

INTERNATIONAL ADVANCED LEVEL

ECONOMICS

Exemplars with examiner commentaries Unit 1 (WEC11)

Pearson Edexcel International Advanced Subsidiary in Economics (XEC11)

Pearson Edexcel International Advanced Level in Economics (YEC11)



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Introduction

1.1 About this booklet

This booklet has been produced to support teachers delivering the Pearson Edexcel International Advanced Level in Economics specification. The Unit 1 exemplar materials will enable teachers to guide their students in the application of knowledge and skills required to successfully complete this course. The booklet looks at questions 7 to 14 from the June 2019 examination series, showing real candidate responses to questions and how examiners have applied the mark schemes to demonstrate how student responses should be marked.

1.2 How to use this booklet

Each item covered in this booklet contains:

- Question
- Mark scheme
- Exemplar responses for the selected question
- Exemplification of the marker grading decision based on the mark scheme, accompanied by examiner commentary including the rationale for the decision and guidance on how the answer can be improved to earn more marks.

The exemplification highlights the achievement of the assessment objectives at the high and mid level of candidate responses.

Centres should utilise the commentaries on the exemplification of marker decisions to support their internal assessment of students and embed examination skills into the delivery of the specification.

1.3 Further support

A range of materials is available from the Pearson qualifications website to support you in planning and delivering this specification.

Centres may find it beneficial to review this document in conjunction with the Examiner's Report and other assessment and support materials available on the [Pearson Qualifications website](#).

1.4 Assessment objectives

This document references the assessment objectives, which are as follows:

		% in IAS	% in IA 2	% in IA L
AO1	Demonstrate knowledge of terms, concepts, theories and models to show an understanding of the behaviour of economic agents	27. 5	18. 8	23. 1
AO2	Apply knowledge and understanding to various economic contexts	30	22. 5	26. 3
AO3	Analyse issues and evidence, showing an understanding of their impact on economic agents	22. 5	28. 8	25. 6
AO4	Evaluate economic arguments and use appropriate evidence to support informed judgements	20	30	25

NB: Percentages may not add up to 100 due to rounding.

Question 7

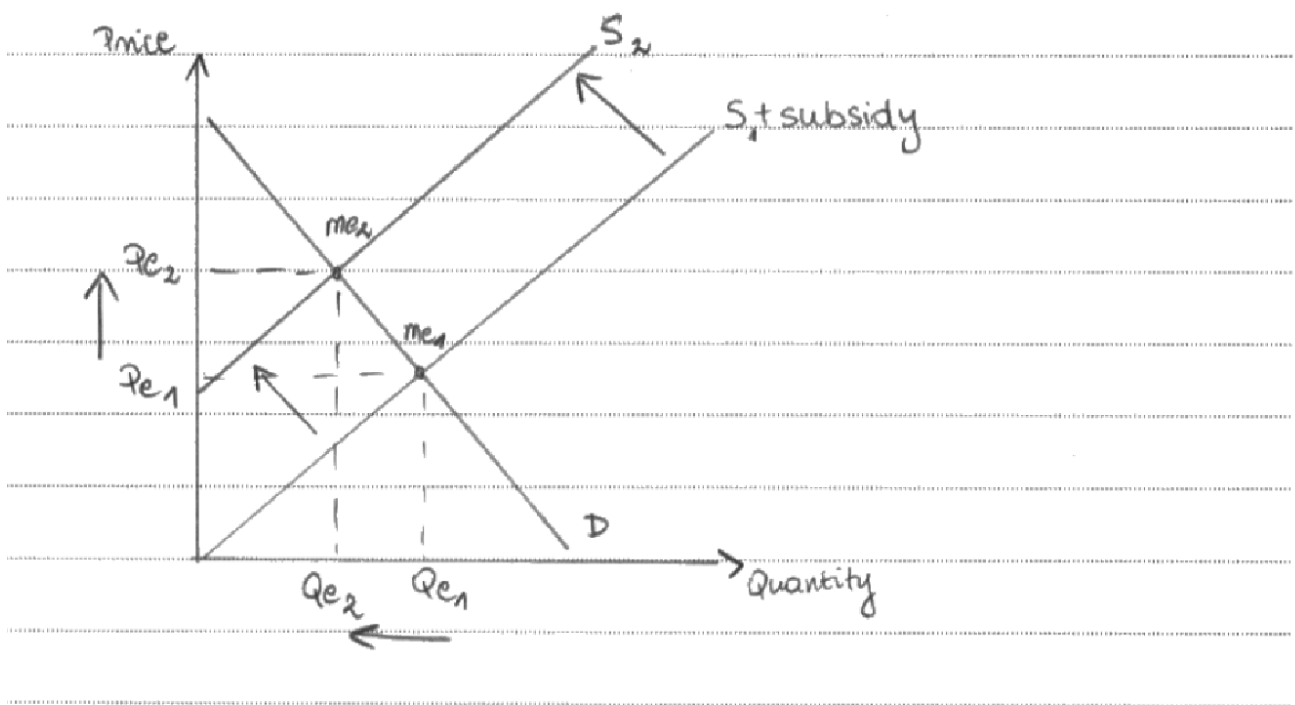
7 In 2016 the Nigerian Government removed the subsidy on petrol.

Draw a diagram to illustrate the impact of the removal of the subsidy on the equilibrium price and quantity of petrol.

Mark scheme

7	<p>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 and tabular forms.</p> <p>Knowledge</p> <ul style="list-style-type: none"> 1 mark for drawing original supply and demand (they do not have to include market equilibrium). <p>Application Up to 3 marks for the following information included on diagram:</p> <ul style="list-style-type: none"> 1 mark for drawing a supply curve to the left of original 1 mark for labelling the new higher price 1 mark for labelling the new lower quantity. 	(4)
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Exemplar response A



Examiner's comments:

This response was given 4 marks.

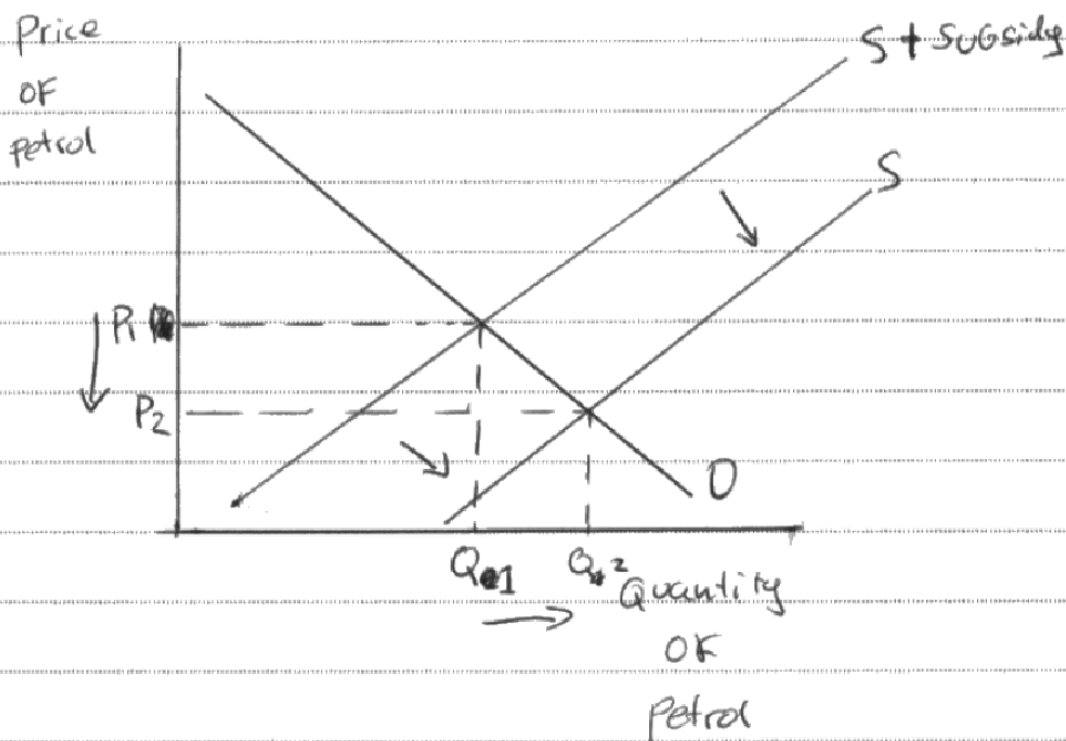
The candidate has correctly drawn the original supply and demand. They did not need to mark on the original equilibrium to gain the mark but it is sensible to have drawn the original equilibrium.

They gain the first application mark for correctly drawing the new supply curve to the left. The second mark is awarded for clearly identifying the new higher equilibrium price at Pe_2 and the final mark for the new lower quantity at Qe_2 .

They have helpfully included the arrows to show quantity falling and price rising and also the direction of the shift in supply. They have also annotated both the original supply curve, quantity and price with the same subscript. Likewise, they have correctly annotated the new supply curve, quantity and price with a different subscript.

This candidate has also focused on the question, they were asked to draw a diagram and that is all they have done. Many included a commentary with their response explaining what was happening, which gained no additional credit as the question did not ask for an explanation.

Exemplar response B



Price decreases to P_2 and quantity decreases to Q_2

Examiner's comments:

This response was given 1 mark.

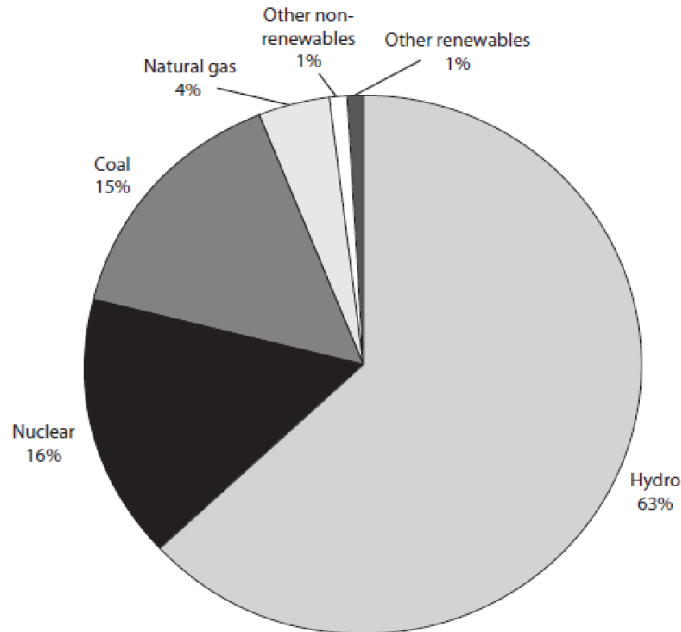
The candidate gains the knowledge mark for the original supply and demand.

Unfortunately, they have shifted the supply curve to the right and the price is lower and quantity higher. All three are wrong and no application marks are given.

To improve, candidates need to remember that the imposition or increasing of a subsidy will cause supply to shift right. By removing the subsidy, the supply curve will shift to the left.

Question 8

- 8 The chart shows how Canada's total electricity supply was generated from different resources in 2015.



(Source: <http://www.theenergycollective.com/jarretadams1/2292773/canada-working-toward-decarbonizing-its-grid>)

With reference to Canada's electricity generation, explain the difference between 'renewable resources' and 'non-renewable resources'.

Mark scheme

8	<p>Knowledge 2, Application 2</p> <p>Knowledge</p> <p>1 mark for defining 'renewable resources'</p> <ul style="list-style-type: none"> An economic resource which is not depleted by use/ replenishes after use/ can be used continuously/ be used again and again (1). <p>1 mark for defining 'non-renewable resources'</p> <ul style="list-style-type: none"> An economic resource that cannot be replaced/ replenished once used/ resource that is finite (1). <p>Application</p> <p>1 mark for applying to the Canada's energy generation for a renewable resource, e.g.:</p> <ul style="list-style-type: none"> Hydro (1) Other renewables could include solar/ wind (1) <p>1 mark for applying to the Canada's energy generation for a non-renewable resource, e.g.:</p> <ul style="list-style-type: none"> Coal/ Natural gas (1). Most electricity generated is renewable (1) 	(4)
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Exemplar response A

Renewable resources are those that are not scarce and can be reused. For example, 63% of Canada's electricity is produced through hydro-power, as it is water already-present in large water bodies, it can be used again.

Non-renewable resources are those that cannot be re-used and therefore are scarce on the planet. 15% of Canada's electricity also comes from coal which is non-renewable as it cannot be used once it is burned.

Examiner's comments:

This response was given 4 marks.

The candidate achieves the knowledge mark for defining renewable resources by explaining that they can be reused. They then achieve an application mark for identifying an example from the pie chart, i.e. hydroelectricity. The explanation as to why it is renewable did not gain any additional credit.

The second knowledge mark is achieved for defining non-renewable resources as those that cannot be reused. The second application mark is achieved by giving coal as the example for non-renewable. Again, the attempt to explain why it is non-renewable gains no additional credit.

Exemplar response B

Renewable resources are resources that could be used more than 1 time. Non renewable resources are used only once.

Looking at the graph we could see that ~~the resources~~ most resources were renewable.

Examiner's comments:

This response was given 3 marks.

The knowledge mark for defining renewable resources is achieved by making reference to the ability to use it more than once. The second knowledge mark is achieved by making reference to the ability to use non-renewable resources only once.

The candidate has then made the observation that most resources come from renewable resources, which is the final bullet point in the mark scheme.

To improve, candidates need to give specific examples of both the resources they are asked to explain the difference between.

Question 9

- 9 Singapore's economy is highly dependent on trade with the rest of the world. In 2017, Singapore's exports were 173.3% of its GDP.

Explain **one** role of financial markets in such an economy.

Mark scheme

9	<p>Knowledge 1, Application 1, Analysis 2</p> <p>Knowledge 1 mark for identifying one role of financial markets, e.g.:</p> <ul style="list-style-type: none"> • to make funds available to businesses and individuals/ • to facilitate the exchange of goods and services/ trade • to provide forward markets in commodities and currencies/ exchange of currencies • to provide a market for equities/ • to facilitate saving (1). <p>Or 1 mark for defining financial market The bringing together of buyers and sellers to exchange financial products</p> <p>Analysis Up to 2 marks for explaining how the role supports economic transactions e.g.:</p> <ul style="list-style-type: none"> • So that firms can borrow money (1) to be able to buy capital goods from abroad (1). • When consumers wish to purchase foreign goods they can pay using debit and credit cards (1) and banks will transfer money electronically to the foreign firm they buy from (1). • With commodity prices being volatile this helps create stability in terms of having a predictable price (1) which can be traded on at a future date when the goods are imported (1). • Enables firms to sell shares (1) to raise money to fund expansion to sell more goods to foreign customers (1). • So that consumers can accumulate money (1) to be able to spend on goods from abroad (1). <p>Application Up to 1 mark for applying to how this facilitates more trade in goods and services, e.g.:</p> <ul style="list-style-type: none"> • This will enable firms to increase output to be able to sell more products (1). • As buying and selling goods becomes easier the volume of international trade is likely to increase (1). 	(4)
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	<ul style="list-style-type: none"> • Contracts can be agreed with certainty ensuring more confidence and therefore more goods and services likely to be traded internationally (1). • By firms being able to grow they will be able to increase the quantity of goods they buy from abroad and sell to abroad (1). • Consumers are then able to use the savings to make larger purchases for example of cars from abroad (1). • This helps exports to reach 173.3% of its GDP (1). • Singapore depends on international trade (1). 	
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Exemplar response A

One role of the financial markets is to facilitate the exchange in goods and services. Such as, banks provide forms of money such as credit cards or debit cards, or print more money and coins in the economy to provide customers with ability to exchange money for goods.

In 2017, Singapore's exports were 173.3% of its GDP, ~~the~~ trade partners from other countries provide its citizens with ways to pay for goods that are outside of their country, such as credit cards that transactions can be carried out online from outside Singapore.

Examiner's comments:

This response was given 4 marks.

The candidate gains the mark available for knowledge by stating that financial markets facilitate the exchange of goods and services. They develop this to access analysis marks by explaining how the role supports economic transactions. The candidate does this by making reference to forms of money such as credit cards and debit cards.

They gain an application mark by making reference to the exports being 173.3% of GDP. They then gain a mark for analysis as they explain that they can use credit cards to buy goods online from outside Singapore.

Exemplar response B

Financial markets provide markets for goods and services. In this case they will allow transactions to be made between the 2 countries.

They provide a currency for foreign investors.
Exports were 173.3% of Singapore's GDP.

Examiner's comments:

This response was given 2 marks.

The candidate gains a mark for knowledge by identifying that financial markets allow transactions to be made. They gain an application mark for referring to the 173.3% of Singapore's GDP.

The candidate has not accessed any analysis marks. The candidate needs to make reference as to how consumers can make transactions; for example, by being able to pay using debit and credit cards to purchase goods or services from Singapore. Further, they needed to explain how banks can support with this; for example, electronically transferring funds from overseas firms and consumers to Singapore's firms before goods or services are then sent.

Question 10

- 10 In September 2017, Centrica increased the price of gas and electricity by 12.5%. Before the price rise Centrica had 12 800 000 customers but this fell by 800 000 after the price increase.

Ceteris paribus, calculate the price elasticity of demand for gas and electricity from Centrica. Show your workings.

Mark scheme

10	<p>Knowledge 1, Application 3 Quantitative skills assessed: QS8: Make and interpret calculations of elasticity.</p> <p>Knowledge</p> <ul style="list-style-type: none"> • 1 mark for the formula for price elasticity of demand: <u>% change in quantity demanded</u> % change in price (1) <p>OR</p> <ul style="list-style-type: none"> • 1 mark for identifying that the good is relatively price inelastic. • The demand for Centrica’s gas and electricity is price inelastic because the percentage change in price is greater than the percentage change in quantity demanded. <p>Application Up to 3 marks for calculations:</p> <ul style="list-style-type: none"> • Change in quantity ÷ original quantity -800 000 ÷ 12 800 000 × 100 = -6.25% (1) • % Change in quantity ÷ % change in price -6.25%/12.5% (1) = -0.5 (1) <p>NB: if correct answer (-0.5) is given, award full marks regardless of working</p>	(4)
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Exemplar response A

$$\text{PED} = \frac{\% \Delta \text{ in Quantity demanded}}{\% \text{ in price}}$$

$$\text{PED} = \frac{(800000 \div 12800000) \times 100}{12.5\%}$$

$$\text{PED} = \frac{-6.25\%}{12.5\%}$$

$$\text{PED} = -0.5$$

Examiner's comments:

This response was given 4 marks.

The correct answer is given at -0.5 so immediately this candidate is awarded the full 4 marks available.

These 4 marks would have been allocated in the following way: the formula is correct for the knowledge mark, the change in quantity is calculated at -6.25% for one application mark, for putting the numbers correctly into the formula they gain a further application mark, and the final application mark is achieved for the correct answer.

Another point to note is that it is important to ensure that price elasticity of demand is a negative number. Many candidates put it as +0.5 when PED is a negative number.

Exemplar response B

$$\text{PED} = \frac{\Delta\% \text{ in Quantity Demanded}}{\Delta\% \text{ in price}}$$

~~$$\text{PED} = \frac{12,800,000 - 800,000}{800,000} \times 100 = -1500\%$$~~

$$\frac{800,000 - 12,800,000}{12,800,000} \times 100 = -93.75$$

$$\text{PED} = \frac{-93.75}{12.5} = -7.5$$

In Highly inelastic PED as gas and electricity are ~~near~~ close to necessities in the majority of households

Examiner's comments:

This response was given 1 mark.

The answer given is incorrect so we check the response to see if any marks can be awarded to this candidate. The formula is offered and achieves the knowledge mark. To calculate the percentage change in quantity, the candidate has made an error in that they have calculated as if the output has fallen from 12 800 000 to 800 000 when in fact it has fallen from 12 800 000 to 12 000 000. This was a common error. They then fail to access any further marks.

When answering the question, it is important that candidates pay close attention to whether it is a change 'by' or a change 'to'. Confusing this made a big difference to their answers and marks awarded.

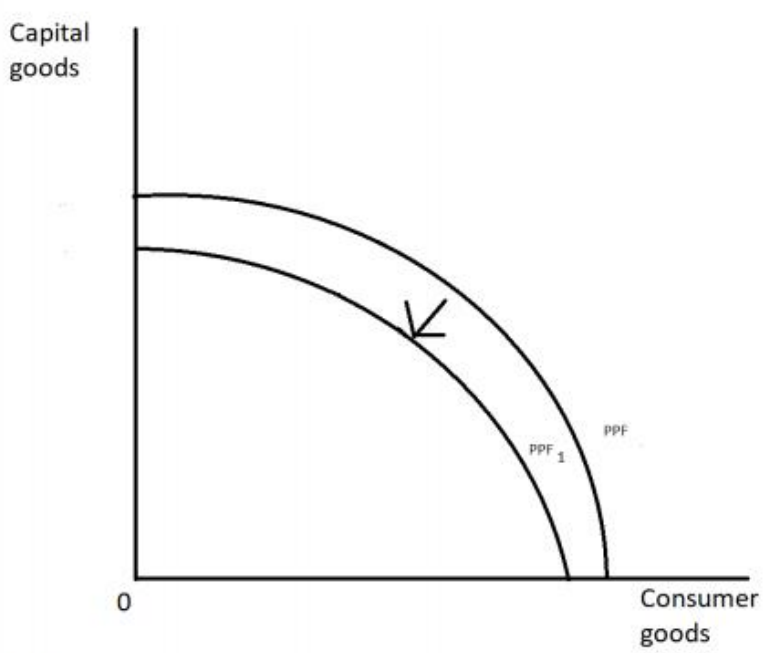
Question 11

11 Lithuania's population decreased from 3.7 million in 1989 to 2.9 million in 2015.

Ceteris paribus, explain the likely impact of this change in population on Lithuania's production possibility frontier (PPF).

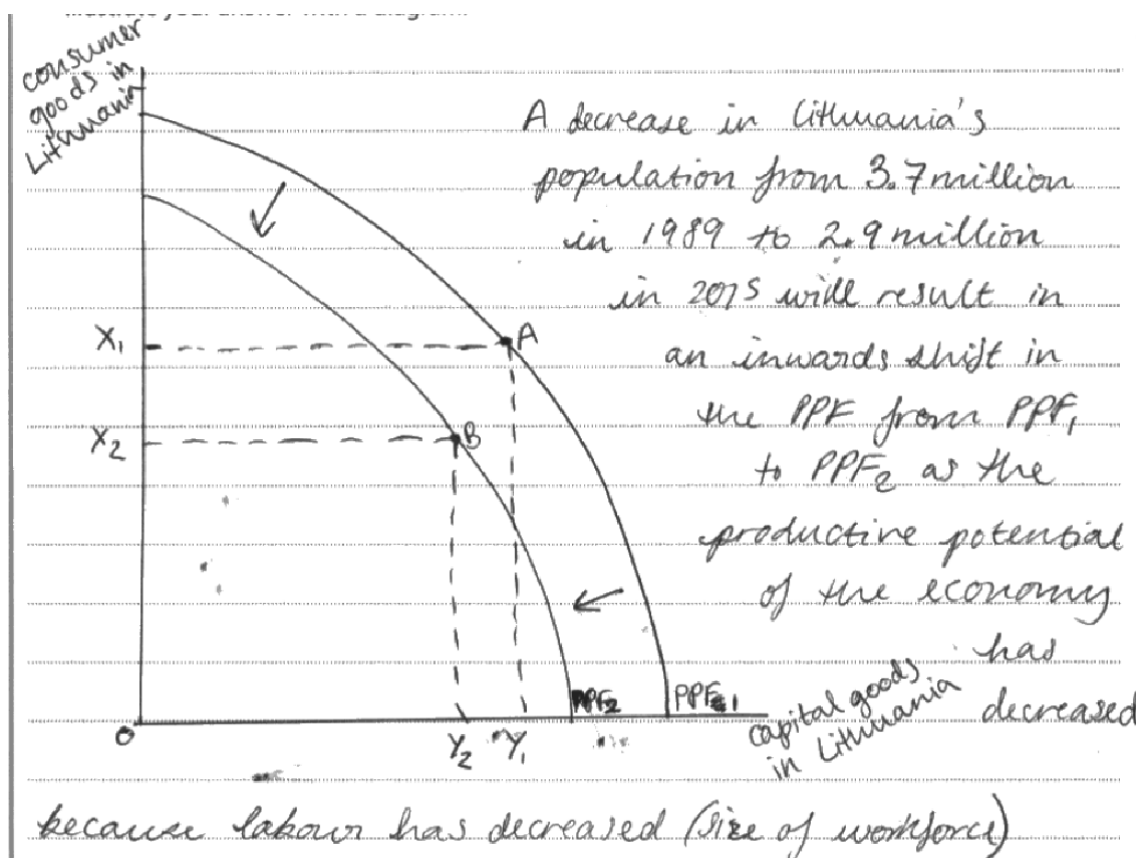
Illustrate your answer with a diagram.

Mark scheme

11	<p>Knowledge 1, Application 1, Analysis 2</p> <p>Quantitative skills assessed: QS4: Construct and interpret a range of standard graphical forms</p> <p>Knowledge</p> <p>1 mark for defining production possibility frontier:</p> <ul style="list-style-type: none">• PPF is the maximum production potential using all available resources (1). <p>OR</p> <p>1 mark for original PPF on diagram</p> <p>Application</p> <p>1 mark for the following diagram, showing the shift in PPF:</p>  <p>OR</p> <p>1 mark for reference to stem:</p> <ul style="list-style-type: none">• Population has decreased by 0.8m	
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	<p>Analysis</p> <p>Up to 2 marks for likely impact of this change:</p> <ul style="list-style-type: none"> • Production possibilities fall (1) as less labour is available (1). • Lithuania has fewer factors of production (1) so it can produce fewer consumer and capital goods (1). • Economic growth rate is likely to decline (1) as it has a smaller labour force (1). 	(4)
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Exemplar response A



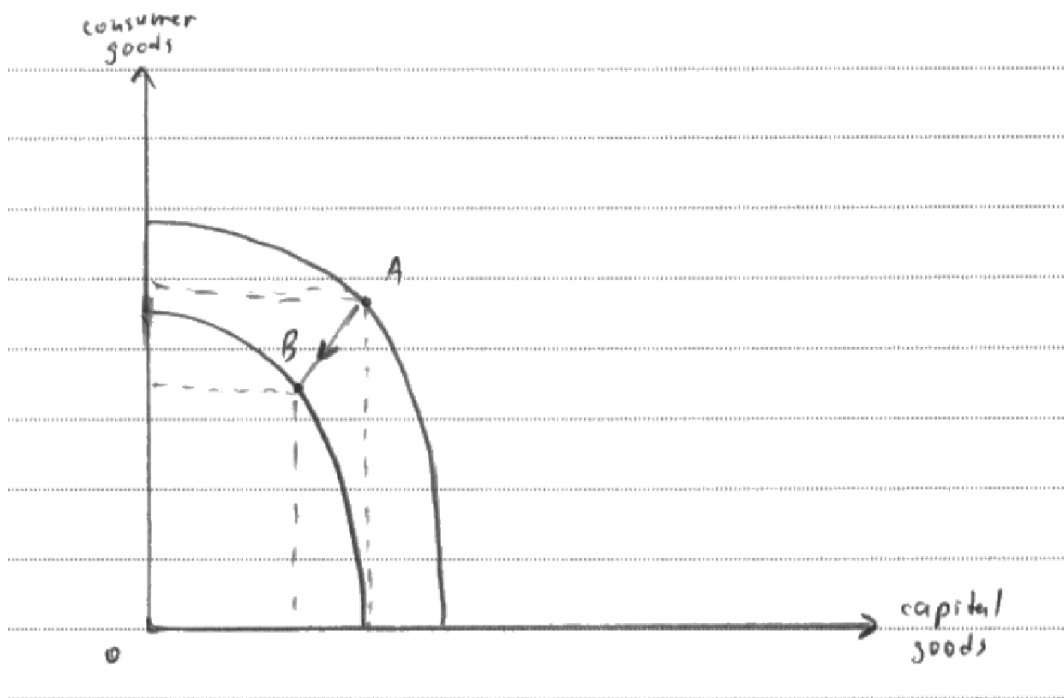
Examiner's comments:

This response was given 4 marks.

The candidate achieves the knowledge mark for the original PPF. They gain an application mark for shifting the PPF inwards. The arrow pointing inwards and reference to PPF₁ and PPF₂ are helpful in identifying the direction of the shift.

They make reference to the productive potential increasing for the first analysis mark and then making the link to the decrease in labour (size of workforce), which gains the final mark.

Exemplar response B



Examiner's comments:

This response was given 2 marks.

The candidate achieves the knowledge mark for the original PPF. They gain an application mark for shifting the PPF inwards. The arrow pointing inwards and reference to points A and B are helpful in identifying the direction of travel.

The candidate needs to attempt the analysis marks. They need to explain the impact of the fall in population. For example, referring to the population decline as causing a reduction in the size of the labour force would gain a mark. Going on to link this to how production potential would fall would gain the final mark.

Question 12(a)

12 (a) Define the term 'free good' (Extract A, line 7).

(2)

Mark scheme

12 (a)	Knowledge 2 Up to 2 marks for defining a 'free good', e.g.: <ul style="list-style-type: none">• A free good is a good with zero opportunity cost (1) This means it can be consumed in as much quantity as required without reducing the availability to others (1).• Product is so abundant (1) that it is impossible for a price to be charged (1).• Abundant in supply (1) with no opportunity cost (1).• A good that is not scarce (1) and does not have to be bought or traded (1).	(2)
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Exemplar response A

A free good is a good with no opportunity cost and so is not scarce. It is available to all. For example air. It does not have to be bought or traded.

Examiner's comments:

This response was given 2 marks.

In line with the mark scheme, any two points can be combined to access the marks. The candidate identifies that there is no opportunity cost for the first mark. The second mark is achieved for identifying that the goods are not scarce. The full marks are achieved but another knowledge mark would have been achieved for reference to it being available to all.

Exemplar response B

A free good is abundant in supply, and has no opportunity cost. For example "wild grass".

Examiner's comments:

This response was given 2 marks.

This is another response that achieves the full marks. The candidate has achieved this in a concise way: first mark for 'abundant' and second mark for 'no opportunity cost'.

Question 12(b)

Between 2008 and 2016 weekly household real income increased by 2.7% in Australia.

- (b) With reference to Figure 1, explain the likely change in quantity demanded of lamb between 2008 and 2016.

(4)

Mark scheme

12 (b)	<p>Knowledge 2 Application 2</p> <p>Knowledge</p> <p>Up to 2 marks for definitions of income elasticity of demand (YED) and inferior good:</p> <ul style="list-style-type: none"> The responsiveness of quantity demanded to a change in income. <p>OR</p> <p>Formula for YED:</p> $\frac{\% \text{ change in quantity demanded}}{\% \text{ change in income}} \quad \mathbf{(1)}$ <ul style="list-style-type: none"> Inferior good has an income elasticity which is negative (1). <p>Application</p> <p>1 mark for reference to the direction of change, e.g.:</p> <ul style="list-style-type: none"> The negative YED means that a rise in income will lead to a fall in quantity demanded /Quantity demanded will fall as income increases (1) <p>1 mark for reference to the actual change, e.g.:</p> <ul style="list-style-type: none"> The YED is less than 1 so quantity change will be less than proportional/ less than 2.7%/ 0.39% change (1) <p>NB = - (1) 0.39% (1)</p>	(4)
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Exemplar response A

IED is the responsiveness of quantity demanded to the change in income.
According to Figure one, the IED of Lamb is -0.146 , which is an inferior good, which means the higher income will cause a lower demand.
In this case, when the real income increased by 2.7% ,

$$\frac{\% \Delta Q_d}{2.7\%} = -0.146$$

$$\% \Delta Q_d = \frac{0.003942}{\cancel{0.02712}} = -\cancel{3.94\%} 0.39\%$$

the quantity demanded will fall by about $\overset{0.39}{\cancel{3.94}}\%$.

Examiner's comments:

This response was given 4 marks.

The first knowledge mark is achieved by defining income elasticity of demand. The next knowledge mark is achieved for identifying that the -0.146 makes it an inferior good. The candidate gains an application mark for identifying that higher income would lead to lower demand. They then calculate the change as -0.39% . By having the negative sign, they would gain 1 mark but this is already achieved by the mark awarded earlier. The correct value gains the final mark.

Exemplar response B

Income elasticity is the measure of responsiveness of demand for a good to a change in income. When YED is less than 1 it's inelastic. When more than 1 it's elastic. When negative it's an inferior good and demand for it decreases as income goes up. When it's positive is a normal good and demand goes up when income goes up.

$$YED = \frac{\% \Delta QD}{\% \Delta \text{Income}}$$

The YED for Lamb is -0.146 meaning when income goes up demand will go down. Since Real GDP has gone up the demand will go down for Lamb.

Examiner's comments:

This response was given 3 marks.

The candidate both defines income elasticity of demand and includes the formula and one knowledge mark is awarded for this. The second knowledge mark is awarded for identifying that inferior good is negative. They then go on to define 'elastic' and 'inelastic' and 'normal goods' and so all knowledge marks are achieved.

The candidate gains an application mark for identifying that when income rises, demand will go down.

To achieve the final mark, the candidate needed to make reference to the actual change that is either the percentage change or reference to the inelasticity, and the fact that the change in demand would be less than proportional to the change in income.

Question 12(c)

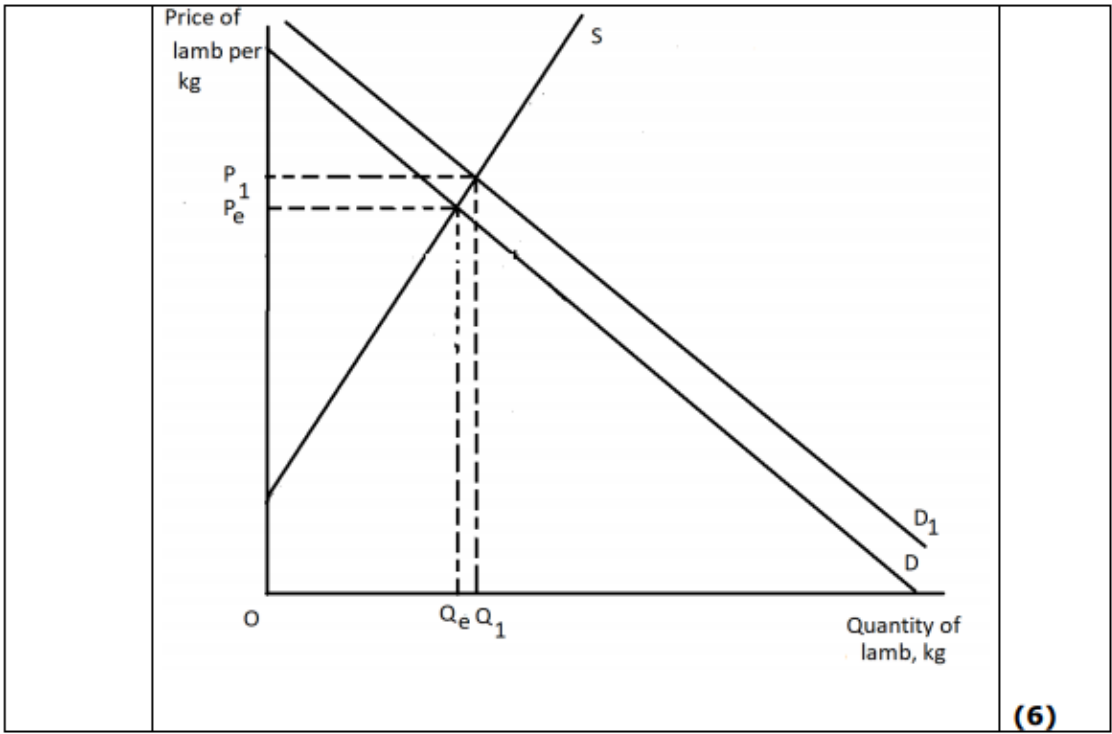
- (c) With reference to Figure 2 and Extract A, analyse **one** reason why the price of lamb increased during 2017.

Illustrate your answer with a supply and demand diagram.

(6)

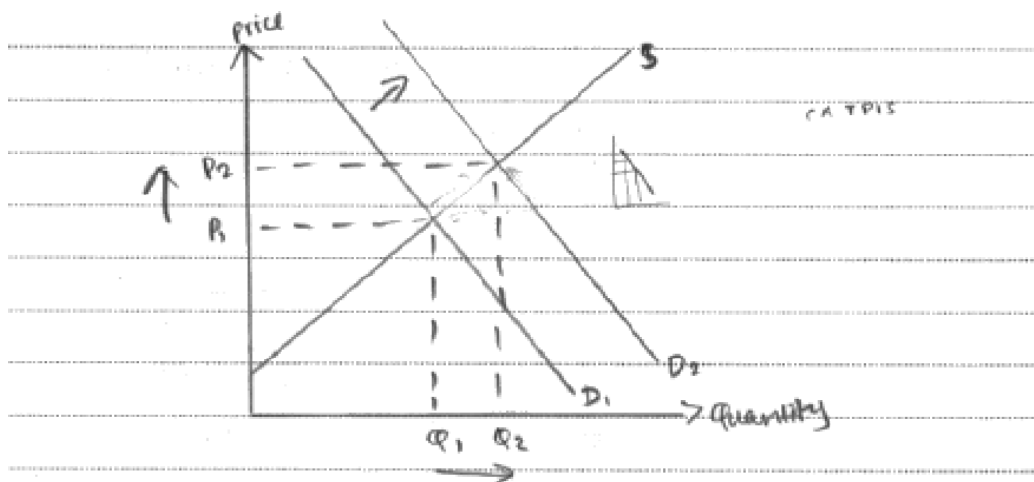
Mark scheme

<p>12 (c)</p>	<p>Knowledge 2, Application 2, Analysis 2</p> <p>Quantitative skills assessed: QS4: Construct and interpret a range of standard graphical forms QS9: Interpret, apply and analyse information in written, graphical and tabular forms.</p> <p>Knowledge 1 mark for diagram showing original supply, demand and equilibrium (1). 1 mark for identification of one reason from Extract A: <ul style="list-style-type: none"> rising incomes / demand for Australian lamb rising 28%/ demand for lamb has risen in the USA/ advertising (1). </p> <p>Application Up to 2 marks: 1 mark for the correct shift of demand on the diagram. 1 mark for interpreting data from Figure 2: <ul style="list-style-type: none"> showing any change in price from 2017 e.g. from \$5.00 in Jan 2017 to \$5.80 in Dec 2017 (1). NB accept reference to data from 2016 compared to 2017.</p> <p>Analysis Award 1 mark for development of how one reason leads to higher prices, e.g.: <ul style="list-style-type: none"> Rising incomes mean they may eat more meat and therefore buy more lamb/ with lamb being a normal good an increase in global incomes will increase demand for lamb (1). Demand for lamb rising in the USA means more competition for lamb which pushes up the price (1). The advertising campaign will generate more awareness/ interest in lamb pushing up demand (1). The increase in demand sees an extension of supply (1). PLUS 1 mark for diagram showing final equilibrium with higher price (1). </p>	
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(6)

Exemplar response A



The prices of lamb increased due to a shift in the demand curve to the right. one reason could be an increase in demand income as now ~~more~~ more people may find it ~~affordable~~ it affordable to buy ~~meat~~ ^{lamb} meat. "Rising global incomes led to a 28% increase in demand for Australian meat in 2017." since it was a global rise in ~~income~~ income, ~~and~~ demand increased in the USA as well which again gives reason why the prices increased for meat. In March Nov 2016, the price for meat lamb was \$5 per kg and it rose ~~to \$5.50~~ ^{to} in about \$5.50 in July 2017

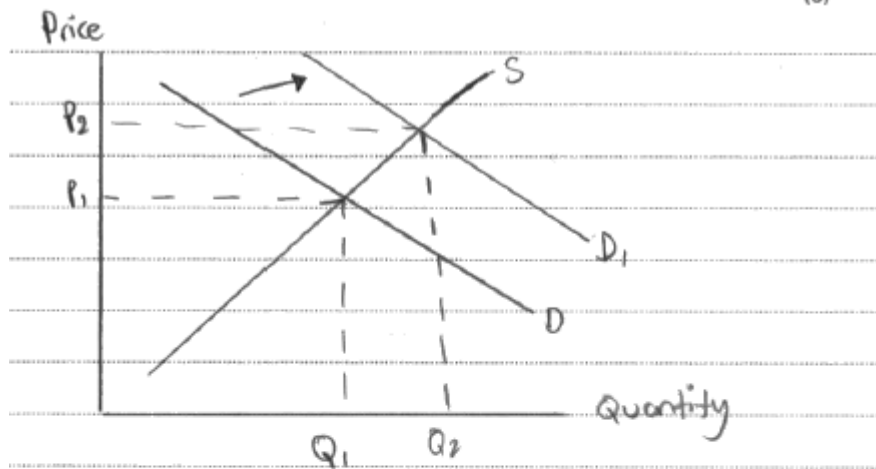
Examiner's comments:

This response was given 6 marks.

The diagram drawn achieves a knowledge mark for showing the original supply, demand and equilibrium. The diagram correctly shows demand shifting right to achieve the next mark. The final mark on the diagram is awarded for the new equilibrium price, which is clearly shown to be a higher price and quantity through use of arrows and the use of the subscript 2.

The candidate makes reference to the increase in income for the second knowledge mark. They then make reference to the product being more affordable, which is an analysis of why demand rises for the second analysis mark. The final mark is for application in noting that the price rises from \$5 to \$5.50.

Exemplar response B



As mentioned in Extract A, demand for Korean Australian lamb increased in 2017 due to rising global incomes by 28%. This ~~increase~~ increase in global incomes directly increased demand from D to D_1 , which is why the price increased from P_1 to P_2 .

Examiner's comments:

This response was given 4 marks.

The diagram achieves the full 3 marks available. The candidate has included the original equilibrium, shift in demand and the final equilibrium. They achieve a knowledge mark for identifying that real incomes rose by 28%. No further credit is available for the diagram. To improve, the candidate needed to explain how the rise in income would impact demand for the analysis mark. For the application mark, they needed to make explicit reference to the price change.

Question 12(d)

- (d) With reference to Extract B, examine the external costs resulting from increased meat production.

(8)

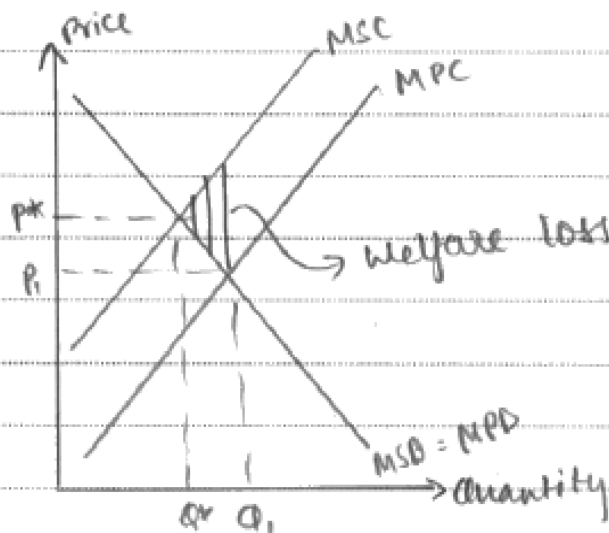
Mark scheme

<p>12(d)</p>	<p>Knowledge 2, Application 2, Analysis 2, Evaluation 2</p> <p>Knowledge Up to 2 marks for knowledge of external costs, e.g.:</p> <ul style="list-style-type: none"> • Definition of external costs: negative impacts on third parties (1) • Where the marginal social costs are greater than the marginal private costs (1). May be shown diagrammatically. <p>Application and Analysis Up to 2 marks for each linked explanation showing the external costs of meat production up to a maximum of 4 marks, e.g.:</p> <ul style="list-style-type: none"> • Meat production causes 15% of all global greenhouse gas emissions and extra greenhouse gases may contribute to global warming. This may affect farmer's ability to grow crops (1+1). • Water pollution will affect water companies who have to invest more in cleaning the water/ will affect consumers who may become ill from drinking polluted water (1+1). • Excessive use of antibiotics is also leading to resistance amongst humans which means when antibiotics need to be used they will be ineffective (1+1). • Consuming too much meat damages health costing health services to treat those affected (1+1) <p>Evaluation Up to 2 marks for two evaluative points or one evaluative point developed, e.g.:</p> <ul style="list-style-type: none"> • Whilst firms involved in meat production benefit from production other producers lose out such as water industry (1+1). • External costs must be balanced with private benefits of production/ employment is created by meat production (1+1). • Magnitude: it depends on production as to the size of external costs and 15% represents a significant contribution to greenhouse gases (1+1). • Training on how to produce in an environmentally friendly way can help reduce the size of external costs (1+1). • Measurement of the size of any external costs is difficult to determine and quantify (1+1). • Meat consumption may be just as damaging as meat production. Over time, rates of obesity, diabetes and cancer 	<p>(8)</p>
	<p>will rise (1+1)</p>	

Exemplar response A

External costs are costs imposed on third parties. $\text{social cost} = \text{private cost} + \text{external cost}$.

There are a lot of external costs involved



At P_1, Q_1 , there is market failure as resources are inefficiently allocated & $MSC > MSB$ but at P_2, Q_2 there is social marginal optimum as $MSB = MSC$.

firms are just profit maximisers so they would only take care of their private cost.

There are external costs like when people eat too much, it damages their health. This introduces a decrease in labour productivity and people ~~would~~ would not be able to ~~ex~~ work at their full potential.

When meat is produced, many ~~of~~ animals' lives are destroyed and there would be disruption in the ecosystem introducing an imbalance in ~~the~~ air increasing CO₂ emissions. They also leads to ~~global~~ global warming as there is increased ^{amount of} gases like CO₂.

However, the external costs from meat ^{production} may be ~~in~~ insignificant ^{compared to} as ~~there are~~ external costs from ~~of~~ burning fossil fuels, clearing rainforests, which may be way more drastic and ~~the~~ care of.

Examiner's comments:

This response was given 7 marks.

The candidate achieves the knowledge mark for defining external costs accurately. The diagram achieves the final knowledge mark as it illustrates that MSC is above MPC.

Under *Application and Analysis*, they gain marks for identifying that people eat too much as referred to in the article and then for making the link to health and productivity. This achieves 2 marks. They then make reference to CO₂ emissions and link this to global warming to achieve 2 additional marks.

They then offer evaluation, talk about the external costs being insignificant, i.e. from meat production as compared to burning fossil fuels. They gain 1 mark for this.

They score 7 out of 8.

They could develop the evaluation further or offer an additional evaluation point to get the final mark.

Exemplar response B

One external cost of increased meat production is the increase in pollution. It causes water pollution, which can kill marine wildlife and prove very dangerous if polluted water gets into the drinking supply.

It is also responsible for 15% of all global greenhouse emissions, and therefore it is a significant contributor to climate change.

Another external cost is the excessive use of antibiotics.

By doing this, meat producers reduce the private cost by reducing the risk of animals catching any diseases.

However, the resultant decline in the effectiveness of antibiotics means that people are at greater risk to bacterial infections.

As a result, more spending will have to be provided to healthcare and research & development.

In evaluation, it is difficult to measure the effects of increased meat production, ~~and therefore~~ ^{This} could lead to government failure if the tax is too great, as it may cause cost-push inflation or a decline in the industry.

Examiner's comments:

This response was given 5 marks.

The candidate gains an application mark for making reference to water pollution. Development of this point to talk about killing marine life and contaminating drinking water gains the analysis mark.

The candidate gains an application mark for mentioning 15% of global emissions but does not get the development mark.

They then gain an application mark for reference to excessive use of antibiotics and how people will be at greater risk. Discussion of how more research and development will be needed achieves the analysis mark.

The evaluation offered referring to the difficulty to measure the effects gains a mark. The other evaluation offered is not credit-worthy as the question does not mention a tax which would cause government failure.

To improve, candidates needed to access the knowledge marks by defining key concepts in the question, i.e. external costs. Many also drew a diagram to access the second mark.

They would also need to offer a second evaluation point or explain why it is difficult to measure the effects on external costs.

Question 12(e)

(e) With reference to Extract B, discuss the likely effects of the introduction of an indirect tax on meat.

Illustrate your answer with an appropriate diagram.

(14)

Mark scheme

12(e)	<p>Indicative content guidance</p> <p>Answers must be credited by using the level descriptors (below) in line with the general marking guidance.</p> <p>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.</p> <p>Quantitative skills assessed</p> <p>QS4: Construct and interpret a range of standard graphical forms</p> <p>QS9: Interpret, apply and analyse information in written, graphical and tabular forms.</p> <p>Knowledge, Application and Analysis (8 marks) – indicative content</p> <ul style="list-style-type: none"> • Definition of 'indirect taxation' – tax on expenditure. • Identification of ad valorem tax as percentage tax. <ul style="list-style-type: none"> • Indirect tax adds to production costs of meat producers. • Diagram of showing the introduction of an indirect tax on meat.
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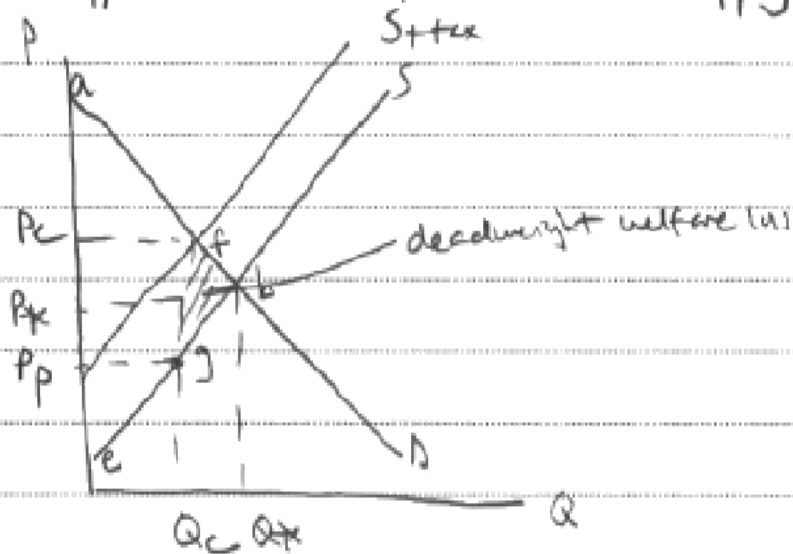
	<ul style="list-style-type: none"> • Originally the price paid by consumers was P_e but rises to P_1 • Revenue earned by meat producers per unit sold falls from $P_e \times Q_e$ to $P_2 \times Q_1$ • Consumer surplus falls from P_eVZ to P_1VW. A change/ Reduction of P_eP_1WZ. • Producer surplus falls from P_eUZ to P_2UY. • Government revenue earned from the tax P_1P_2YW. • Consumer incidence P_eP_1WX. • Producer incidence P_eP_2YX. • Quantity of meat consumed will fall from Q_e to Q_1 • External costs reduced: <ul style="list-style-type: none"> ○ Reduced greenhouse gas emissions ○ Reduced water pollution ○ Reduced chance of resistance to antibiotics ○ Reduced damage to health- obesity, diabetes and cancer-reducing costs to health services • Welfare loss from overconsumption will be reduced. • Deadweight loss WYZ. • Helps to meet Paris agreement target on carbon emissions. • 40% tax on beef, 20% on dairy products and 8.5% on chicken would save 500 000 lives a year and reduce emissions. • Total revenue earned by meat producers may fall. • Profits generated by meat producers may fall. • Employment in meat production may fall. • Impact on consumers living standards with such a large tax.
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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. Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer. 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 3	7–8	Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models. Ability to link knowledge and understanding in context using

		<p>relevant examples which are fully integrated to address the broad elements of the question.</p> <p>Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.</p>
	<p>Evaluation (6 marks) – indicative content</p> <ul style="list-style-type: none"> • Magnitude of size of tax is important. Suggested 40% tax on beef significant so likely to have a large impact. • Measurement – it is hard to measure what the ideal tax rate is for each meat/ Hard to measure the external costs associated with each meat. • Farmers/ meat producers may earn less income and lead some to leave the industry. • May create government failure as some may trade illegally to avoid or evade taxation. • Demand for some meats may be price inelastic meaning little change in quantity demanded; larger change in price, larger consumer incidence. • Indirect tax affects lower income families more as the tax will represent more of their total income. 	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–2	<p>Identification of generic evaluative comments.</p> <p>No supporting evidence/reference to context.</p> <p>No evidence of a logical chain of reasoning.</p>
Level 2	3–4	<p>Evidence of evaluation of alternative approaches.</p> <p>Some supporting evidence/reference to context.</p> <p>Evaluation is supported by a partially-developed chain of reasoning.</p>
Level 3	5–6	<p>Evaluation recognises different viewpoints and/or is critical of the evidence.</p> <p>Appropriate reference to evidence/context.</p> <p>Evaluation is supported by a logical chain of reasoning.</p>

Exemplar response A

Indirect tax is tax put on expenditure on goods and services. An indirect tax, results in higher costs for suppliers and therefore decreases supply.



Consumer surplus + producer surplus decreased.

Original c.s = $P_m \times ab$

Original p.s = $P_m \times be$

New c.s = $P_c \times af$

New p.s. = $P_p \times pe$

An indirect tax would result in a lower supply due to high production costs. A lower supply would result in higher prices for consumers. If PED of meat is elastic, this will result in a higher than proportionate decrease in demand (so incidence of tax falls mainly on supplier). If PED is inelastic, incidence of tax will fall mainly on consumer, so quantity demanded of meat will fall dramatically.

The effects of an indirect tax have a high magnitude. A study found "a 40% tax on beef, a 20% tax on dairy products and a 8.5% tax on chickens would reduce emissions and save 500 000 lives a year". 500 000 is a very large number, so effects are positive. However, an indirect tax could result in government failure (government intervention results in net welfare loss) if there is imperfect information (information gaps). Moreover, an indirect tax would affect people with lower income more, this results in inequality and might even result in poverty (government failure). Furthermore, meat is only a small proportion of people's income, most of the time, so the effect wouldn't be that large.

There is also another way to reduce emissions: the government should provide information to the people about the negative effects of meat production and consumption. Now, there is information failure, as "problems associated with meat production are not well-known by the public" (market failure), so if government intervened and provided information using the internet, posters, etc, there would be symmetric information + people would have better reputation skills, resulting in lower demand of meat.

However, lower demand of meat + lower supply will result in less revenue + less profit for producers.

The tax revenue could be used to improve services or technology, increasing the living standard of people.

Examiner's comments:

This response was given 11 marks.

An accurate definition is offered and links to higher costs. The diagram is accurate although again, it would have been better if it had been drawn as an ad valorem tax. What is useful here is that the candidate has clearly identified original and new consumer surplus and producer surplus.

The comments about elasticity and how this would impact on the quantity demanded is Level 2 evaluation. Linking to whether it is likely to be elastic or inelastic would support accessing Level 3.

The candidate then links to the magnitude and refers to data again, accessing Level 2 for evaluation. The reference to government failure if information failure occurs is Level 2. Unequal effects on different income groups is also Level 2.

The discussion of information provision being better does not really add to the performance of this response. The link to producer revenue and profit and the reference to the use of the tax revenue does not improve the levels achieved by this response.

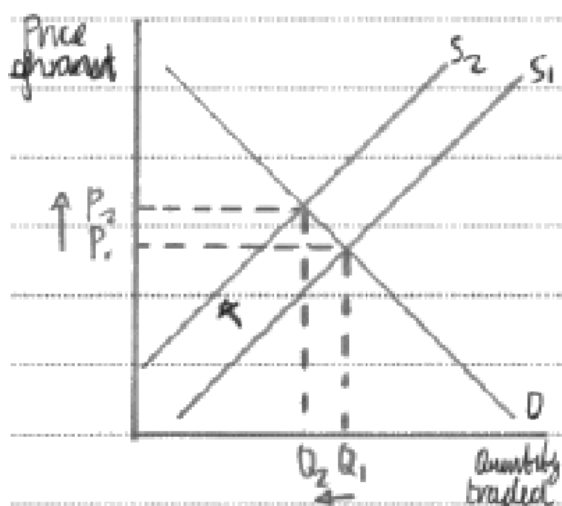
For *Knowledge* as well as *Application and Analysis*, they have shown accurate and precise knowledge, made reference to the context and offer clear, coherent and relevant analysis. This just moves this response in to Level 3 and score 7.

For *Evaluation*, they achieve Level 2 and score 4.

The total score is 11.

Exemplar response B

An indirect tax is a ~~tax~~ tax on ~~expend~~ expenditure and unlike a subsidy it is often used to discourage production as it raises costs and reduce the ~~the~~ market failure external costs and thus the market failure ~~cost~~ associated with an ^{negative} production externality. Imposing an ^{indirect} tax would have the following effect:

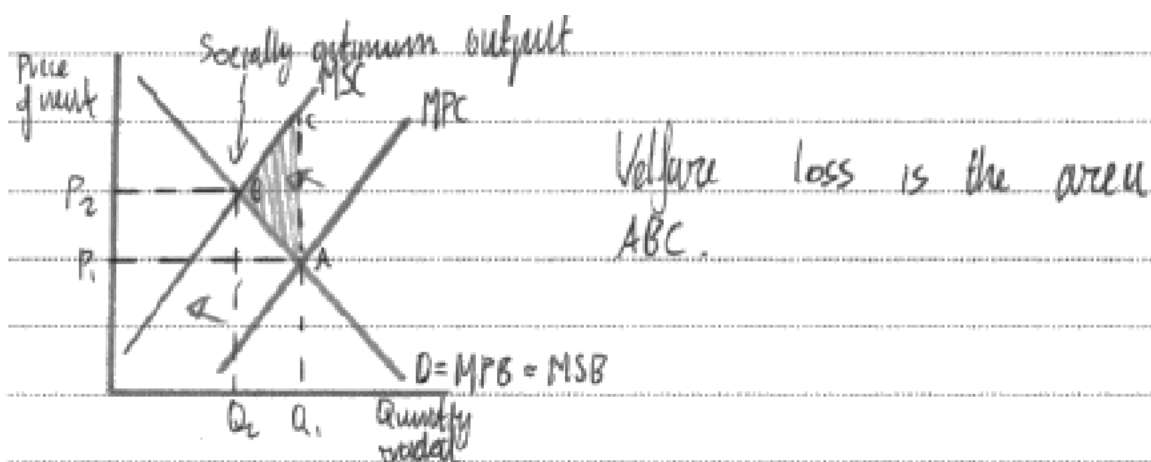


We can see that an indirect tax shifts supply inwards, pushes price upwards, and decreases the quantity.

If this were to be done with merit it would have the aforementioned effect and as

stated in Extract B, "a 40% tax on beef, 20% ... since 500 000 lives a year". This happens because the external costs of meat consumption have adverse health risks and ~~taxes~~ indirect taxes force firms to cut back on production due to increased costs of production, therefore the health risks are reduced due to the increased price from the ~~tax~~ shift in supply. However it is important to note the price elasticity of demand for meat because it would affect the ~~taxes~~ tax's effectiveness. The more price inelastic meat is the less effect it will have on people's health as the quantity demanded won't decrease as much. Therefore governments may find it more beneficial to ~~just~~ just provide the people with information about the external costs as people are not well informed according to the extract.

In theory the indirect tax should decrease the welfare loss as it should shift the marginal private cost towards the socially optimum output.



The decreased production should therefore reduce pollution such as greenhouse emissions and water pollution. However even though future pollution is reduced the effects of pollution before the tax are mostly permanent.

Not only this but due to the nature of taxes and their predictability, it is tough for governments to know how much tax to impose and how much it will reduce it's effects, it may be too little or too much.

Examiner's comments:

This response was given 9 marks.

The candidate starts by accurately defining an indirect tax. They make reference to the impact of indirect tax in raising costs and reducing external costs to access Level 2. The diagram accurately depicts an indirect tax showing the change in price and quantity. Had the candidate accurately drawn an ad valorem tax, they would have accessed a higher level. They refer to the diagram in the following analysis but better responses would refer specifically to point on the diagram, e.g. reference to P_1 and P_2 . The diagram and its use in the analysis is Level 2.

Responses that went beyond the impact on price and quantity and e.g. explored consumer and producer incidence or surplus were able to score more highly.

The response then refers to data from within the extract and this is analysed by linking the tax to how it reduces external costs. This is a strong Level 2 response.

The candidate then offers evaluation and link to price elasticity of demand and how inelastic demand would see little impact of the tax. What is useful here is that they link this to the impact on health. They then recommend an alternative policy and explain why it will be preferable.

They also refer to external costs, including a diagram. This strengthens the *Knowledge, Application and Analysis* to being more secure within Level 2.

Another evaluation point offered is that the previous effects are permanent. This is less well-developed.

They finish with an evaluation about setting the right tax.

The *Knowledge* as well as *Application and Analysis* achieve Level 2 and 6 marks. The *Evaluation* is also Level 2 and achieves 3 marks.

To improve the *Evaluation*, it is important to make the point, develop it and ensure that it is fully in the context of the question.

Question 13

- 13 '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.

(Total for Question 13 = 20 marks)

Mark scheme

13	<p>Indicative content guidance</p> <p>Answers must be credited by using the level descriptors (below) in line with the general marking guidance.</p> <p>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.</p> <p>Knowledge, application and analysis (12 marks) – indicative content</p> <ul style="list-style-type: none"> • 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.
<p>Evaluation (8 marks) – indicative content</p> <ul style="list-style-type: none"> • 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.

Exemplar response A

A merit good is a good that is underprovided by the market in an economy. The HPV vaccine is an example of a merit good.

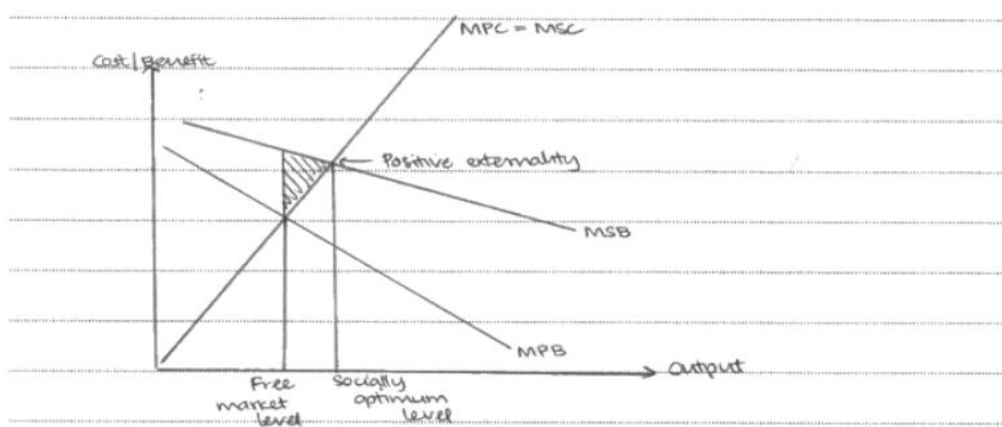
According to the extract, the HPV vaccine is recommended for all adults in the USA because it reduces the risk of cancer by 88%. If the HPV vaccine was given to all adults, 925 000 cases of cancer would likely be prevented.

A rational consumer would indeed try to maximise their utility or satisfaction through this and take the vaccine. However, as mentioned in the extract, only 18.3% of adults were vaccinated between 2011 and 2014, preventing only 170 000 cases out of 925 000 cases of cancer.

This shows that consumers were not behaving rationally. This may have been due to imperfect information or 'information asymmetry'.

Information asymmetry is a condition where only one party has ~~felt~~ more information than the other party. In this case, only the US government or health sector is aware of this information but the public is unaware. Hence, it is underconsumed and underprovided.

A ^{positive} negative externality is a ^{positive} ~~negative~~ spillover effect on third parties who are not involved in the economic transaction. Here the $MSB > MPB$.



The free market level is where $MPB = MSC$ and the socially optimum level is where $MSB = MSC$. Since the free market level is below the socially optimum level, there is underconsumption.

The private benefits of the HPV vaccine are to reduce the chances

of cancer and improve the immunity of the people.

The external benefits of HPV vaccine is a more healthy workforce, leading to increased productivity and reduced health issues. This will benefit firms employing labour as well as the economy, as output per worker may increase and the PPC will shift to the right, causing economic growth.

However, due to information asymmetry, people are unaware of the private and external benefits of the HPV vaccine. Hence there is underconsumption.

But by the government providing free of charge medical services and campaigns, the consumers will be more aware and thus consume the HPV vaccine.

As a result, the market economy will move to the socially optimum level.

However, it is difficult to exactly measure the externality and provide a monetary value on it. Also, since the government and health sector of the economy carry out the research, their results too may be prone to information asymmetry.

Further, the government may incur administrative costs to provide free of charge medical ^{campaigns} services to improve the consumers' awareness. This may lead to government failure as it can affect the budget, leading to budget deficit.

Next, there is an increasing opportunity cost to the government. This means that instead of spending on health services, the US government may have spent on education or infrastructure to improve the ~~current~~ current state of the economy.

Lastly, the theory of behavioural economics can be

brought forward to state that it may not be information asymmetry that causes consumers to behave irrationally, but rather other factors such as inertia, habit or even herding.

Thus, it can be concluded that information asymmetry is the main cause for ~~so~~ people to underconsume the HPV vaccine and through the government spending

Examiner's comments:

This response was given 15 marks.

This candidate starts by identifying the vaccine as a merit, without explaining what this means. They make reference to the fact that the rational consumer would maximise utility to prevent cancer. They then go on to explore the fact that only 18.3% have the vaccine (this suggests that the irrational consumer). The candidate considers imperfect information although they refer to it as information symmetry. They clearly understand it though as they explain how the government has information but the public is unaware.

They next explore positive externalities and integrate an accurate diagram to show the underconsumption. They then go on to link to the external benefits by discussing impact on firms and productivity. They then link this to information asymmetry.

In the evaluation, they do consider the government's role in filling this information gap. They also evaluate by looking at the difficulty in measuring the externality and issues with the government in collecting information.

They look at opportunity costs but this is not really focused on the question set. They consider a range of reasons for rationality but these are not discussed in detail. A conclusion is offered but this is not fully justified.

The *Knowledge* as well as *Application and Analysis* show a weak Level 3. They demonstrate accurate knowledge and understanding of relevant concepts. They are able to apply knowledge and understanding in the context of the vaccination. Analysis is clear and coherent and they do offer chains of reasoning. This is, however, not fully developed and scores 9.

For *Evaluation*, it is Level 2. The candidate uses evidence of alternative approaches with some supporting evidence and links to context. There is a partially developed chain of reasoning and so the response scores 6.

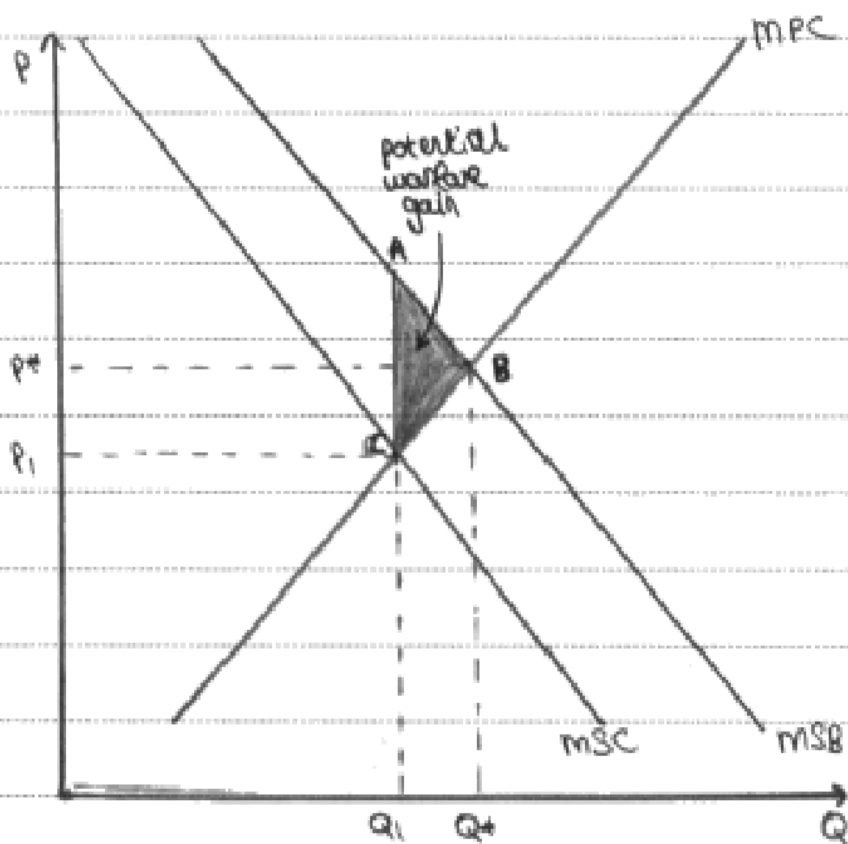
Exemplar response B

The HPV vaccine is an example of a good whose consumption has created a positive externality on society.

One reason as to why only 18.3% of adults received HPV vaccinations may be due to asymmetric information. This is when there is an inequality in the information shared between producers and consumers, leading to market failure.

As a result, many people may not hear about the vaccine and therefore ~~don't~~ do not experience the social benefit.

Another reason may be because of irrational behaviour. ~~This could~~ An example of this being the belief that vaccines cause autism, which would cause those who do know about the vaccine to intentionally not receive it. The number of people choosing not to receive the vaccine would be higher in states that have lower literacy rates and poorer education systems, such as ~~the~~ Alabama.



This diagram highlights the benefits of consuming more vaccines. At Q_1 , the marginal social benefit outweighs the marginal social cost, although there is a higher marginal private cost. By increasing quantity demanded from Q_1 to the social optimum Q^* , there is a potential welfare gain of ABC . In addition, at equilibrium P_1, Q_1 , the marginal social benefit outweighs the marginal social cost, although there is a higher marginal private cost.

Another reason as to why so many people did not receive the vaccine may be due to the fact that they cannot afford the vaccine. A vaccine with such a significant ~~fall in~~ ~~not~~ effect would undoubtedly not be free. As a result, there may be those who have no choice, and decide ~~other~~ that other necessities such as food, running water and electricity are more important to them than receiving the vaccine. Therefore, the opportunity cost of them not receiving the vaccine is less than the opportunity cost of them receiving it.

Furthermore, there may ~~also~~ ^{rural} also be people who live in remote [^] areas, such as forests. As a result, they are isolated from society and do not receive information about the vaccine.

In evaluation, ~~some~~ people may also be lazy. If they do not know anyone who has had cancer or do not fully understand the seriousness of it then they may treat it as a distant issue.

Another evaluative point is that cancer is not an infectious or contagious disease. As a result, certain individuals may feel inclined not to receive the vaccine, because

it cannot be spread, and therefore a vaccine would not help.

Another evaluative point is due to the opportunity cost to individuals of receiving the vaccine. Those on low incomes may feel that other necessities - such as food, water and electricity - are more important to them than ~~see~~ receiving the vaccine. As a result, the opportunity cost to the individual of not receiving the vaccine is less than than choosing to receive the vaccine.

Examiner's comments:

This response was given 9 marks.

The candidate accurately starts by identifying that vaccinations create a positive externality. This, however, is undeveloped and does not look at how it is creating positive externalities and limits consumption of the good. They then identify asymmetric information and offer some basic development of how people are not aware of the vaccine so do not have it as a result.

The candidate looks at irrational behaviour and links it to autism scares, the education system and literacy rates. This section accesses Level 2.

The next section then returns to positive externalities by way of diagram but it is inaccurate. This section adds nothing to the quality of the response.

Next, they explore affordability and link this to opportunity costs to access Level 2. They also consider those living in rural areas and lacking access. They attempt to offer evaluation although it seems to reiterate the point about information failure.

The following evaluation point is better as it makes reference to cancer not being infectious/contagious and how this will mean people will worry about it less. They then look at opportunity costs and how people on low incomes will prioritise other consumption.

For *Knowledge* as well as *Application and Analysis*, they have managed to offer sufficient development to achieve the middle of Level 2. They score 5/12. For *Evaluation*, they have offered some basic points with basic development. Because this just accesses Level 2, they score 4/8.

To improve, the candidate needed to offer further development of the reasons why people did not vaccinate. More should have been linked to vaccinations, specifically to ensure the work was in context. For evaluation, they needed to develop the response ensuring it was within the context of the question.

Question 14

14 '12 million consumers within the UK are on standard variable tariffs for their gas and electricity. One energy supplier, RWE npower, charged consumers on the standard variable rate £1 166 per year. However, its cheapest deal was £935 per year. Consequently the UK Government is introducing a maximum price for gas and electricity.'

Evaluate the likely impact of the introduction of a maximum price for gas and electricity.

(Total for Question 14 = 20 marks)

Mark scheme

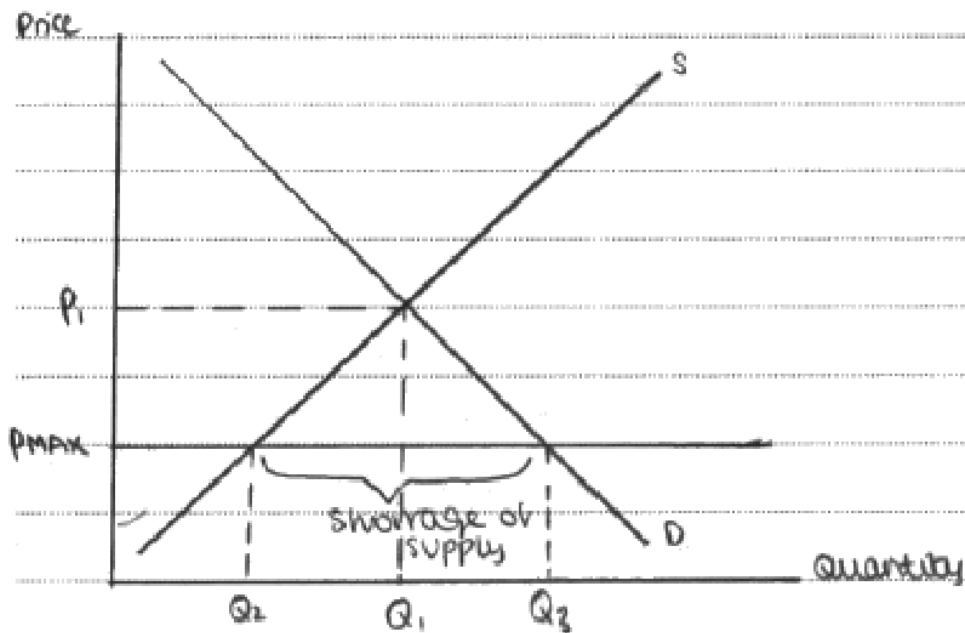
14	<p>Indicative content guidance</p> <p>Answers must be credited by using the level descriptors (below) in line with the general marking guidance.</p> <p>The indicative content below exemplifies some of the points that candidates may make but this does not imply that any of these must be included. Other relevant points must also be credited.</p> <p>Knowledge, application and analysis (12 marks) – indicative content</p> <ul style="list-style-type: none"> • Maximum price- the price ceiling above which price cannot be charged. • The idea is to protect consumers from being charged very high prices for gas and electricity. • When they pay £1 166 it is a high price compared to the cheapest deal- £231 more expensive. • Diagram may be offered. <div style="text-align: center;"> </div> <ul style="list-style-type: none"> • The price charged to standard variable rate customers should fall from P_e to P_{max}. • This will see a contraction in quantity supplied to Q_s as providing
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		<p>the good is less profitable.</p> <ul style="list-style-type: none"> • The lower price will see an extension in demand to Q_D as product is more affordable. • Maximum price causes excess demand/ a shortage. • Consumer surplus will rise for those being charged a lower price. • Producer surplus will fall. • Total revenue and profit may fall for electricity and gas providers. • Could reduce choice to consumers as some firms may decide to leave the market, further increasing the shortage in the future. • The emergence of informal activities, alternative sources of energy.
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	<p>Displays isolated, superficial or imprecise knowledge and understanding of economic terms, principles, concepts, theories and models.</p> <p>Use of generic material or irrelevant information or inappropriate examples.</p> <p>Descriptive approach, which has no chains of reasoning.</p>
Level 2	4–6	<p>Displays elements of knowledge and understanding of economic terms, principles, concepts, theories and models.</p> <p>Limited application of knowledge and understanding to economic problems in context.</p> <p>A narrow response or superficial, only two-stage chains of reasoning in terms of cause and/or consequence.</p>
Level 3	7–9	<p>Demonstrates accurate knowledge and understanding of economic terms, principles, concepts, theories and models.</p> <p>Ability to apply knowledge and understanding to some elements of the question. Some evidence and contextual references are evident in the answer.</p> <p>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.</p>
Level 4	10–12	<p>Demonstrates accurate and precise knowledge and understanding of economic terms, principles, concepts, theories and models.</p> <p>Ability to link knowledge and understanding in context using appropriate examples which are fully integrated to address the broad elements of the question.</p> <p>Analysis is clear, coherent, relevant and focused. The answer demonstrates logical and multi-stage chains of reasoning in terms of cause and/or consequence.</p>
		<p>Evaluation (8 marks) – indicative content</p> <ul style="list-style-type: none"> • Measurement problem – what level should maximum price be set at. • Magnitude – depends on level of maximum price as to whether it

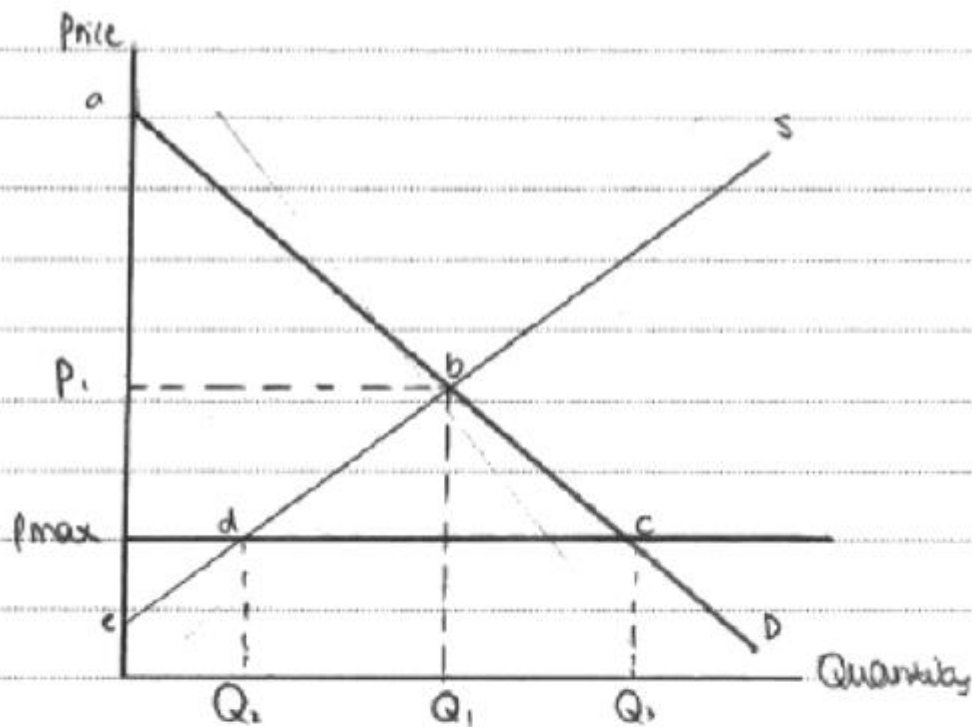
		<p>will have desired impact/ 12 million may benefit from this policy.</p> <ul style="list-style-type: none"> • Time frame – it will take time for the maximum price to be implemented. • Consumers may be worse off if they cannot secure a supplier as supply contracts. • Regulators will ensure customers still receive supply. • Firms may change the way they charge to get around the maximum price. • Long term energy supply problems if maximum prices discourage investment in the industry. • Demand likely to be inelastic so little change in quantity
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	<p>Identification of generic evaluative comments.</p> <p>No supporting evidence/reference to context.</p> <p>No evidence of a logical chain of reasoning.</p>
Level 2	4–6	<p>Evidence of evaluation of alternative approaches.</p> <p>Some supporting evidence/reference to context.</p> <p>Evaluation is supported by a partially-developed chain of reasoning.</p>
Level 3	7–8	<p>Evaluation recognises different viewpoints and/or is critical of the evidence, leading to an informed judgement.</p> <p>Appropriate reference to evidence/context.</p> <p>Evaluation is supported by a logical chain of reasoning.</p>

Exemplar response A

A maximum price is the highest amount a producer can charge for a product. It acts as a price ceiling, and ~~prevents consumers from being~~ enables all consumers to be able to afford the product's good / service.



The diagram above shows the impact of a maximum price on the market for gas and electricity. There will be a shortage of supply $Q_3 - Q_2$.



Consumer surplus is likely to ~~also~~ increase from P_i, b, a to P_{max}, c, a . Comparatively producer surplus will significantly decrease from P_i, b, c to P_{max}, d, c . This may cut firms' profits and revenues, removing their incentive to supply more. Firms may lose too much money and lower their investment, or even reduce their demand for labour, ~~increasing~~ leading many workers to become unemployed.

On the other hand, consumers of all incomes will more likely be able to afford gas and electricity, improving their living standards and quality of life.

Consumers will consume more electricity, for purposes like heat or ~~air~~ air conditioning, hence they may be more productive and efficient at their places of work. It would be easier or cheaper for consumers to purchase a car, as gas ~~is~~ is ~~cheaper~~ more affordable. This would significantly cut transport costs, encouraging those that take public transport to start travelling privately, allowing people to get to work faster and be productive for longer hours.

A large portion of ^{the average} a consumer's disposable income is likely to go towards paying bills such as gas and electricity. Hence a significant reduction in the prices of gas and electricity, will enable consumers to enjoy a larger portion of their disposable income.

On the other hand, with an increase of private vehicles on the road, there's a higher possibility of congestion and pollution occurring, being emitted. This is harmful to the natural environment and could cause future problems, such as climate change.

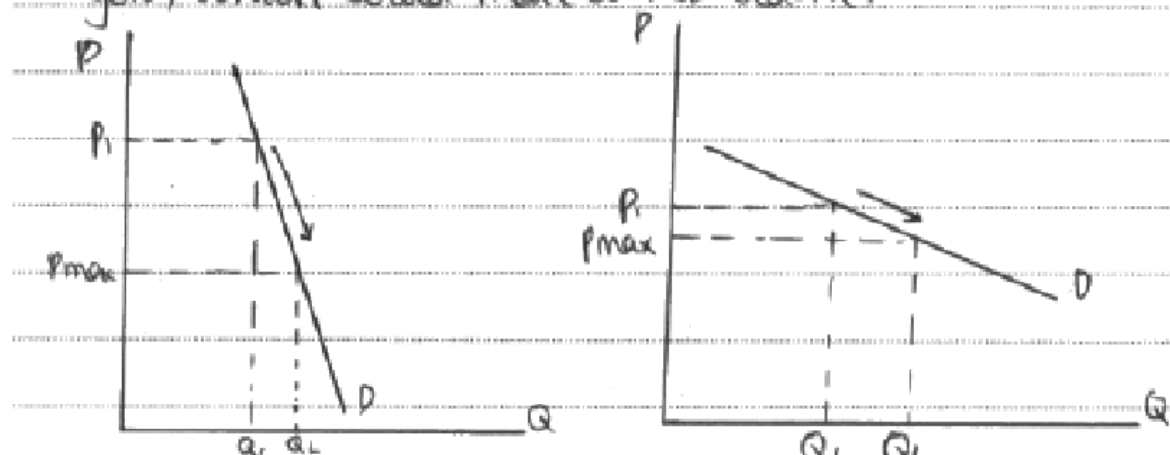
Additionally, gas is a non-renewable resource, which means its supply is finite. By speeding up its consumption, by lowering its price, its exhaustion will come sooner than expected.

In the short run prices may be low, however in the long run (as gas becomes scarcer (as the resource gas starts to run out)) prices may be pushed up ~~to~~ significantly.

As the price falls, firms will make less profit and revenue, which will only reduce the amount of tax revenue the government receives.

However, the likely impact of a maximum price on gas and electricity depends on ~~how~~ how far below it is set under the market equilibrium price. If there's only a small decrease, firms may not lose too much profit.

Additionally, it depends on the PED of gas and electricity. If the PED is elastic, firms' revenue will only increase, however if inelastic it reduces their revenue. There's a high possibility that gas and electricity are PED inelastic, as they are a necessity for basic everyday activities. However, there are alternatives to gas, which could make it PED elastic.



Furthermore, the overall impact of a maximum price on gas and electricity will depend on the magnitude of people that benefit from it. In the UK 12 million will be impacted, so a large effect may be seen, although it may be difficult to measure.

Examiner's comments:

This response was given 16 marks.

The first paragraph shows accurate knowledge of a maximum price and the candidate links this to making the product affordable. The diagram is drawn accurately and explicitly identifies the shortage, which they also outline in the paragraph underneath the diagram.

The candidate has then drawn the diagram a second time. This does not seem to be an effective use of limited time in the examination as the same information could have been presented on the original diagram. In the following paragraph, they identify the original and new consumer surplus and producer surplus. They explicitly and accurately identify each area on the diagram. This section accesses Level 3. They also refer to reduced revenues and profits and how these will have less incentive to supply. They also link it to lower investment and demand for labour. Whilst all valid points, these particular aspects could have been developed further.

The candidate then looks at the impact on affordability and how being able to afford more heat and air-conditioning helps with productivity. The next section interprets gas as petrol and the analysis offered here is credited despite it not being in the full context of the specific question.

The candidate makes it clear that gas and electricity make up a significant proportion of income and that this will have a larger impact. This is credited as a developed evaluation. They evaluate also by considering the environmental impact - credited despite the attempt to link it to driving more. Additionally, they consider the speeding up of the exhaustion of the non-renewable resource. They consider how this, in fact, could cause prices to rise long-term.

They consider the level of the maximum price and how this could affect the level of profit. The candidate explores elasticity, incorporating diagrammatic analysis. What moves this discussion to Level 3 is the context of how gas and electricity are likely to be essentials and therefore have inelastic demand, meaning that lower prices will reduce revenues. They also consider the magnitude and use data to put this into context.

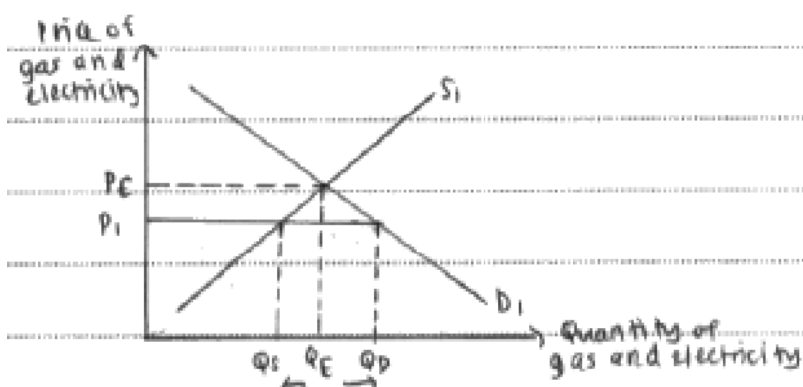
The *Knowledge* as well as *Application and Analysis* demonstrate Level 3. They demonstrate accurate and precise knowledge and understanding of maximum prices. They apply this effectively to the gas and electricity sector. The analysis is clear and coherent. Chains of reasoning are developed. They could have offered further chains of reasoning, e.g. reference to revenue and profits. The candidate thus scores 9.

The *Evaluation* is Level 3. The score for this is 7. The evaluation offered puts forward different viewpoints. There is strong reference to the context of gas and electricity. There is a logical chain of reasoning.

Exemplar response B

A maximum price is a price ceiling or limit on the highest price that can be charged for a good or service. As stated, consumers in the UK were charged £1166 per year for gas and electricity, with a minimum of £935 per year.

The introduction of a maximum price, which is set below the equilibrium price level, will prevent prices from rising beyond that level.



The maximum price benefits consumers, as they will be more easily able to afford gas and electricity. It also benefits consumers on low income groups help to achieve a higher standard of living. The maximum price also helps to prevent the country's rate of inflation from increasing, which could lead to unemployment or a trade deficit on the trade balance. The maximum price also prevents the exploitation of consumers by energy suppliers. It may also reduce the consumption

However, the implementing of a maximum price may also cause several problems. As shown in the diagram, when the maximum price is set, this causes a contraction in supply from Q_2 to Q_1 and an expansion of demand from Q_E to Q_D . This causes a shortage or excess demand within the economy. This will cause shortages of gas and electricity for consumers, which will cause standard of living to fall. Further, the decrease in prices will lower ~~cost of profit margin~~ revenue and profits of energy suppliers. This may cause firms to lay off workers in an attempt to maintain their profit margins. This would increase unemployment, as well as reduce living standards. In addition, the maximum price may cause the exit of firms from the market or the relocation of energy suppliers to other countries where there is no maximum price allocated. This causes a fall in the international competitiveness of the country. Further, the maximum price may cause shadow markets or hide the presence of a "black" market. This will allow energy suppliers to provide gas and electricity at a higher price, leading to the exploitation of consumers and making the maximum price ineffective, showing that there is government failure.

Examiner's comments:

This response was given 12 marks.

The candidate starts by accurately defining maximum price and referring to information from the question about the level it is set at. The diagram is drawn accurately and clearly shows the impact of the quantity demanded and quantity supplied.

The following paragraph considers affordability, particularly for those on lower income. They consider a number of macroeconomic aspects, without really explaining them.

Although offered as evaluation, the start of the next page explains the diagram. The candidate uses accurate economic terminology in talking about the extension of demand

and contraction of supply. They explicitly make reference to the shortage and this becomes evaluation where they link this to how, in fact, consumers will be worse off due to a shortage.

The candidate considers the impact on energy firms' profits and revenues and links this to likely lay-offs. They discuss the maximum price and how it might cause exit from the market as firms move to countries without maximum prices. They offer evaluation, linked to government failure and possible shadow markets.

The *Knowledge and Application and Analysis* score just within Level 3. The candidate shows accurate knowledge, offers application to the gas and electricity market and effectively uses a diagram in their analysis. Thus, the score is 8. *Evaluation* is at Level 2. The candidate scores 4. They do consider alternative approaches and offer reference to the context but the chain of reasoning needs to be more developed.

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