2	**QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	**The only correct answer is C** **A** is not correct because this is a private benefit **B** is not correct because this is a private benefit **D** is not correct because this is a private cost	**(1)**

Question		Mark
	<table><tr><td>Country</td><td>External cost of pollution per capita ($)</td></tr><tr><td>Germany</td><td>950</td></tr><tr><td>USA</td><td>1200</td></tr><tr><td>South Africa</td><td>1300</td></tr><tr><td>Brazil</td><td>1500</td></tr></table> With reference to the table, explain one reason why the external costs of pollution might be different between these countries. **Answer**	
9	**Knowledge 1, Application 1 Analysis 2** Quantitative skills assessed: **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge** 1 mark for definition of external costs: • Negative impact on third parties/where social costs exceed private costs **(1)** **Application** 1 mark for reference to data: • External cost of pollution per capita: USA $1 200/Germany $950/Brazil $1 500/ South Africa $1 300 **(1)** **Analysis** Up to 2 marks for linked analysis e.g.: • Greater use of green energy in Germany than in South Africa **(1)** so less use of fossil fuels **(1)** • Higher income/GDP in USA than in South Africa **(1)** so greater ability to spend more on home/business insulation **(1)**	**(4)**

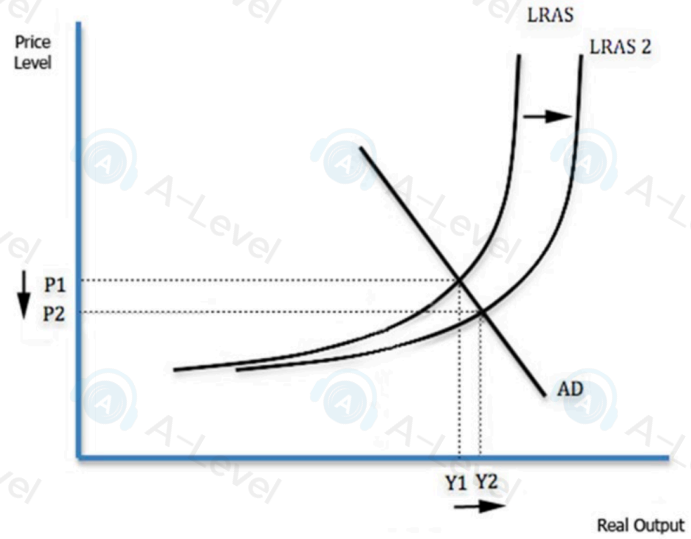
		• Higher indirect taxes in Germany than in Brazil **(1)** reducing supply from polluting firms in Germany **(1)** • EU tradable pollution permit scheme **(1)** reducing the production of carbon emissions in Germany **(1)** • Higher government subsidies to promote the use of green energy/electric cars in USA than in Brazil **(1)** so more incentive for consumers and businesses to use green energy/buy electric cars **(1)** • Difference in government policies to combat pollution **(1)** help disincentivise firms/ individuals from polluting **(1)** • Stricter environmental regulations **(1)** reducing the production of carbon emissions in Germany **(1)**	

4	**QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	**The only correct answer is D** **A** is not correct because the social optimum quantity is Q_2 and price is P_2 **B** is not correct because the market equilibrium quantity is Q_1 and price is P_1 **C** is not correct because RST is the area of welfare loss	**(1)**

Question Number	Answer	Mark
8	**Knowledge 2, Application 2** Quantitative skills assessed: **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge** 2 marks for defining 'external costs of production' • Negative impacts **(1)** on third parties **(1)** • Negative **(1)** spillover effects **(1)** • Where social marginal costs/MSC are greater than **(1)** private marginal costs/MPC **(1)** - May be shown diagrammatically • Where production leads to a cost **(1)** to third parties **(1)** **Application** 2 marks for applying to the data in the table e.g.: • Producing 1kg of lamb causes 24kg of greenhouse gas emissions/producing 1kg of poultry causes 6kg of greenhouse gas emissions/producing 1kg of beef causes 60kg of greenhouse gas emissions **(1)** • which will contribute to global warming/climate change **(1)**	**(4)**

Question	Evaluate the use of supply-side policies as a means of reducing unemployment. Indicative content
14	**Indicative content guidance** Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make, but this does not imply that any of these must be included. Other relevant points must also be credited. **Knowledge, Application and Analysis (12 marks) – indicative content** • Definition of supply-side policies; policies used by the government to increase LRAS • Explanation of how specific supply-side policies may reduce unemployment e.g. spending on education and training may reduce structural unemployment • Housing subsidies or increased provision of low-cost housing • Improved information on job availability • Encouraging business start-ups will increase demand for labour, if start-ups are non-seasonal it may reduce seasonal unemployment • Expenditure on infrastructure may increase the employment of construction workers • Deregulation of labour markets • Reduction in welfare payments • Reduction in income tax rates to increase incentives to work

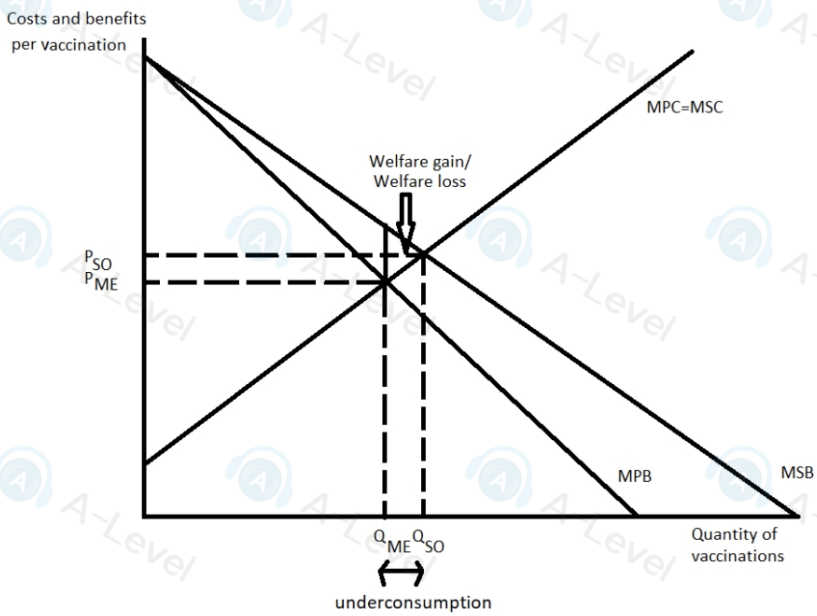
Diagrammatic analysis may be rewarded.



Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Limited application of knowledge and understanding to economic problems in context. A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.
Level 3	7–9	Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Analysis is clear and coherent. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 4	10–12	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using appropriate examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.

	Evaluation (8 marks) – indicative content • Increasing aggregate demand may reduce cyclical unemployment • Supply-side policies ineffective if AD is very low • Government spending may cause a multiplier effect increasing demand for labour • Reducing income tax or VAT will boost consumption encouraging more firm investment to increase supply reducing unemployment • If confidence is low firms will not expand and not employ more labour • Depends if the policy fits the nature of unemployment • Firms may invest in capital intensive production which may reduce employment

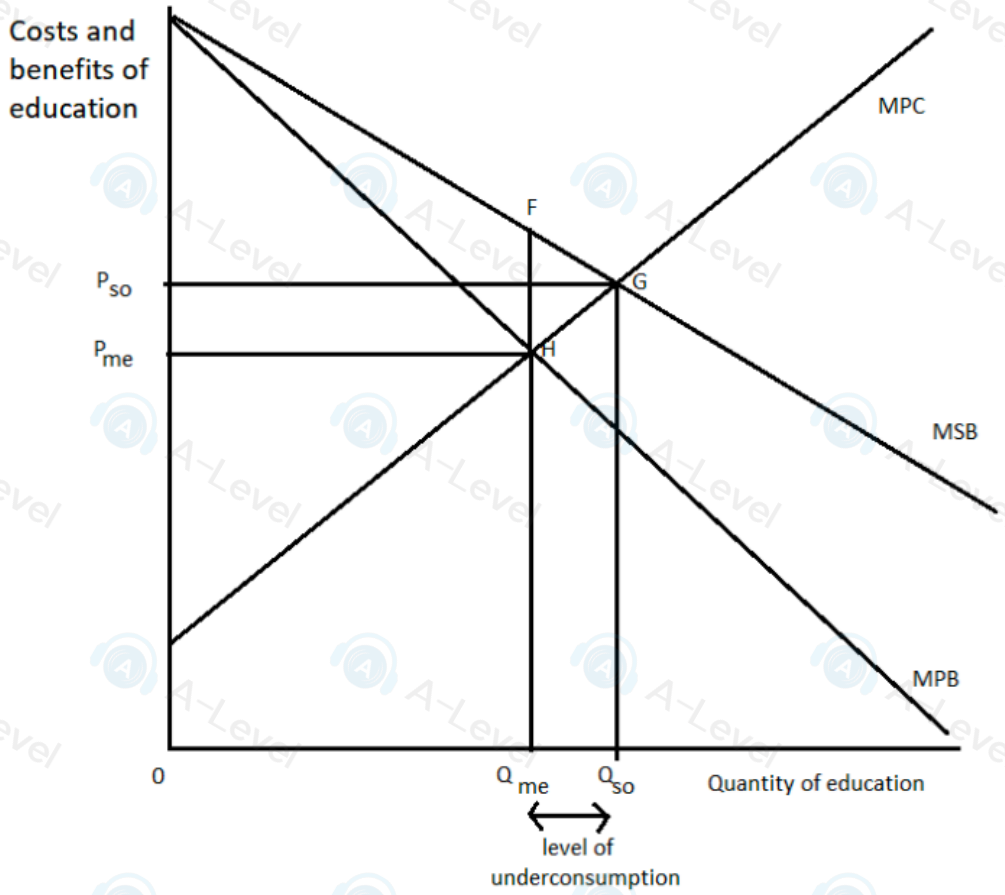
Question Number	Answer	Mark
7	**Knowledge 1, Application 3** Quantitative skills assessed: **QS4**: Construct and interpret a range of standard graphical forms **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge** 1 mark for showing knowledge on the diagram • MPB and MSB drawn in correct positions **(1)** **Application** Up to 2 marks for the following information included on diagram: • Market equilibrium **(1)** • Social optimum **(1)** • Welfare gain/loss triangle **(1)** 1 mark for the following information included on diagram or referred to in written explanation: • Clearly identifying the size of the underconsumption **(1)**	



(4)

4	**QS4**: Construct and interpret a range of standard graphical forms **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	**The only correct answer is D** **A** is not correct because Q_1 is the market equilibrium output **B** is not correct because Q_2 is the social optimum output **C** is not correct because ABC is the welfare gain	**(1)**

4	**QS4**: Construct and interpret a range of standard graphical forms **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	**The only correct answer is A** **B** is not correct because the welfare loss area is found by going up from the market equilibrium at point W **C** is not correct because this is producer surplus at the market equilibrium **D** is not correct because this is producer surplus at the social optimum	**(1)**

Question	In 2021 the number of citizens taking online education courses in the Philippines was 1 300 000. Draw a diagram to illustrate the likely external benefits resulting from online education in the Philippines. **Answer**	Mark
7	**Knowledge 1, Application 3** Quantitative skills assessed: **QS4**: Construct and interpret a range of standard graphical forms **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge** 1 mark for showing knowledge on diagram • Downward sloping MSB above MPB **(1)** **Application** Up to 3 marks for the following information included on diagram: • Market equilibrium price **and** quantity **(1)** • Social optimum price **and** quantity **(1)** • Welfare loss/welfare gain area FGH/ size of external benefit FH/ level of underconsumption Qme - Qso **(1) (allow underprovided)**  **NB accept a parallel shift of MPB to MSB**	**(4)**

4	**QS4**: Construct and interpret a range of standard graphical forms **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	**The only correct answer is D** **A** is not correct because the market equilibrium quantity is at Q_1 **B** is not correct because the social optimum quantity is at Q_2 **C** is not correct because the welfare gain area is equal to the area UWX	**(1)**

4	**QS9**: Interpret, apply and analyse information in written, graphical and tabular forms	B	**(1)**

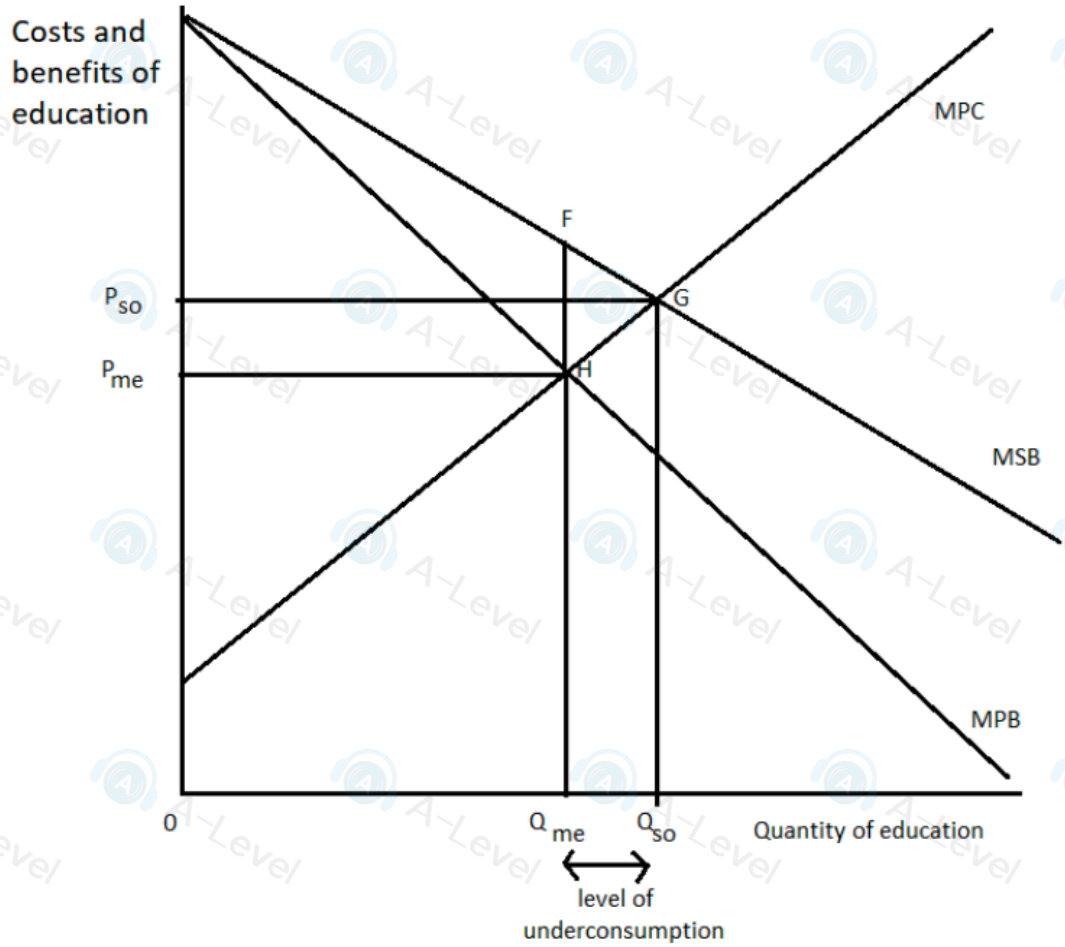
Question Number	'The HPV vaccine is recommended for all adults in the USA because it reduces the risk of cancer by 88%. If the HPV vaccine was given to all adults 925 000 cases of cancer would be prevented. However only 18.3% of adults were vaccinated between 2011 and 2014 preventing 170 000 cases of cancer.' Evaluate why only 18.3% of adults were vaccinated. Indicative content
13	**Indicative content guidance** Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make, but this does not imply that any of these must be included. Other relevant points must also be credited. **Knowledge, application and analysis (12 marks) – indicative content** • Rational consumers – will maximise their utility. • They will maximise their utility by having the vaccine as it reduces their risk of developing cancer. • Reduces risk of cancers by 88%. • Prevented 170 000 cancers- could have prevented 925 000 • US has private healthcare and low take-up may relate to costs of the vaccine. • The influence of other people's behaviour (herding) may mean people do not have the vaccine as their friends may also avoid the vaccine. • Habitual behaviour- this is a new vaccine and people will not yet be in the habit of having this vaccine. • Inertia- customers may not have the energy to arrange appointments and to have the vaccination. • Poor computational skills may exist where they cannot calculate the benefit in terms of lower cancer risk. • Asymmetric information/ information gaps may exist where people do not have enough information to calculate possible benefits of receiving vaccine compared to the costs of vaccination.

	• Government needs to better inform people of the benefits of having the vaccine or the risks of not having the vaccine. • People may fear that the new vaccine may have side effects or unknown complications- a rational decision. • People may ignore any external benefits- reducing costs to health services and leads to under consumption of the vaccine. • External benefits- benefits to third parties- so consumers may under consume-as they do not consider the third-party effects • Low income families will be unable to afford vaccinations

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Limited application of knowledge and understanding to economic problems in context. A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.
Level 3	7–9	Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Analysis is clear and coherent. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 4	10–12	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context, using appropriate examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.

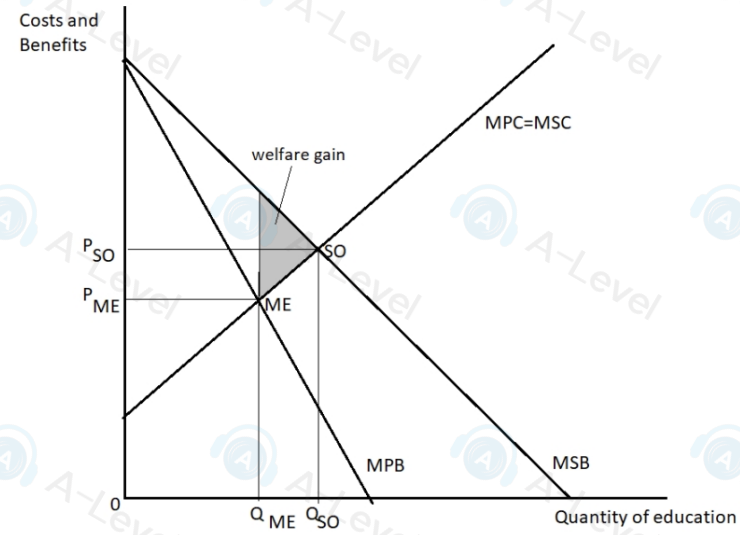
	Evaluation (8 marks) – indicative content • Measurement problem – it is difficult to measure the size of any external benefits/ it is difficult to measure truly how many cancers the vaccine would prevent- figures given are estimates. • Magnitude – a significant number not taking the vaccine with only 18.3% take up. • Time frame – in the short-term people may not take the vaccine but over the long-term with more information and more being protected more will take the vaccine. • Some may be acting rationally as they fear there are unknown problems with the vaccine. • Opportunity costs of having the vaccine. • Large numbers of poor households in the USA cannot afford the vaccine.	
Level	Mark	Descriptor
	0	No rewardable material.

Level 1	1–3	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	4–6	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	7–8	Evaluation recognises different viewpoints and/or is critical of the evidence, leading to an informed judgement. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Question	Draw a diagram to illustrate these external benefits. Answer	Mark
7	**Knowledge 1, Application 3** Quantitative skills assessed: **QS4**: Construct and interpret a range of standard graphical forms **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge** 1 mark for showing knowledge on diagram • Downward sloping MSB above MPB **(1)** **Application** Up to 3 marks for the following information included on diagram or in supporting write up: • Market equilibrium price **and** quantity **(1)** • Social optimum price **and** quantity **(1)** • Welfare loss/welfare gain area FGH/ size of external benefit FH/ level of underconsumption Qme - Qso **(1)**  **NB accept a parallel shift of MPB to MSB**	**(4)**

4	**QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms	D	**(1)**

Question	Evaluate possible microeconomic reasons education might be underconsumed **Indicative content**
14	**QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Indicative content guidance** Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited. **Knowledge, application and analysis (12 marks) – indicative content** The proportion of 25-34 year olds who had received university education: • 70% in South Korea • 50% in the USA • 28% in Italy The individual only considers their private benefits and does not consider the external benefits e.g. ▪ lower government healthcare costs as more educated typically earn more and require less healthcare, ▪ lower government welfare costs as less likely to claim benefits ▪ lower prison costs as well educated less likely to commit crimes ▪ workers are more productive when well-educated benefiting businesses ○ Results in underconsumption of education- Q_{ME}-Q_{SO} Diagram



- Information gaps- people lack information on the returns to education
- So do not know the benefits so do not invest in education
- Asymmetric information – different economic agents do not have the same information
- Consumers of education- the children and their parents may not understand the benefits of education so underestimate them and underconsume
- Rational decision- assessing the costs and benefits they maximise utility by not investing in education
- Helping at home ensures enough food can be grown to feed the family
- Working ensures the child earns money to contribute to the family's income to pay for goods and services
- In some areas large class sizes and poor-quality education lead to limited rewards from education
- Cost of education may preclude some families from being able to afford schooling university for their children
- Lack of provision of education/universities

- It may be irrational behaviour:
  - Habitual behaviour – generations not accessed education so continues
  - Poor at computation- unable to calculate the benefits of education
  - Influence of other people's behaviour- people in the community do not invest in education so others do the same/ cultural influences resulting in underconsumption

Level	Mark	Descriptor
	0	No rewardable material.

Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples. Descriptive approach, which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Limited application of knowledge and understanding to economic problems in context. A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.
Level 3	7–9	Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Analysis is clear and coherent. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 4	10–12	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using appropriate examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.

	Evaluation (8 marks) – indicative content • It is difficult to place a value on the size of any external benefits • Information is increasingly available online to correct the information failure • Universities are likely to provide information on the returns to education • Some individuals may struggle to read and do mathematics regardless of education • The estimates of the numbers not in education, not reading or doing mathematics may be inaccurate

	• May be substituting education for training to develop skills and knowledge	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	4–6	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context. Evaluation is supported by a partially-developed chain of reasoning.
Level 3	7–8	Evaluation recognises different viewpoints and/or is critical of the evidence, leading to an informed judgement. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.

Question	With reference to the information provided, explain the difference between private benefits and external benefits. **Answer**	Mark
9	**Knowledge 2, Application 2** Quantitative skills assessed: **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Knowledge** 1 mark for understanding of 'private benefits' • Private benefits are benefits/positive impacts on the buyer or seller/first/second party **(1)** 1 mark for understanding of 'external benefits' • External benefits are benefits/positive impacts on third parties/positive spillovers/ MSB > MPB **(1)** **Application** 1 mark for reference to private benefits in stem • Benefits to her neighbour, Tania, of earning revenue through selling honey/ • Benefits to Emiliana of earning revenue through selling sunflower seeds **(1)** 1 mark for reference to external benefits in stem • Emiliana's production increased from 300kg of sunflower seeds to 620kg of sunflower seeds/ • The honey bees help pollinate Emiliana's sunflowers increasing her output **(1)**	**(4)**

Question	Between 2012 and 2021 government spending on education per person per year in high-income countries increased from $7 507 to $8 515. In low-income countries the increase was from $42 to $56 per person. Evaluate the microeconomic benefits of increased spending on education. **Indicative content**
14	**Quantitative skills assessed** **QS9**: Interpret, apply and analyse information in written, graphical, tabular and numerical forms. **Indicative content guidance** Answers must be credited by using the level descriptors (below) in line with the general marking guidance. The indicative content below exemplifies some of the points that candidates may make, but this does not imply that any of these must be included. Other relevant points must also be credited. **Knowledge, application and analysis (12 marks) – indicative content** • Increased external benefits- positive impacts on third parties o Individuals become more skilled- able to access better paid jobs, resulting in more spending power that would result in increased demand for goods and services o More skilled workforce- means output per worker is higher – this will benefit a business in terms of lower costs o Higher income levels lead to more spending- tax revenue from indirect tax will increase- increasing money available to provide public services/ healthcare • Increasing production possibilities as each unit of labour is more skilled and becomes more productive- PPF shifts right and the number of capital and consumer goods that can be produced increases. Economic growth- increased productive potential • Businesses are able to produce more with the same amount of inputs so output of firms/supply may increase- shifting supply to the right and creating downward pressure on price • Reduces market failure- where the market leads to an inefficient allocation of resources- the result is greater efficiency as education is consumed at the social optimum level • Closing information gaps- where consumers or producers lack information to make rational decisions • Reducing incidences of asymmetric information- where one economic agent has more knowledge than another- reducing the likelihood of producers exploiting consumers or vice versa • Private benefits achieved by consumers of education, such as developed knowledge, improved skills, better job, higher pay, more utility from being able to buy more/better goods

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models. Use of generic material or irrelevant information or inappropriate examples.

		Descriptive approach which has no chains of reasoning.
Level 2	4–6	Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models. Limited application of knowledge and understanding to economic problems in context. A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.
Level 3	7–9	Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. Analysis is clear and coherent. Chains of reasoning in terms of cause and/or consequence are evident but they may not be developed fully or some stages are omitted.
Level 4	10–12	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context, using appropriate examples which are fully integrated to address the broad elements of the question. Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.
	Evaluation (8 marks) – indicative content • Government failures- where the spending on education results in a net welfare loss • Information gaps mean the areas of education receiving funding are not appropriate • Unintended consequences- education spending may result in an increase in supply of some workers and a decrease in supply in other areas • Excessive administration costs- to implement more education spending more needs to be spent administering it- if these costs exceed the extra funding to schools then it is a government failure • Opportunity costs- the cost of the next best alternative forgone- e.g. reduced funding for healthcare • The impact of education spending takes a long time before it affects businesses as you have to wait for people to finish their education • The increase in spending on education in low-income countries is just $14 per person which may not have a significant impact/the increase in spending in high-income countries is $1008 so is likely to have a more significant impact • The increase in spending in low income countries is 33% and high income countries 13%- so more impact in low income countries	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	Identification of generic evaluative comments. No supporting evidence/reference to context. No evidence of a logical chain of reasoning.
Level 2	4–6	Evidence of evaluation of alternative approaches. Some supporting evidence/reference to context.

		Evaluation is supported by a partially-developed chain of reasoning.
Level 3	7–8	Evaluation recognises different viewpoints and/or is critical of the evidence, leading to an informed judgement. Appropriate reference to evidence/context. Evaluation is supported by a logical chain of reasoning.