Please check the examination details below before entering your candidate information

Candidate surname	Other names
StemUp Model Solution	

Pearson Edexcel Level 3 GCE

Centre Number	Candidate Number

Monday 11 May 2020

Morning (Time: 1 hour and 30 minutes) | Paper Reference **8EC0/01**

Economics A

Advanced Subsidiary

Paper 1: Introduction to Markets and Market Failure

You do not need any other materials.

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 two sections in this question paper.
- Answer **all** questions in Section A.
- In Section B, answer **all** of questions 6(a) to 6(e) and **one** question from 6(f) or 6(g).
- Answer the questions in the spaces provided
  – *there may be more space than you need.*

Information

- The total mark for this paper is 80.
- 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 25 minutes on this section.

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

1 (a) Define the term 'free market economy'.

(1)

A free market economy is an economic system where the prices of goods and services are set freely by the forces of supply and demand, without intervention by the government.

(b) Which **one** of the following is the best example of the rationing function of the price mechanism?

(1)

- ☒ **A** An increase in demand, leading to a rise in price, will encourage new firms to enter the market
- ☒ **B** Changes in price provide information to both producers and consumers
- ☒ **C** If a product is scarce, a rise in price is likely to make the shortage worse
- ☒ **D** When there is a shortage of a product, the price will rise and discourage some consumers from buying the product

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(c) Explain **one** advantage of a free market economy compared to a command economy.

(2)

In a free market, firms compete for consumers, so they are responsive to what consumers want and have an incentive to be efficient, cutting costs and innovating to keep prices low and win sales.

In a command economy there is no competition between state producers to ensure firms are efficient, so resources may be wasted and goods produced that consumers do not want. Market prices also transmit information between buyers and sellers, so there is no need for a costly planning bureaucracy.

(Total for Question 1 = 4 marks)

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2 (a) The income elasticity of demand for bus travel is estimated to be –1.5.
This implies that:

(1)

- ☒ **A** a 10% increase in fares will lead to a 15% decrease in passengers
- ☒ **B** as unemployment falls, more people will use buses
- ☒ **C** bus travel has a negative cross elasticity of demand compared to rail travel
- ☒ **D** bus travel is an inferior good

(b) Explain why a firm might try to reduce the price elasticity of demand for its products.

(3)

Price elasticity of demand (PED) measures the responsiveness of quantity demanded to a change in price. The lower (more inelastic) the PED, the less price sensitive the product is, so quantity demanded does not change significantly when price changes. For example, if a product has a PED of −0.1 and the firm raises its price by 10%, sales volume falls by only 1% (ceteris paribus). The 10% higher price per unit far outweighs the 1% fall in units sold.

Therefore the lower a product's PED, the easier it is for the firm to boost revenue by increasing its price: a price rise increases the value of its sales and so its profit. This is why firms use branding, advertising and product differentiation to build customer loyalty and reduce the number of close substitutes, making demand more price inelastic.

(Total for Question 2 = 4 marks)

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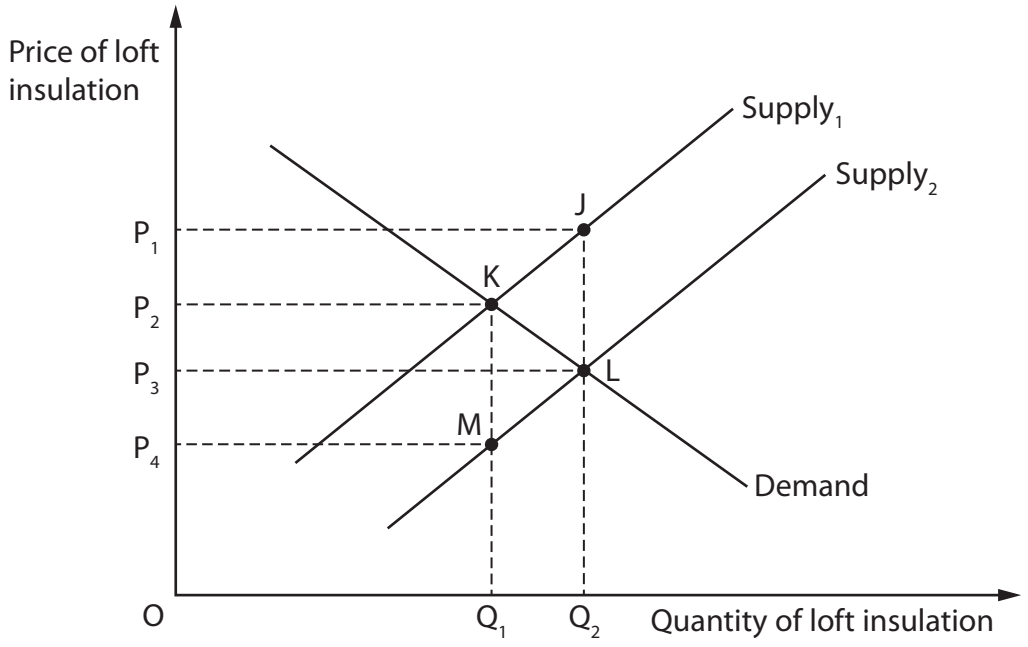
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QUESTION 3 BEGINS ON THE NEXT PAGE.

3 The 'Energy Company Obligation' is the government's term for its programme to make houses in the UK more energy efficient.

(a) In the diagram below, the government grants a subsidy to energy suppliers to install loft insulation. This shifts the market supply curve for loft insulation from $Supply_1$ to $Supply_2$.



The total amount spent by the government on subsidies is represented by the area:

(1)

- ☒ **A** OP_1JQ_2
- ☒ **B** OP_3LQ_2
- ☒ **C** P_3P_1JL
- ☒ **D** P_4P_2KM

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(b) Explain an opportunity cost to the government of granting subsidies to energy suppliers to install loft insulation.

(3)

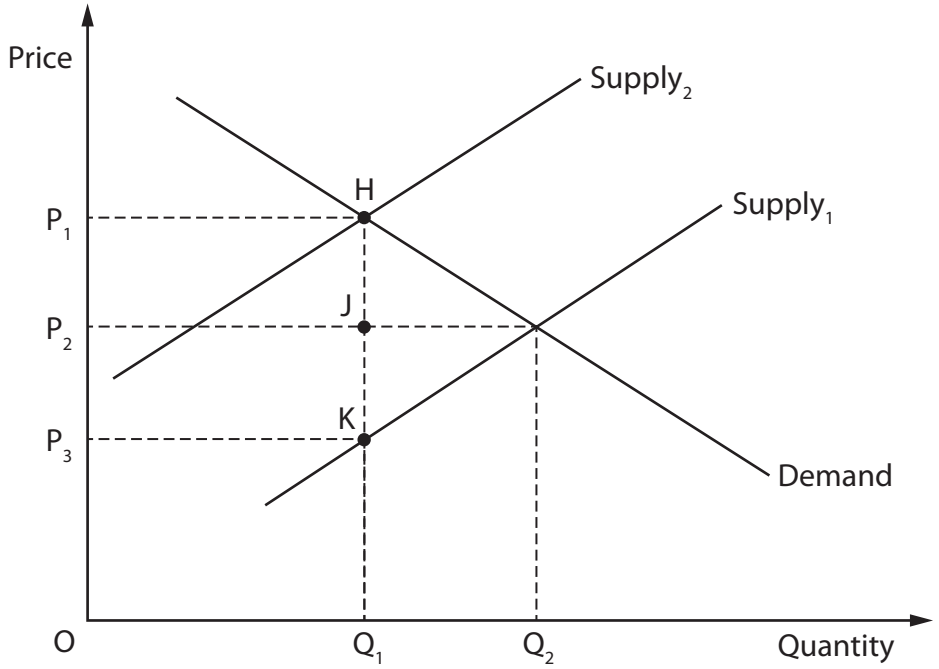
Opportunity cost is the next best alternative forgone when a choice is made. Government spending is limited by tax revenue, so money spent on subsidies to energy suppliers for loft insulation cannot be spent elsewhere. For example, the same funds could have been spent on public services such as schools and hospitals, for instance employing more NHS nurses, or used to cut taxes or reduce government borrowing. The benefit of these forgone alternatives is the opportunity cost of the subsidy. Therefore the economic and social case for the subsidy must be judged carefully on the grounds of efficiency and fairness: if the extra energy saved is worth less than the benefit of the next best use of the money, resources are misallocated. In the long run there might also be better and cheaper ways of saving energy, such as regulation of building standards.

(Total for Question 3 = 4 marks)

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4 The UK Government uses a range of indirect taxes to affect the market prices and quantities of many goods and services.

(a) In the diagram below, the government imposes a specific tax on a product. This shifts the supply curve from $Supply_1$ to $Supply_2$.



The government's tax revenue is shown by the area:

(1)

- ☒ **A** OP_1HQ_1
- ☒ **B** P_2P_1HJ
- ☒ **C** P_3P_1HK
- ☒ **D** P_3P_2JK

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(b) Using an example, explain why the government imposes **specific** taxes on many goods and services.

(3)

A specific tax is an indirect tax of a set amount per unit of the product sold, for example a fixed amount per litre of fuel, regardless of its price.

For example, the UK government imposes tobacco duty on cigarettes. Smoking is a demerit good that creates negative externalities in consumption, such as passive smoking and extra costs for the NHS, which third parties pay for. Without the tax the market price ignores these external costs, so cigarettes are over-consumed.

The specific tax shifts the supply curve to the left, raising the price and reducing consumption towards the socially optimal level, so it internalises the externality. These are often called 'sin taxes'. Because demand for products such as tobacco, alcohol and fuel is price inelastic, the taxes also raise large amounts of tax revenue for the government.

(Total for Question 4 = 4 marks)

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5 HS2 is a high-speed rail network linking the north and south of England. HS2 will be four years late and cost double the Department for Transport's original estimate.

(Source: https://www.transportxtra.com/publications/local-transport-today/news/58459/hs2-will-be-four-years-late-and-cost-double-the-dft-s-estimate-mps-told)

(a) Define the term 'government failure'.

(1)

Government failure occurs when government intervention in the economy causes a net welfare loss, leading to a less efficient allocation of resources than before.

(b) Explain **one** likely microeconomic reason why the government is using taxpayers' money to fund HS2.

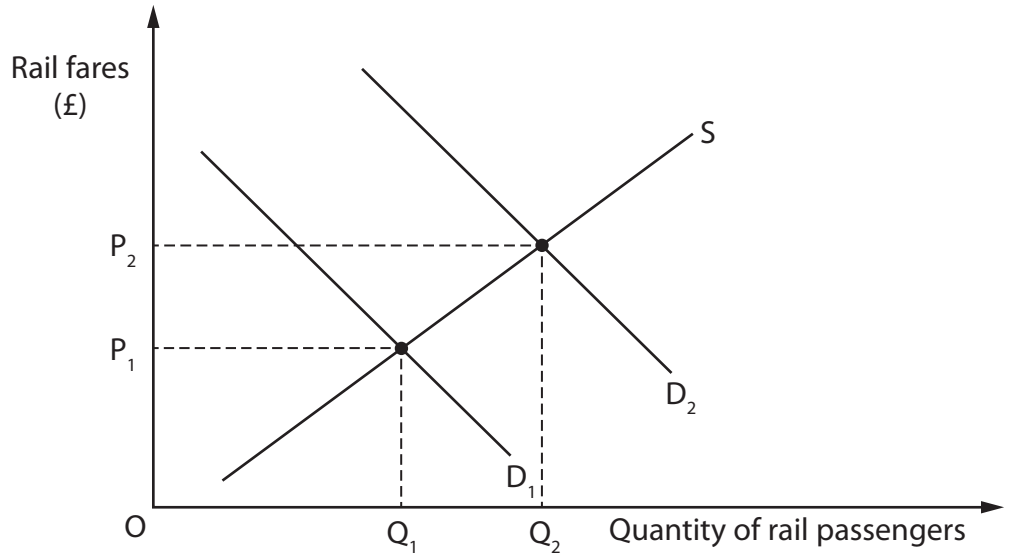
(2)

HS2 will generate positive externalities. When people use the railway instead of driving, third parties benefit from less road congestion, fewer accidents and lower carbon emissions and pollution. Because private firms do not receive payment for these external benefits, the free market would under-provide high-speed rail.

There is also risk and imperfect information: the huge cost and long build time mean the private sector may be unlikely to undertake the project, so the government funds it.

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(c) The diagram below shows the demand for and supply of passenger rail services.



The shift of the demand curve from D_1 to D_2 is most likely to result from a:

(1)

- ☒ **A** government decision to impose a tax on workplace parking
- ☐ **B** government decision to increase subsidies for rail travel
- ☐ **C** planned expansion of the government's railway track building programme
- ☐ **D** reduction in the tax imposed on a litre of petrol

(Total for Question 5 = 4 marks)

TOTAL FOR SECTION A = 20 MARKS

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SECTION B

Read Figures 1, 2, 3 and the following extracts (A to B) before answering Question 6.

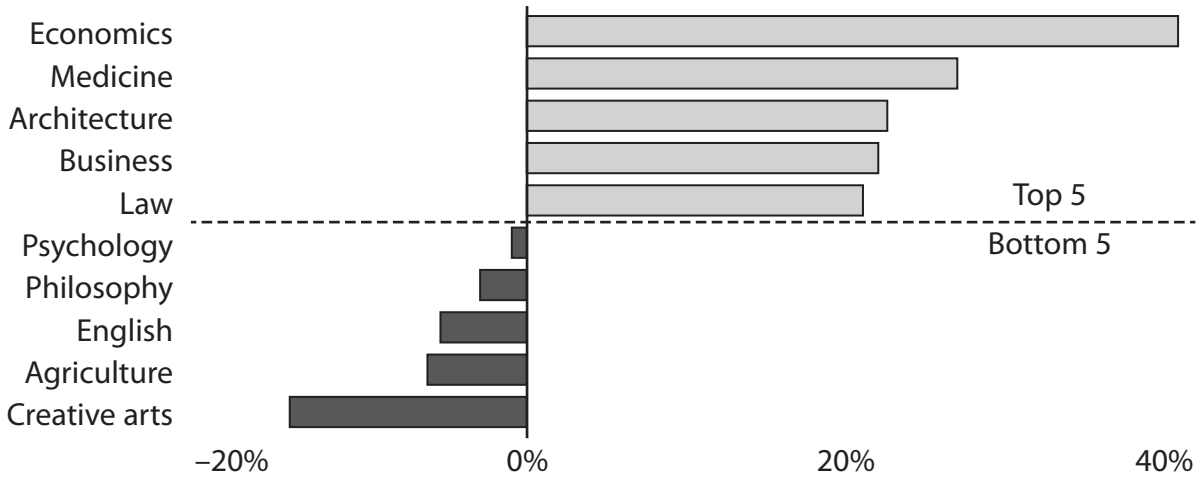
Answer ALL questions 6(a) to 6(e) and EITHER Question 6(f) OR Question 6(g).

You are advised to spend 1 hour and 5 minutes on this section.

Question 6

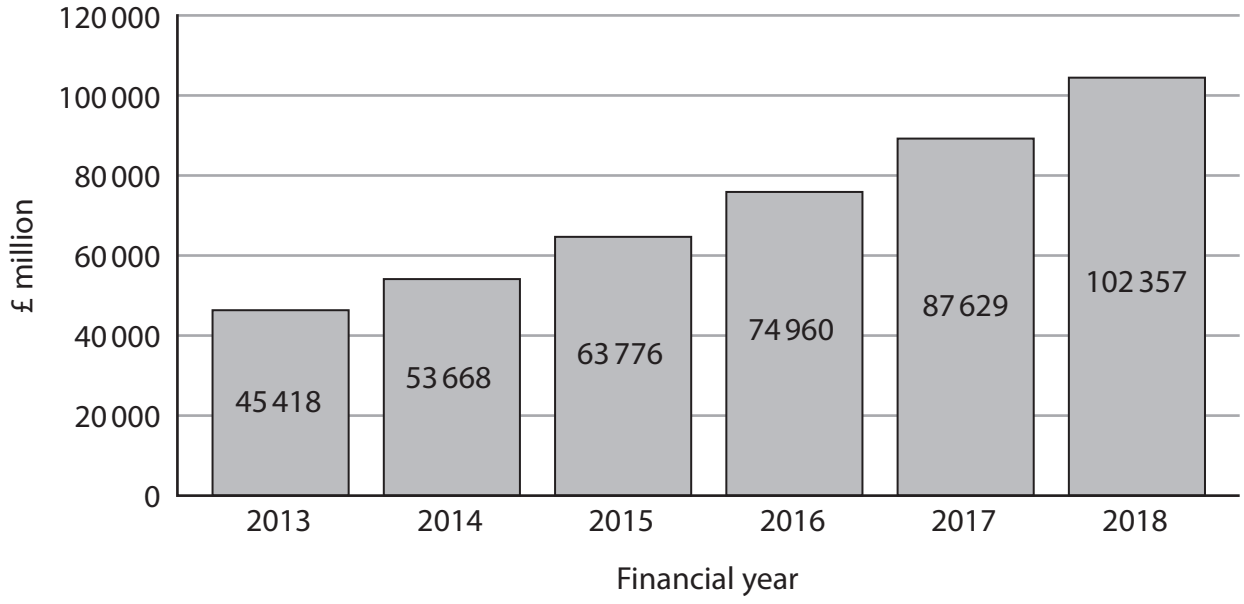
The market for higher education in the UK

Figure 1: Average graduate earnings, according to subject studied, compared to average non-graduate earnings (per cent) 2018 selected subjects.



(Source: adapted from https://www.ifs.org.uk/publications/13731
The impact of undergraduate degrees on early-career earnings, Research report, November 2018)

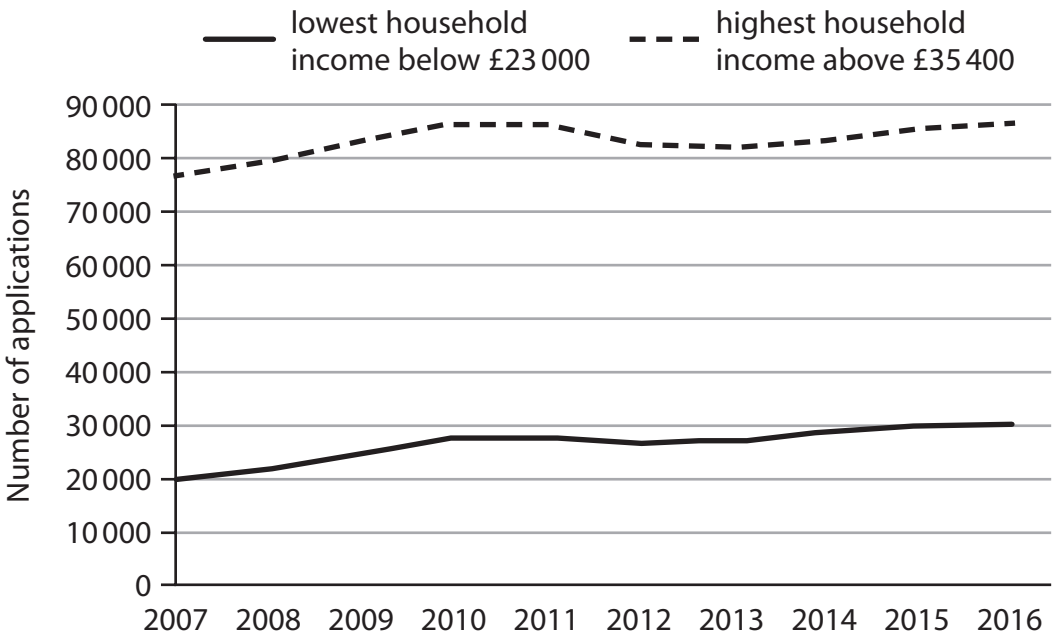
Figure 2: Student loans outstanding at the end of financial years 2013 to 2018 in England



(Source: adapted from https://www.slc.co.uk/official-statistics/student-loans-debt-and-repayment/england.aspx)

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Figure 3: Number of applications to UCAS according to median income of area



(Source: adapted from https://www.ucas.com/corporate/data-and-analysis/ucas-undergraduate-releases/2018-cycle-applicant-figures-january-deadline)

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Extract A

Rethinking tuition fees

The value of a degree is significant. The latest data shows that the median university graduate income was £10 000 more than the average non-graduate income in 2018. This 'graduate premium' means graduates will contribute significantly to the economy. In addition, the government will benefit greatly from additional tax revenues.

However, funding higher education continues to be a major issue. English universities charge some of the world's highest fees. Interest rates on student loans are now 6.3%. There are a large number of courses where graduates are likely to earn less than non-graduates, despite an average of £50 000 of debt.

The Department for Education estimates that 45% of the value of loans will not be repaid. Outstanding student loans in England totalled more than £100 billion in 2018. By 2023 total outstanding student loans are forecast to rise to £120 billion.

One option for revising student fees could be to charge higher fees for courses that are more expensive to teach or that have a better chance of higher earnings. That would make Science or Mathematics degrees more expensive to study than English or Philosophy.

At most universities the level of fees is likely to be the same flat rate of £9 250 per year. However, science-based courses need more expensive equipment and courses such as medicine require more teaching time and personal instruction.

Tuition fees were introduced in 1998 at £1 000 per year. They are currently £9 250. Economists estimate that the price elasticity of demand for higher education is about –0.5.

Charging £9 250 a year for an undergraduate degree makes England very expensive by international standards. Scotland has no fees for Scottish students, and fees in Wales and Northern Ireland are significantly lower. Much of Europe has low or no fees and Germany, which used to charge fees, has abolished them, replacing them with a graduate tax.

The only country with comparable fees is the United States. Top private colleges can charge more than the equivalent of £30 000 per year while state colleges can charge local students less than fees in England.

Despite this, student numbers at English universities have continued to increase from 450 000 in 1998 to over 700 000 in 2018. Students from all backgrounds are more likely to go to university than ever before.

However, applicants from low-income areas are much less likely to go to university than applicants from high-income areas. The Universities and Colleges Admissions Service (UCAS) found that in the most deprived 10% of postal areas about 20% of young people went to university in 2018, compared with 50% in the highest income areas. Research by University College London revealed that even when candidates from low-income areas had the same exam results, they were much less likely to apply to university than candidates from high-income areas.

(Source: adapted from https://www.theguardian.com/education/2018/dec/16/change-in-student-loan-accounting-could-add-10bn-to-national-debt)

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Extract B

Low-income university students twice as likely to drop out than high-income ones

The number of students from low-income areas who drop out of university before finishing their degree is at its highest in five years, indicating a considerable waste of scarce educational resources. This news comes at the same time as a drive to recruit students from poorer backgrounds, with universities spending a total of £725 million on access initiatives in the past academic year alone.

A number of top universities have started to lower their A level grade offers to students from low-income areas, in an attempt to encourage them to apply. However, there is a danger with 'enticing' disadvantaged students through lower grade offers, if universities are not going to provide ongoing support for them once they begin their courses.

The latest figures show that 9% of disadvantaged undergraduates do not continue in higher education beyond their first year. In comparison, the average drop-out rate among students from the high-income backgrounds was less than 5%. The gap continues to widen.

A report, published by the Office for Fair Access, concluded that: 'The significance of this for students is huge. Higher education can be a transformational experience that opens doors to rewarding careers and social mobility, but this is only the case if students achieve successful outcomes.'

(Source: adapted from https://www.telegraph.co.uk/news/2017/06/28/number-poor-students-dropping-university-highest-level-five/)

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6 (a) Explain why 'the price elasticity of demand for higher education is about –0.5' may be of relevance to English universities.

Refer to Extract A in your answer.

(5)

According to Extract B, the drop-out rate of students from low-income households is much higher than that of high-income households.

(b) Assess the likely impact of these drop-out rates on the allocation of resources within an economy.

(10)

(c) With reference to Extract A, explain **one** likely private benefit to students and **one** likely external benefit of higher education.

(6)

(d) With reference to Figure 2, calculate the percentage increase in outstanding student loans from 2013 to 2018. You are advised to show your working.

(4)

(e) With reference to Figure 1 and Extract A, discuss the benefits of allowing universities to charge higher tuition fees for some degree courses.

(15)

EITHER

(f) Evaluate the possible advantages of a free market approach to providing services such as education.

(20)

OR

(g) Evaluate whether government intervention is able to correct market failure in education.

(20)

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6 (a) Explain why 'the price elasticity of demand for higher education is about –0.5' may be of relevance to English universities.

Refer to Extract A in your answer.

(5)

Price elasticity of demand (PED) is the responsiveness of quantity demanded to a change in price. PED = % change in quantity demanded ÷ % change in price.

A PED of –0.5 means demand for higher education is price inelastic: a 10% rise in tuition fees would reduce the quantity of places demanded by only 5%. Extract A shows that fees rose from £1 000 a year in 1998 to £9 250 today, an increase of 825%, yet student numbers at English universities continued to increase from 450 000 in 1998 to over 700 000 in 2018.

This is relevant to English universities because it tells them, and the government, that students are not very price sensitive and are prepared to accept higher fees. If universities raise fees, the fall in student numbers is proportionately smaller than the rise in price, so their total revenue increases. They could use this revenue to fund expensive courses such as science and medicine, which need more equipment and teaching time.

However, because students are not price sensitive, the level of fees is perhaps less important than other issues, such as whether it is fair to charge the same flat rate of £9 250 for courses with very different costs and graduate earnings, or the effect of fees on applicants from low-income areas. The PED is only an estimate and may be more elastic for poorer students, and over time other factors, such as the graduate premium, have also changed, so ceteris paribus may not hold.

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According to Extract B, the drop-out rate of students from low-income households is much higher than that of high-income households.

(b) Assess the likely impact of these drop-out rates on the allocation of resources within an economy.

(10)

The allocation of resources is how scarce factors of production are divided between different uses. Resources are allocated efficiently when they are used to produce the goods and services that maximise society's welfare. Extract B shows that 9% of disadvantaged undergraduates do not continue in higher education beyond their first year, compared with less than 5% of students from high-income backgrounds, and the gap continues to widen.

These drop-out rates are likely to cause a misallocation of resources. Each student who drops out has used scarce resources, such as lecturers' time, teaching rooms, equipment and government-funded student loans, without completing the degree, so the benefit is never achieved. Extract B calls this 'a considerable waste of scarce educational resources'. There is a large opportunity cost, because the government and universities could have spent this money on other things, such as schools or the NHS. Universities spent £725 million on access initiatives in one year alone, much of which is wasted if the students recruited then leave.

The problem is concerning because people from poorer backgrounds are already less likely to apply to university in the first place. Figure 3 shows that applications from the lowest income areas were only about 30 000 in 2016, compared with over 85 000 from the highest income areas, and Extract A shows that only about 20% of young people from the most deprived 10% of areas went to university, compared with 50% in the highest income areas. If those who do go then drop out, universities are failing to keep poorer students, so graduates are increasingly likely to be from wealthier families. Talented people end up in lower-skilled jobs, so the economy is not making the most of its labour force.

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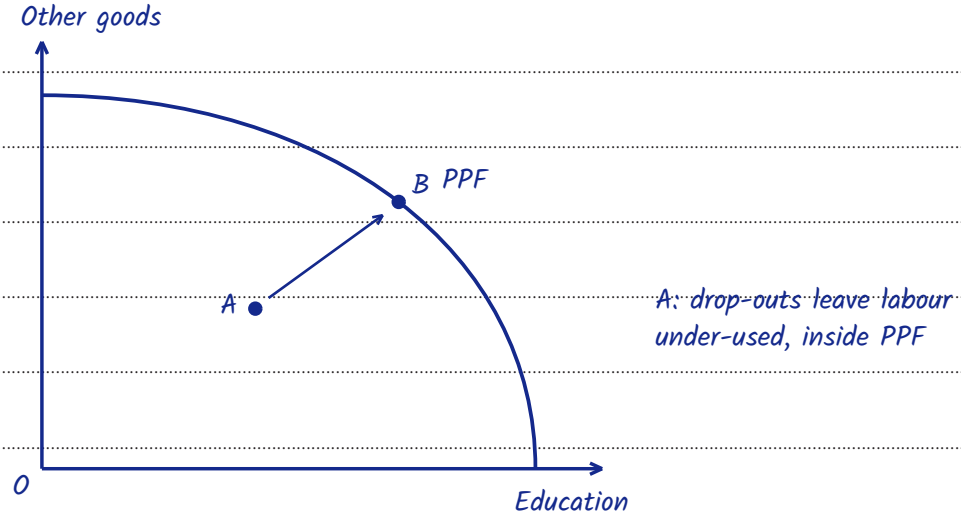
This can be shown on a production possibility frontier (PPF). Because human capital is under-used, the economy operates at a point such as A inside its PPF, rather than at B on the frontier, so actual output is lower than potential output. In the long run, fewer graduates means lower labour productivity, which limits the outward shift of the PPF. Students who drop out also keep their debt from tuition fees and loans without gaining the graduate premium, and 45% of loans are already not expected to be repaid, adding to the cost for taxpayers. Concern over high levels of debt may be one reason why poorer students leave, so it is worth asking whether this would happen if England had low or no tuition fees, like Germany.

However, the impact on resource allocation may be limited. Extract A states that 'students from all backgrounds are more likely to go to university than ever before', and poorer students are continuing to attend university, with various schemes such as lower grade offers and access spending to support them. A drop-out rate of 9% means that over 90% of disadvantaged students do continue, so the waste only applies to a minority. Students who leave may not waste all resources, as they still gain some skills from their first year, and some leave to take up jobs or apprenticeships that suit them better, which may itself be an efficient use of their time.

The significance also depends on whether tuition fees are really a significant contributor to drop-out rates or whether other factors, such as a lack of ongoing support from universities, matter more. If the cause is a lack of support, the solution is to redirect access spending towards support for students once they begin their courses.

Overall, the drop-out rates are likely to lead to some misallocation of resources and an opportunity cost, and the widening gap is a worry for social mobility. However, the effect is relatively small in scale and could be reduced in the short run by better student support, so it is not a major waste of resources for the economy as a whole.

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(c) With reference to Extract A, explain **one** likely private benefit to students and **one** likely external benefit of higher education.

(6)

A private benefit is the benefit received by the individual who consumes a good or service. An external benefit is a benefit to third parties who are not directly involved in consuming it.

One likely private benefit to students is higher earnings. Extract A states that the median university graduate earned £10 000 more than the average non-graduate in 2018. This 'graduate premium' means the student enjoys extra spending power and a higher standard of living over their working life, and the higher income makes it easier to repay their student loan.

One likely external benefit is higher tax revenue for the government. Extract A says that 'the government will benefit greatly from additional tax revenues', because graduates on higher incomes pay more income tax and, through their extra spending, more VAT. Third parties benefit because this revenue can fund public services such as the NHS, or allow lower taxes for everyone else.

Graduates also have higher productivity, which benefits the firms that employ them: more skilled workers allow firms to achieve lower average costs and, therefore, lower prices for consumers, so 'graduates will contribute significantly to the economy'.

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(d) With reference to Figure 2, calculate the percentage increase in outstanding student loans from 2013 to 2018. You are advised to show your working.

(4)

Percentage change = (new value − old value) ÷ old value × 100

Outstanding student loans: 2013 = £45 418 million, 2018 = £102 357 million

= (102 357 − 45 418) ÷ 45 418 × 100

= 56 939 ÷ 45 418 × 100

= 1.25367 × 100

Percentage increase = 125.37% (to 2 d.p.)

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(e) With reference to Figure 1 and Extract A, discuss the benefits of allowing universities to charge higher tuition fees for some degree courses.

(15)

Tuition fees are the price students pay for a university course. At most universities the fee is the same flat rate of £9 250 per year, whatever the subject. Allowing universities to charge higher fees for some degree courses, such as those that are more expensive to teach or that lead to higher earnings, could bring several benefits.

Firstly, it would allow universities to cover the true cost of some courses. Extract A explains that science-based courses need more expensive equipment, and courses such as medicine require more teaching time and personal instruction. With a flat fee, cheaper courses such as English or Philosophy effectively cross-subsidise science. Charging more for costly subjects would allow less expensive degrees to be reduced in price, so price better reflects the cost of the resources used, giving a more efficient allocation of resources.

Secondly, it links the price to the benefit received. Figure 1 shows that the top five subjects generate earnings well above non-graduates: Economics graduates earn about 45% more, Medicine about 28% and Architecture, Business and Law over 20% more. In contrast the bottom five reduce earning potential: Creative arts graduates earn about 15% less than non-graduates. Under the consumer pays principle, students who gain a large private benefit, such as the £10 000 graduate premium, should contribute more to the cost. Students would be willing to pay the higher fee because they can clearly see that the benefits outweigh the costs, and with a PED of about −0.5 demand is price inelastic, so universities would maximise their own revenue.

Thirdly, the extra revenue could provide improved courses and a better educational experience, attracting more domestic and overseas students, and could provide more funds to look after disadvantaged students, such as bursaries. It would also reduce the burden on the government and taxpayer. Outstanding student loans are over £100 billion

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and forecast to reach £120 billion by 2023, with 45% not expected to be repaid. If graduates in high-earning subjects pay more, they are more likely to repay their loans, while lower fees for low-earning courses reduce the debt that will never be repaid. In the long term, investment in subjects such as science and medicine creates a more skilled workforce and supply-side benefits for the economy.

However, there are drawbacks. It is difficult to quantify exactly what should be charged for each subject, and the figures change over time: Figure 1 is for 2018 only and early-career earnings may not reflect lifetime earnings. Higher fees may be problematic for students from poorer families, who may see the higher cost of degrees such as medicine as prohibitively expensive, even though their PED may be more elastic than −0.5. Applicants from low-income areas are already much less likely to go to university, so higher fees could worsen inequality and reduce social mobility, and the country could lose talented doctors and scientists.

There is also the concept of a broader education. Degree choices are not simply about money; a creative arts degree may reduce earning potential compared with the average, but such subjects are essential for any liberal education and the creative industries, and generate external benefits for society. Lower fees for these subjects may also signal that they are worth less, encouraging over-supply of graduates in some areas.

Overall, allowing higher fees for some courses would bring benefits in covering true costs and reducing taxpayer losses on loans. The size of the benefit depends on how the fees are set and whether bursaries protect poorer students. Variable fees are most beneficial if combined with support for disadvantaged students so that access is not reduced.

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EITHER

(f) Evaluate the possible advantages of a free market approach to providing services such as education.

(20)

OR

(g) Evaluate whether government intervention is able to correct market failure in education.

(20)

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 6(f)** ☒ **Question 6(g)** ☒

Write your answer here:

Question 6(f)

A free market approach means that the price and quantity of education are set by supply and demand, with no government intervention: students pay the full fee, and universities set fees and decide which courses to offer. In England the system is already close to this, like the US model, where top private colleges charge more than £30 000 a year, whereas much of Europe has low or no fees.

The main advantage is an efficient allocation of resources. In a free market the price mechanism performs its signalling, incentive and rationing functions. Fees would reflect the cost of each course, so science and medicine, which need expensive equipment and more teaching time, would charge more, while cheaper courses would cost less.

Universities could also set fees by subject and institution according to the 'value of the degree'. Using supply and demand, a course with high demand, such as Economics where graduates earn about 45% more than non-graduates (Figure 1), would see the price rise, and the higher fee gives an incentive for universities to expand supply of those places. Resources therefore move to the courses that consumers value most.

Secondly, students are encouraged to consider whether their degree is worth the cost. Under the consumer pays principle, the student who receives the private benefit, the

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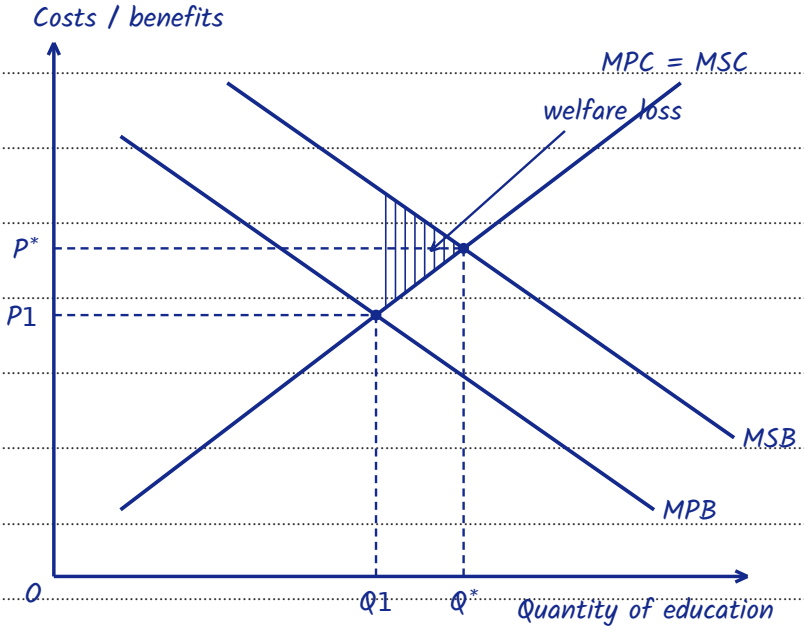
graduate premium of £10 000 a year, makes a personal investment in their future earning power. A free market will discourage 'fringe degrees' and focus on degrees with vocational benefits that pay higher salaries. If creative arts degrees reduce earnings by about 15%, students may ask why they should study them, which reduces the number of graduates earning less than non-graduates despite an average of £50 000 of debt. Thirdly, competition between universities for fee-paying students gives them an incentive to be efficient, cut costs and improve course quality to attract domestic and overseas students. Finally, it reduces the burden on taxpayers. With outstanding student loans over £100 billion and 45% not expected to be repaid, a free market removes this cost, and the opportunity cost of government spending, so funds can be used for schools or the NHS. It also avoids government failure from ministers guessing which subjects to fund.

However, there are strong arguments against a free market in education. Education is a merit good: individuals underestimate its long-term benefits because of imperfect information, so it will be under-consumed. It also creates positive externalities, such as higher tax revenue, higher productivity, lower crime and better health. In the diagram, the free market produces at Q1 where MPC = MPB, but the socially optimal output is Q^* where MSC = MSB, so there is under-consumption and a welfare loss (shaded triangle).

A free market also worsens income inequality. Students from poorer families cannot afford high fees and may fear debt, and Figure 3 shows applications from the lowest income areas are already less than half those from the highest. The impact on poorer communities and social mobility would be severe, and talented students would be lost, a waste of resources. This is why the European model recognises the much higher taxes that graduates will pay in the future: it is cheaper at the point of use and encourages applicants from poorer families, while the taxpayer pays most of the cost. Germany has

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abolished fees and replaced them with a graduate tax, so graduates still contribute, but only once they earn more. A free market may also lead to under-supply of subjects such as creative arts and philosophy, which are valuable to society but not highly paid. In conclusion, a free market approach has clear advantages in allocative efficiency, competition and reducing the cost to taxpayers, especially for high-earning, high-cost subjects. However, because education is a merit good with large external benefits, and because of the effect on equality of opportunity, a pure free market would lead to under-consumption. The best approach is a mainly market-based system with variable fees, combined with grants or lower fees for poorer students, so the advantages are gained without reducing access.



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Question 6(g)

Market failure occurs when the free market leads to a misallocation of resources and a loss of welfare. Education creates positive externalities in consumption: the external benefits are social benefits that spill over to others in society and future generations, such as lower government health, welfare and prison costs, less crime and poverty, strengthened democracy and political stability, better international competitiveness and new ideas and the diffusion of technology. Extract A also notes that 'the government will benefit greatly from additional tax revenues' from graduates. Education is also a merit good, because individuals underestimate its long-term private benefits due to information failure.

The diagram shows the marginal private benefit (MPB) and marginal social benefit (MSB) curves, with MPC = MSC, for higher education. Left to the market alone, consumers only consider private benefits, so quantity H is consumed, where MPB = MPC. The socially optimal quantity is J, where MSB = MSC. There is under-consumption of H to J and a deadweight welfare loss, shown by the shaded triangle.

Government intervention can correct this so that the optimum quantity J is consumed. Firstly, the government can provide a subsidy, or state provision free at the point of use. A subsidy equal to the external benefit per unit lowers the cost to students, shifting MPC down to MPC – subsidy, so consumption rises to J. Scotland has no fees for Scottish students and much of Europe has low or no fees, increasing participation. Secondly, student loans that are only repaid once graduates earn above a threshold remove the up-front cost, overcoming the credit constraints of poorer students; student numbers in England rose from 450 000 in 1998 to over 700 000 in 2018. Thirdly, the government can correct information failure with information on graduate earnings by subject, as in Figure 1, so students choose courses that suit them. Finally, regulation

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and access initiatives, such as the £725 million universities spent in one year, aim to increase participation by disadvantaged students, improving equity as well as efficiency. However, government intervention may not fully correct the market failure, and may even cause government failure, which is when intervention results in a net welfare loss. There is a significant issue of measurement: many of the social benefits identified are vague and ambiguous, so it is very difficult to value them in money and set the subsidy at the right level. If the subsidy is too large, there will be over-consumption beyond J. The government faces information gaps: how is it supposed to know which degree subjects will be in demand in the future?

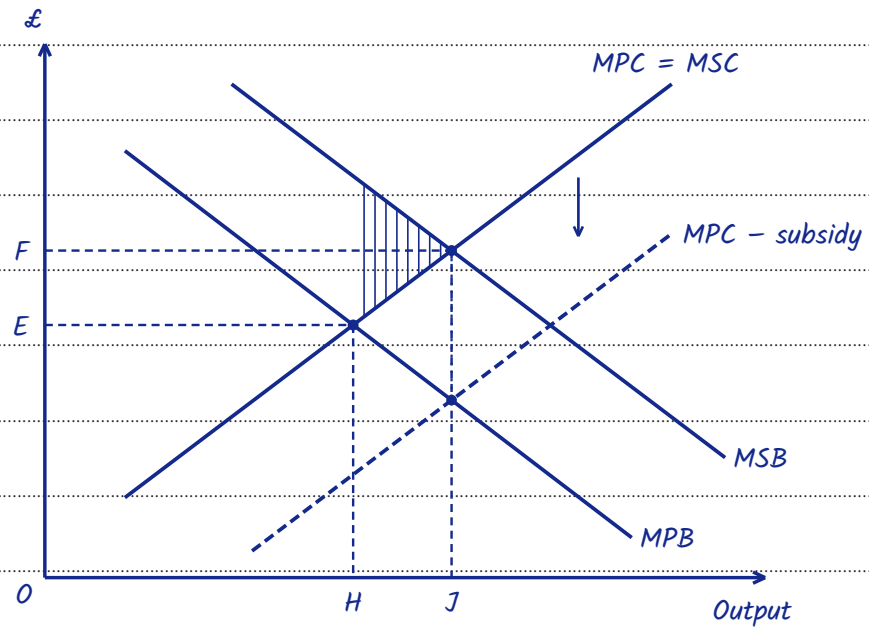
Intervention can also distort price signals. A flat fee of £9 250 for all courses means prices do not reflect the different costs or benefits of courses, so there are a large number of courses where graduates earn less than non-graduates. There are unintended consequences: the loan system has created over £100 billion of debt, 45% of which will not be repaid, an opportunity cost for taxpayers, and debt may put off poorer students. Despite access initiatives, Extract B shows 9% of disadvantaged students drop out after the first year, compared with under 5% of high-income students, and the gap is widening, a waste of scarce resources. Lower grade offers without ongoing support show how a policy can fail. There are also excessive administrative costs in running the loans system and access schemes.

The success of intervention also depends on the type of policy. Free provision, as in Germany, increases access but is costly for taxpayers and may lead to excess demand and lower quality. A graduate tax links payment to earnings, which may be fairer. In the short run, subsidies increase participation, but in the long run the benefits depend on the quality of courses and whether graduates find skilled jobs.

In conclusion, government intervention is able to partly correct market failure in education, as subsidies, loans and information have increased participation towards the

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social optimum, and without intervention under-consumption would be far greater. However, because external benefits are hard to measure and policies have unintended consequences, such as rising debt and high drop-out rates, intervention cannot fully correct the failure. Better-targeted support for poorer students would make it more effective.



(Total for Question 6 = 60 marks)

TOTAL FOR SECTION B = 60 MARKS
TOTAL FOR PAPER = 80 MARKS

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