joining together of two or more firms under common ownership. Microsoft's £65 billion merger with Activision in October 2023 is a form of vertical integration, as the Xbox manufacturer and subscription platform joined a game designer, while its ownership of Minecraft shows horizontal integration with other game developers.

One benefit is greater market share and market power. Microsoft gains access to Activision's catalogue of titles, including COD: MW II, which sold 1 675 323 copies in the UK in 2022, far more than Microsoft's Minecraft (219 679). These additions to its product portfolio (diversification) give Microsoft a strong competitive advantage over rivals such as Sony, and removing titles and market intelligence from competitors makes the market less contestable, allowing higher prices and greater supernormal profit.

A second benefit is economies of scale. A larger firm can spread the high fixed costs of development, often over £150 million per game, over a larger output and gain technical, financial, managerial and marketing economies, for example cheaper borrowing and shared game engines and servers. As my diagram shows, increasing output from Q1 to Q2 reduces long-run average cost from C1 to C2, which raises profit margins or allows lower prices.

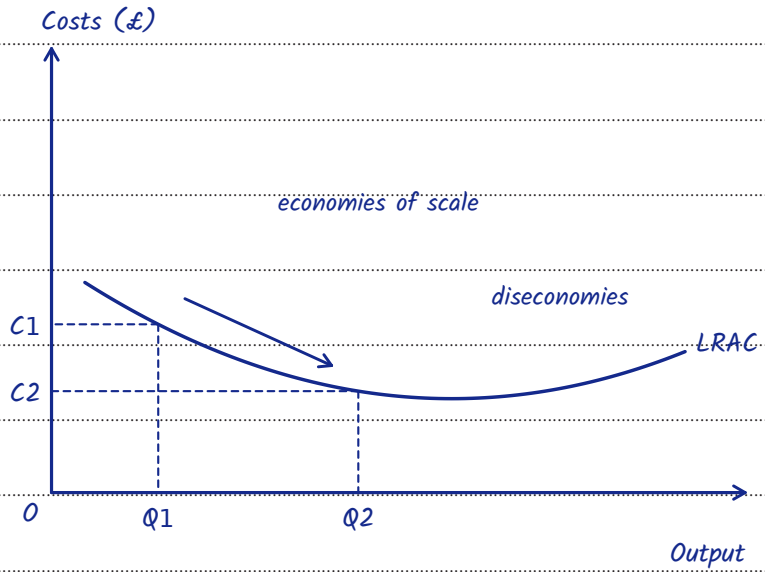
Third, vertical integration gives control of the supply chain. Microsoft secures a supply of popular games for its subscription service, where it is already one of the dominant firms, and gains improved access to key developers, perhaps at the expense of rivals, who must then pay more for published titles. This helps to reduce unit costs and improve the quality of inputs into game design and development, and avoids paying a profit margin to a separate developer. It also lets

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Microsoft move away from hardware into online and subscription gaming, the future of the industry, giving better control over retail distribution and spreading risk across more revenue streams to build business revenues.

However, the benefits may be limited. Mergers often create new problems of control, communication and coordination in a bigger, more disparate firm, leading to diseconomies of scale so that average costs rise beyond the minimum efficient scale, although technology such as Teams meetings may reduce this. There is a risk of culture clashes and resistance to change: there were issues with the conduct of some Activision employees, resulting in the State of California suing the firm. Asymmetric information may also mean Microsoft discovers problems it was previously unaware of, delaying major product releases.

The cost of the merger is very large, £65 billion plus high legal fees, so the benefits must be very large to justify it, and the opportunity cost is investment in Microsoft's own games. Vertical mergers also bring fewer economies of scale, as production is at different stages of supply. The merger raised competition concerns: it was initially blocked by the UK's Competition and Markets Authority, and increasing scrutiny may lead to conditions, such as keeping games available on rival



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consoles, which limit the gains in market power. Pricing power may not be that strong either, as Microsoft's Minecraft costs only £14.99, less than half the price of all the other titles in Figure 1.

Overall, the main benefits for firms such as Microsoft are a larger market share and access to popular titles that strengthen its subscription service, together with economies of scale. However, these depend on integrating the firms successfully, avoiding diseconomies of scale, and on the conditions set by competition authorities.

In the long run the merger is likely to be beneficial if Microsoft uses Activision's games to grow its subscription revenue.

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(Total for Question 6 = 50 marks)

TOTAL FOR SECTION B = 50 MARKS

SECTION C

Answer ONE question from this section.

Write your answer in the space provided.

You are advised to spend 30 minutes on this section.

EITHER

7 High Speed 2 (HS2) was a £100 billion UK government rail project designed to expand the existing network. The journey time between London and Manchester would take just 1 hour and 11 minutes, 54 minutes quicker than today's fastest time. Almost 900 homes, 1 000 businesses and around 60 ancient woodlands would be destroyed by its construction.

(Source: adapted from https://www.independent.co.uk/climate-change/news/hs2-railway-route-houses-demolish-woodland-destroy-environment-impact-london-birmingham-manchester-a8582316.html)

Evaluate the likely microeconomic effects of building major infrastructure projects.

(Total for Question 7 = 25 marks)

OR

8 In 2023, the UK prime minister Rishi Sunak said that he wanted to see all students in England study some form of mathematics until they reach the age of 18 to 'ensure that they leave school better equipped for the jobs of the future'. This would require additional spending on education.

Just half of all 16 to 19 year-olds study mathematics. Yet in a world where data is everywhere and statistics are vital in every job, the workforce will require more analytical skills than ever before.

(Source: adapted from https://educationhub.blog.gov.uk/2023/01/04/studying-maths-to-18-what-you-need-to-know/)

Evaluate the likely microeconomic effects of increased spending on education.

(Total for Question 8 = 25 marks)

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Indicate which question you are answering by marking a cross in the box ☒. If you change your mind, put a line through the box ☒ and then indicate your new question with a cross ☒.

Chosen question number: **Question 7** ☒ **Question 8** ☒

Write your answer here:

Question 7

Major infrastructure projects such as HS2, a £100 billion rail project, have microeconomic effects on individual markets, firms, workers, consumers and third parties, both during construction and once in use.

Firstly, there are large effects on the construction sector and its labour market. Demand for construction firms' services and for inputs such as steel, concrete and machinery rises, so their revenue and supernormal profit increase. As the demand for labour is derived from the demand for construction, the demand for engineers, surveyors and construction workers shifts right, raising wages and employment. However, where skills are scarce this creates labour shortages, and firms in other industries face higher wage costs, which raises their costs of production and reduces their profit.

Secondly, once complete the project creates positive externalities. The journey between London and Manchester would take just 1 hour 11 minutes, 54 minutes quicker than today. This cuts transport costs and travel time for firms and workers and improves the geographical mobility of labour, so workers can access high paying jobs in London and firms can recruit from a wider pool. Passengers switching from car and air travel to rail reduce congestion, pollution and accidents, which are external benefits to third parties. House prices near new stations may rise as demand to live there increases, and better infrastructure increases productive capacity, shifting the PPF outwards.

Thirdly, construction creates significant negative production externalities. Almost 900

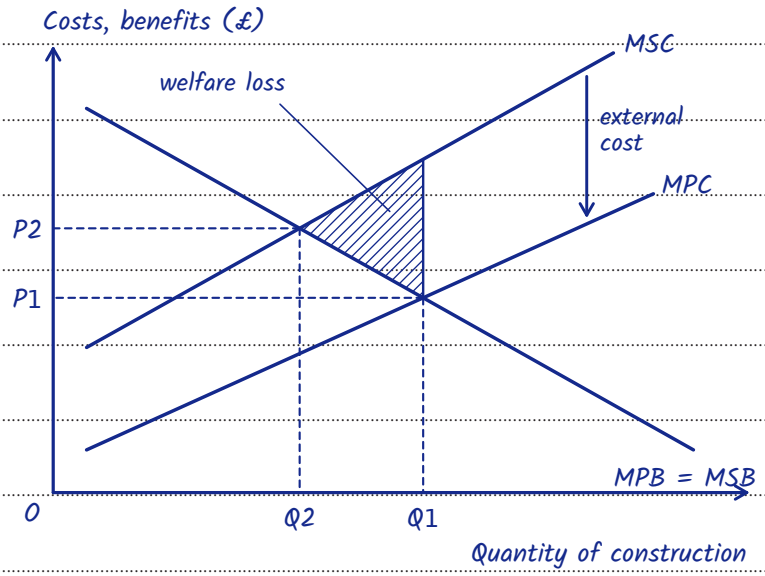
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homes, 1 000 businesses and around 60 ancient woodlands would be destroyed, and there is noise, dust, congestion from lorries and loss of biodiversity. These external costs fall on third parties who are not compensated. In my diagram, builders consider only marginal private cost (MPC), so output is at Q1 where MPC = MPB, at price P1. Marginal social cost (MSC) is higher because of the external cost, so the social optimum is Q2 where MSC = MSB, at price P2. Too much construction takes place, the gap between Q2 and Q1, and the shaded triangle shows the welfare loss to society. The 1 000 displaced businesses lose revenue and may close, causing local unemployment, and nearby home owners may suffer falling house values.

However, the size of these effects depends on several factors. The magnitude of the project matters: at £100 billion HS2 is significant, but the effects are concentrated in certain regions and industries, so the impact on firms elsewhere may be small. There are long time lags and implementation lags: the benefits of quicker journeys arrive only after many years, while the external costs of construction come first, and cost overruns may lead to the project being cut back, as happened when the Manchester leg of HS2 was cancelled, which suggests



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government failure.

It is also difficult to value external costs and benefits, such as ancient woodland or time saved, so cost benefit analysis may be inaccurate and resources misallocated. The opportunity cost is high, as £100 billion could fund schools, hospitals or local transport, which raises affordability concerns. Local workers may not have the specialist skills needed for construction jobs, reducing local benefits, and while journeys are quicker, train fares could be prohibitive for many workers.

On the other hand, environmental offsetting such as planting new woodland, extensive use of tunnels and compensation for home owners and businesses can reduce the damage to third parties.

The effects also depend on the type of infrastructure project: a rail link that replaces car journeys reduces congestion and pollution in the long run, while a new road or airport may increase external costs. There is a conflict between objectives, as faster journeys and better labour mobility come at the cost of environmental damage and local disruption.

In conclusion, major infrastructure projects create jobs and profits in construction and, in the long run, positive externalities through quicker journeys and better labour mobility. However, these benefits are uncertain and delayed, while the external costs of construction are immediate and hard to value. On balance, the microeconomic effects are likely to be positive in the long run only if the project is delivered on time and on budget and the external costs are reduced through offsetting and compensation.

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Question 8

Increased spending on education, such as requiring all students in England to study some form of mathematics until 18, has microeconomic effects on schools and colleges, students, firms, labour markets and third parties.

Firstly, there is a direct effect on schools, colleges and universities. Extra funding lets them hire more maths teachers, buy resources and offer more courses, so the demand for maths teachers, a derived demand, shifts right. As maths teachers are already in shortage, wages are bid up and providers' costs rise. Firms supplying textbooks, software and tutoring see higher demand, revenue and profit.

Secondly, students gain human capital. Just half of all 16 to 19 year-olds study mathematics, yet data is everywhere and statistics are vital in every job. More analytical skills raise workers' productivity and marginal revenue product, giving better employment prospects and higher wages, so living standards rise.

Occupational mobility of labour also improves, as workers with transferable numeracy skills can move between jobs more easily, reducing labour market shortages in areas such as data, finance and engineering. Firms can recruit more easily, cut training costs and increase output and profit.

Thirdly, education is a merit good with positive consumption externalities. Third parties benefit: employers gain a better skilled workforce, and society benefits from more innovation, lower unemployment and less crime. Individuals consider only their marginal private benefit (MPB), and many underestimate the benefits of maths because of imperfect information, so the market equilibrium is at R, where MPB = MPC, at quantity Q1. The marginal social benefit (MSB) lies above MPB, and RX is the size of the external benefit at Q1. The social optimum is at U, where MSB = MSC, at Q2. Education is therefore underconsumed, and spending that raises consumption from Q1 to Q2 achieves the potential welfare gain shown by the

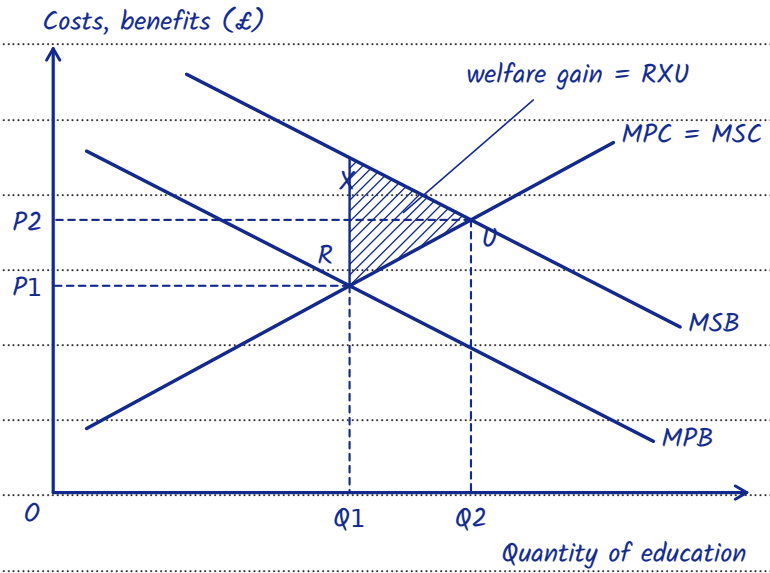
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shaded triangle RXU, as in my diagram. In the long run the extra human capital also shifts the PPF outwards.

However, the effects depend on several factors. The magnitude matters: it depends on how much spending is increased and whether this is enough to recruit sufficient maths teachers; if not, classes may be taught by non-specialists and the quality of teaching falls. There are long time lags: policies take time to be designed and implemented, and students will not enter the workforce for several years, so the benefits come in the long term while the costs come now.

There are also opportunity costs and affordability concerns, as the money could have been spent on healthcare or other areas of education. Not everyone is suited to maths: some people may struggle to make progress and become demotivated, and may be better suited to focusing on other areas such as creative or vocational skills, so productivity gains may be small. The effect also depends on the type of education included, for example what level of maths: practical data and statistics courses are likely to be more useful to employers than repeating GCSE content.

There is a risk of government failure, as it is difficult to value the external benefits of education, so the government may spend too much or too little and



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resources may be misallocated. There is also a conflict between objectives, as the cost to taxpayers must be weighed against uncertain future benefits, although a better educated population increases the long-term size and quality of the labour force.

In conclusion, increased spending on education is likely to have positive microeconomic effects: higher productivity and wages for students, fewer skills shortages for firms and a welfare gain from correcting the underconsumption of a merit good. However, the size of these effects depends on the amount and quality of spending, the supply of teachers and whether the courses suit students. On balance, the effects are likely to be beneficial in the long run, provided spending is targeted at recruiting teachers and at useful, applied mathematics.

TOTAL FOR SECTION C = 25 MARKS

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Economics A

Advanced

PAPER 1: Markets and Business Behaviour

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Sources for use with SECTION B

Read the following figure (1) and extracts (A to C) before answering Question 6.

Question 6

Digital markets

Figure 1: UK sales of selected best-selling video games, 2022

Name of game	Game publisher	Sales (quantity)	Game price
FIFA 23	Electronic Arts (EA)	2 530 510	£59.99
COD: MW II	Activision	1 675 323	£59.99
Mario Kart 8	Nintendo	426 748	£39.99
Gran Turismo 7	Sony	356 630	£69.99
Minecraft	Microsoft	219 679	£14.99

(Source: adapted from https://www.statista.com/statistics/274072/most-popular-games-in-the-united-kingdom-uk-by-unit-sales)

Extract A

Digital markets

Digital markets refer to firms producing and buying information technology services. Examples include digital banking, online retailing, computer games and mobile applications (apps). The emergence of digital markets has brought about increased competition across a wide range of products and services. They have also been beneficial for consumers who now have greater choice and access to higher-quality products at lower prices, for example, fashion clothing and language tuition. But while the digital revolution has enabled greater competition, it also presents some challenges for competition law enforcement.

(Source: adapted from https://pearsonblog.campaignserver.co.uk/digital-markets-reform-of-competition-laws/)

Extract B

Addictive video games

When consumers want to play a new video game, there are three payment options to access the full gaming experience. There is the price for the game (see Figure 1), the subscription fee to play online with friends (e.g. £13.99 a month) and there are many in-game purchases. For example, a Spiderman 'skin' which costs £9.99 enhances the appearance of the player. The high prices do not seem to deter many new buyers, especially in markets such as sports and multi-player action games. 40% of the world's population are online gamers. Young players spend up to 10–16 hours a day on their games due to the addictive nature of the games.

The video games can take up to five years to develop and cost over £150 million to produce with 200 full time employees working on the software. Starting salaries for software developers can be £100 000. However, some simple video games and apps cost as little as £23 000 to develop and take about six months.

All the major firms – EA, Microsoft, Nintendo and Sony – offer subscriptions that give access to new game releases. The US technology company, Microsoft, is one of the dominant firms in the market for subscription services. In October 2023, it merged with the game designer, Activision, which already owns one of the world's most popular video games (see Figure 1). The £65 billion merger is the largest in the history of the video games industry. However, Sony is concerned that the Microsoft-Activision merger may restrict access to popular video games owned by Microsoft and therefore reduce competition.

(Source: adapted from https://www.theguardian.com/technology/2023/apr/26/what-does-uks-ban-on-microsofts-activision-blizzard-takeover-mean-for-gaming?)

Extract C

The growth of automation

Automation is the use of technology to perform tasks previously carried out by humans. Automation has the potential to bring great economic benefits to both consumers and firms, contributing up to £12 trillion to global GDP by 2030. This extra income will also create demand for many new jobs. However, there are also concerns that it could displace many existing workers.

Financial services jobs are most at risk from automation in the shorter term and transport jobs, such as train drivers, in the longer run. For example, the growth of online banking has already led to the closure of many high street bank branches. By the mid-2030s, up to 30% of all jobs could be automated, with slightly more impact on men.

Another form of revenue for Microsoft is the artificial intelligence (AI) program ChatGPT. The growth of AI will require highly skilled workers such as trainers and engineers. Microsoft's annual gross profit for 2023 was £146 billion, a 7.69% increase on 2022.

(Source: adapted from https://www.economist.com/business/2023/03/26/big-tech-and-the-pursuit-of-ai-dominance)

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