Please check the examination details below before entering your candidate information

Candidate surname	Other names
StemUp Model Solution	

Pearson Edexcel
International
Advanced Level

Centre Number	Candidate Number

Monday 11 May 2020

Morning (Time: 1 hour 45 minutes) | Paper Reference **WEC11/01**

Economics

International Advanced Subsidiary
Unit 1: Markets in action

You must have:
Source Booklet (enclosed)

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **ALL** questions in Sections A, B and C.
- Answer **ONE** question in Section D.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*

Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Calculators may be used.

Advice

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

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SECTION A

Answer ALL questions in this section.

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

1 Which **one** of the following is a role of the government in a mixed economy?

- ☒ **A** To provide public goods such as street lighting and flood defences
- ☐ **B** To subsidise goods that cause external costs
- ☐ **C** To tax goods that cause external benefits
- ☐ **D** To introduce regulations that cause excessive administration costs

(Total for Question 1 = 1 mark)

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2 Which **one** of the following is an example of market failure?

- ☐ **A** Excessive administration costs associated with government regulation
- ☐ **B** Diminishing marginal utility occurring as consumption increases
- ☒ **C** Rising stock market prices causing a market bubble
- ☐ **D** Unintended consequences after the introduction of a tax

(Total for Question 2 = 1 mark)

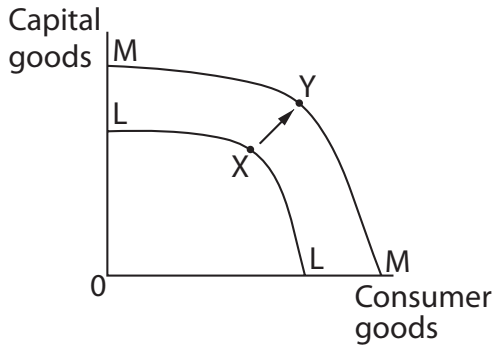
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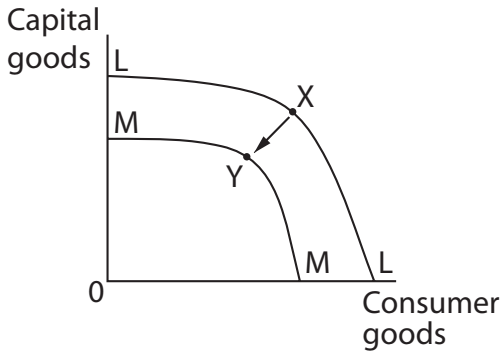
3 In April 2015 an earthquake in Nepal killed 8 000 people. Assume the economy was operating efficiently at full employment.

Which **one** of the following diagrams best illustrates the impact of the earthquake on Nepal's economy assuming it continued to operate at full employment?

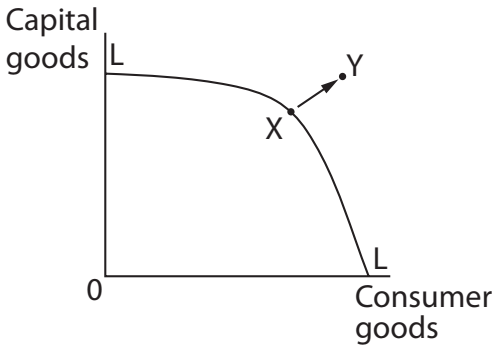
☒ **A**



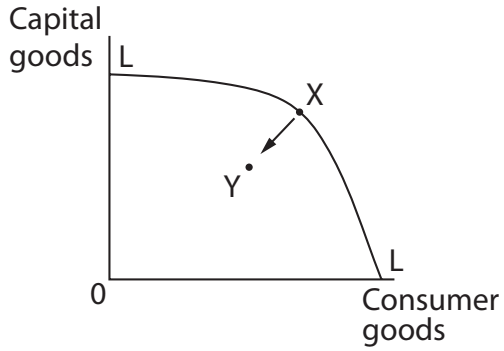
☒ **B**



☒ **C**



☒ **D**



(Total for Question 3 = 1 mark)

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4 In the UK mobile phone service providers have been accused of offering new consumers much cheaper deals than those offered to existing consumers. Despite this difference, many existing consumers do not change their mobile phone service provider.

Which **one** of the following explains why consumers do not change mobile phone service provider?

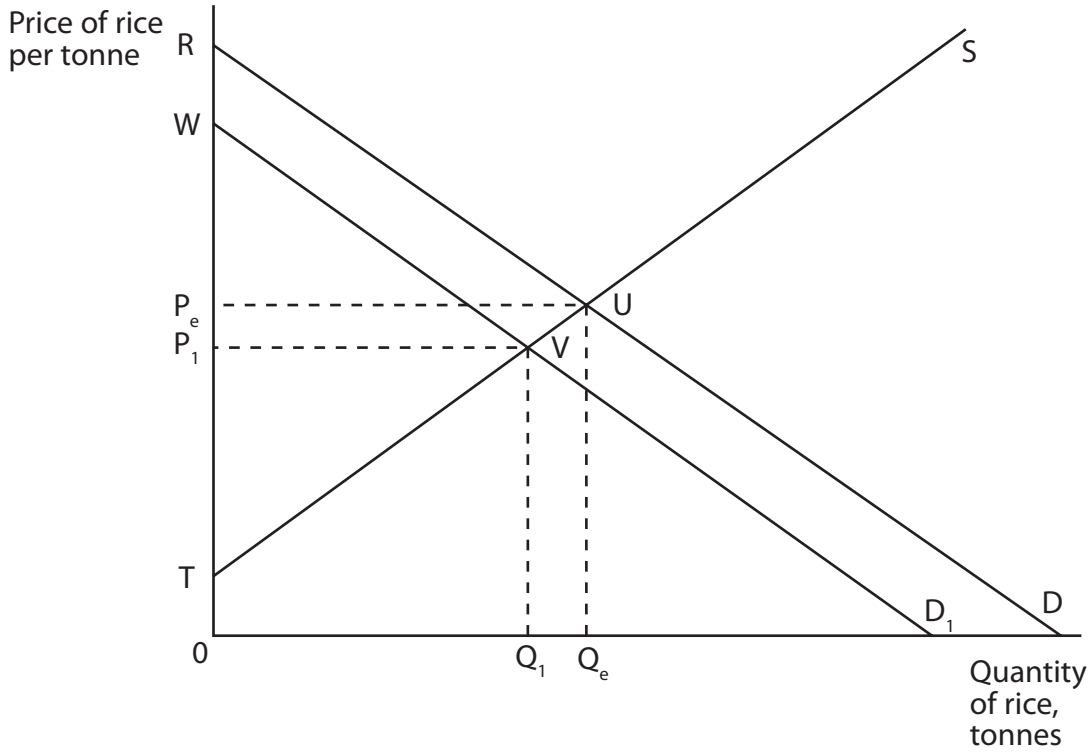
- ☒ **A** Consumers are good at computation
- ☒ **B** Consumers aim to maximise utility
- ☒ **C** Consumers exhibit habitual behaviour
- ☒ **D** Consumers feel valued by alternative providers

(Total for Question 4 = 1 mark)

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5 In 2019 countries in Africa reduced the quantity of rice they imported. The diagram shows the impact of this on the world market for rice.



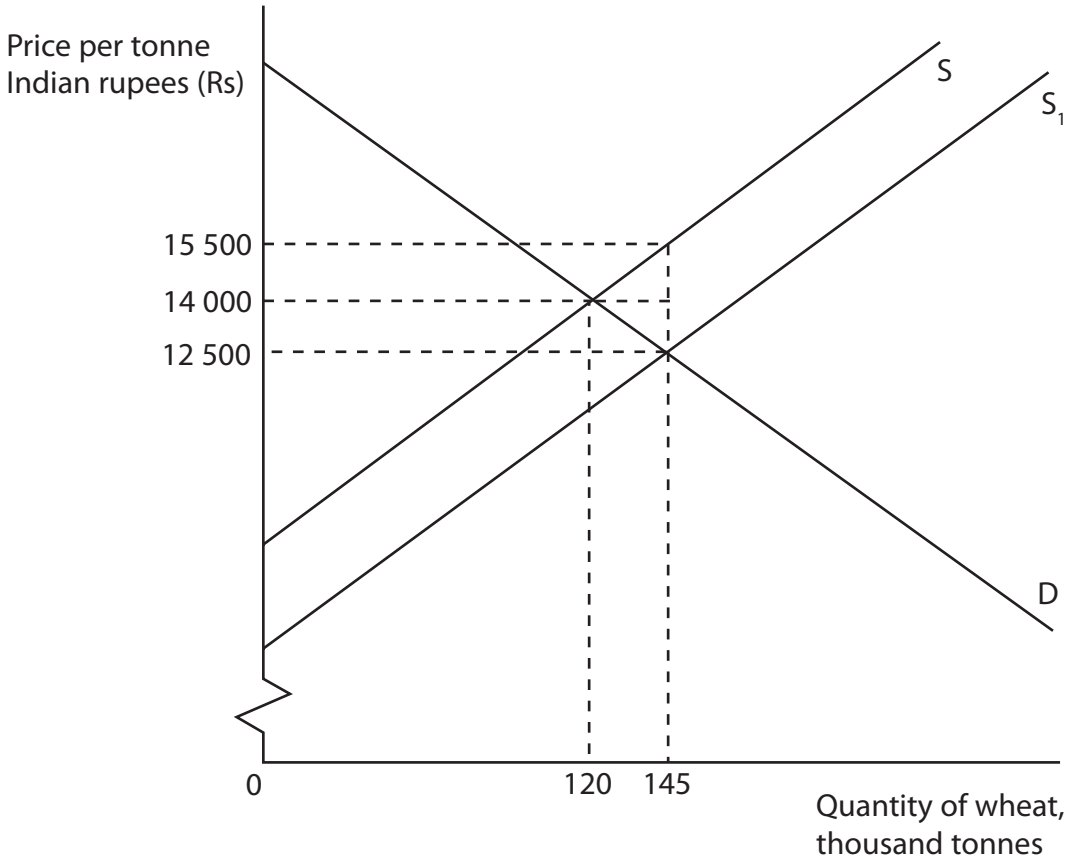
Which **one** of the following can be deduced from the diagram?

- ☒ **A** Government spending rises by VUQ_eQ_1
- ☒ **B** Total revenue of rice producers falls by VUQ_eQ_1
- ☒ **C** Consumer surplus rises by P_eUVP_1
- ☒ **D** Producer surplus falls by P_eUVP_1

(Total for Question 5 = 1 mark)

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6 The diagram shows the market for wheat in India. It illustrates the introduction of a subsidy for the production of wheat by the Indian Government.



Which one of the following is the producer incidence of the subsidy?

- ☒ **A** Rs 217 500 000
- ☒ **B** Rs 435 000 000
- ☒ **C** Rs 1 812 500 000
- ☒ **D** Rs 2 247 500 000

(Total for Question 6 = 1 mark)

TOTAL FOR SECTION A = 6 MARKS

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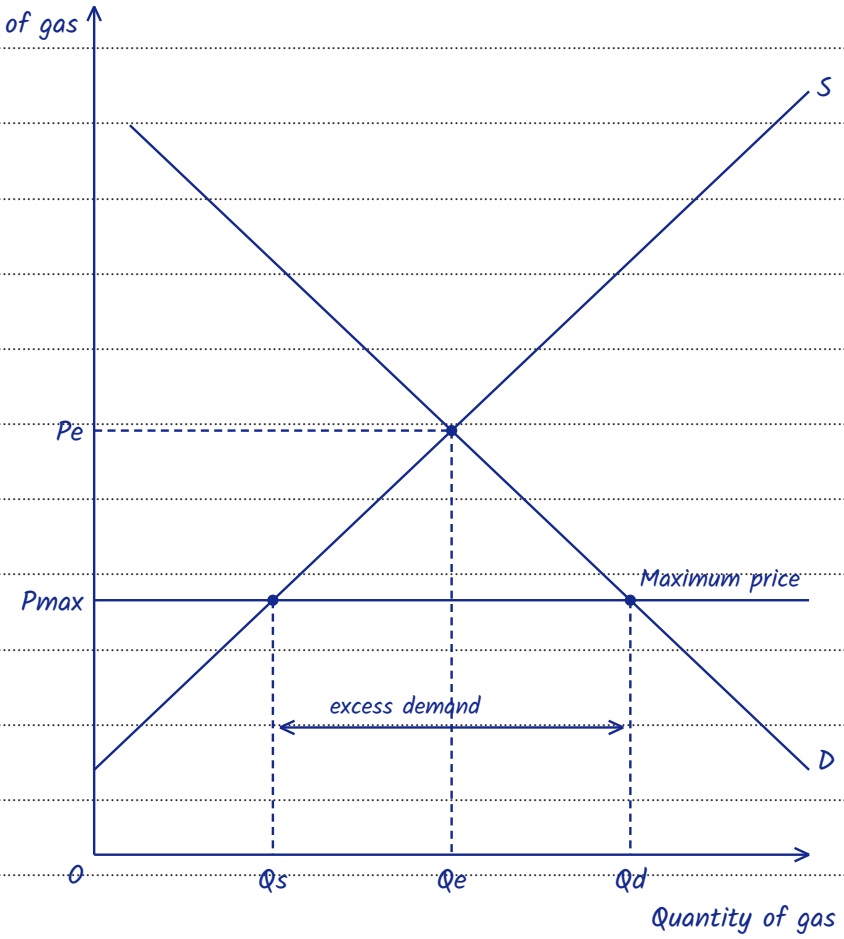
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SECTION B

Answer ALL questions in this section in the space provided.

7 Romania plans to impose a maximum price in the market for gas below the current equilibrium price.

Draw a diagram to illustrate the impact of the introduction of the maximum price on the market for gas in Romania.



Without intervention the gas market is in equilibrium at Pe and Qe. The maximum price is set below Pe, so it is illegal to charge more than Pmax. At this lower price demand extends from Qe to Qd but supply contracts from Qe to Qs, because producers are less willing to supply gas at a lower price.

So quantity demanded is greater than quantity supplied, creating excess demand (a shortage of gas) of Qd – Qs. Only Qs is actually traded in Romania.

(Total for Question 7 = 4 marks)

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8 **Statement 1:** Producers of renewable energy received subsidies of $140 billion globally in 2016. Producers of non-renewable energy received subsidies of $260 billion.

Statement 2: Subsidies for renewable energy should be increased and subsidies for non-renewable energy should be decreased.

With reference to Statement 1 and Statement 2, explain the difference between positive statements and normative statements.

A positive statement is an objective, value-free statement based on facts; it can be tested and verified (proved true or false) with evidence.

A normative statement is a subjective statement based on a value judgement or opinion about what ought to happen, so it cannot be tested or proven true or false.

Statement 1 is a positive statement, because we can check the data to verify whether renewable energy producers really received $140 billion of subsidies and non-renewable producers received $260 billion in 2016.

Statement 2 is a normative statement, because the word "should" shows it is a value judgement; it recommends a course of action based on someone's opinion (for example that renewable energy is better for the environment), which cannot be proven true or false. Others may believe the opposite.

(Total for Question 8 = 4 marks)

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9 The US state of South Carolina has proposed a regulation to stop the sale of energy drinks to children under the age of 18.

Explain **one** likely impact of this proposed regulation to stop the sale of energy drinks to children under the age of 18 in South Carolina.

A regulation is a rule or law put in place by the government to influence or control the behaviour of consumers and firms. Here it would ban the sale of energy drinks to children under 18 in South Carolina.

One likely impact is that the quantity of energy drinks consumed will fall. Children under 18 will be prohibited from buying them, so the number of potential customers falls. This shifts the demand for energy drinks to the left, so at every price less is demanded, leading to a contraction of supply and a lower equilibrium price and quantity.

As a result, the revenue of energy drink manufacturers and shops will fall, because a smaller quantity is sold at a lower price (revenue = price × quantity). However, there may be fewer health problems among young people, such as heart problems and poor sleep, so there is less need for health services, lowering costs for the government.

(Total for Question 9 = 4 marks)

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10 The table shows the average annual income for workers in Singapore and the quantity of new car sales in Singapore in 2016 and 2017.

	2016	**2017**
Average annual income	S$65 796	S$67 032
Quantity of new car sales	109 091	112 114

Using the data in the table, *ceteris paribus*, calculate the income elasticity of demand for new cars in Singapore. Show your workings.

Income elasticity of demand (YED) = % change in quantity demanded ÷ % change in income

% change in quantity demanded = (112 114 – 109 091) ÷ 109 091 × 100

= 3 023 ÷ 109 091 × 100 = 2.77%

% change in income = (S$67 032 – S$65 796) ÷ S$65 796 × 100

= 1 236 ÷ 65 796 × 100 = 1.88%

YED = 2.77% ÷ 1.88% = +1.47 (2 d.p.)

YED is positive, so new cars in Singapore are a normal good: as income rises, quantity demanded rises. YED is greater than 1, so demand is income elastic (a luxury good).

(Total for Question 10 = 4 marks)

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11 The cross elasticity of demand for Pepsi cola with respect to Coca Cola is estimated to be +1.24.

Explain the likely impact of a 10% increase in the price of Coca Cola on the demand for Pepsi cola.

Cross elasticity of demand (XED) measures the responsiveness of the quantity demanded of one good to a change in the price of another good: XED = % change in quantity demanded of good X ÷ % change in price of good Y.

The XED of Pepsi cola with respect to Coca Cola is positive (+1.24), so the two drinks are substitutes: a rise in the price of Coca Cola increases the demand for Pepsi cola.

If the price of Coca Cola rises by 10%, consumers will switch to the relatively cheaper Pepsi cola, so the quantity of Pepsi cola demanded will increase by 1.24 × 10% = 12.4%.

Because XED is greater than 1, the two are close substitutes, so the increase in demand for Pepsi is more than proportionate to the price change (12.4% > 10%). The demand curve for Pepsi cola shifts to the right, raising its equilibrium price and quantity, which increases Pepsi's revenue.

(Total for Question 11 = 4 marks)

TOTAL FOR SECTION B = 20 MARKS

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SECTION C

Study Figures 1 and 2 and Extracts A and B in the Source Booklet before answering Question 12.

Write your answers in the space provided on the following pages.

12 (a) Define the term 'equilibrium' (Extract A, line 2).

(2)

(b) With reference to Extract A, explain the impact of the availability of substitutes on the price elasticity of demand for palm oil.

(4)

(c) With reference to the information provided, analyse **two** reasons why the price of palm oil decreased in 2018.

Illustrate your answer with a supply and demand diagram.

(6)

(d) With reference to Figure 2 and Extract A, examine the likely price elasticity of supply for palm oil.

(8)

(e) With reference to Extract B, discuss the externalities associated with the production of palm oil.

Illustrate your answer with an appropriate diagram.

(14)

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12 (a) Define the term 'equilibrium' (Extract A, line 2).

(2)

Equilibrium is the price and quantity at which the market is in balance: where the demand and supply curves intersect, so quantity demanded equals quantity supplied and there is no tendency for the market price to change.

(b) With reference to Extract A, explain the impact of the availability of substitutes on the price elasticity of demand for palm oil.

(4)

Price elasticity of demand (PED) is the responsiveness of quantity demanded to a change in price: PED = % change in quantity demanded ÷ % change in price. Substitutes are goods that meet the same need, with a positive cross elasticity of demand.

Extract A shows palm oil has many substitutes. Competing vegetable oils such as rapeseed, soybean and sunflower can be used instead of palm oil, and in biodiesel, palm oil competes with crude oil, since biodiesel is a substitute for crude oil.

Because there are so many close substitutes, if the price of palm oil rises, buyers will easily switch to rapeseed, soybean or sunflower oil, so quantity demanded falls by a proportionately larger amount. This makes demand for palm oil relatively price elastic (PED greater than 1). The more substitutes available, the higher the PED.

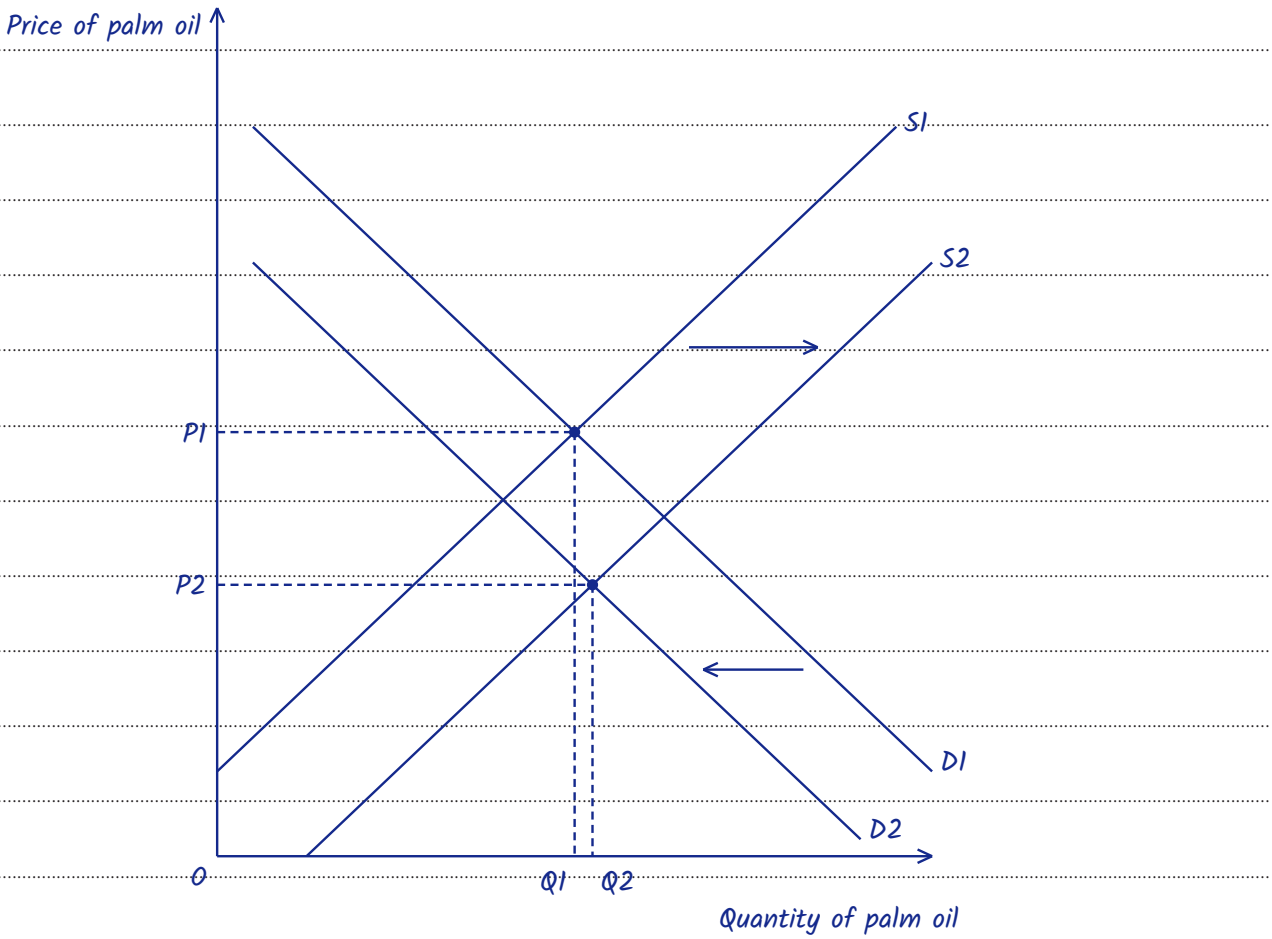
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(c) With reference to the information provided, analyse **two** reasons why the price of palm oil decreased in 2018.

Illustrate your answer with a supply and demand diagram.

(6)

Figure 1 shows the price of palm oil fell by 25.94% in 2018, more than any other vegetable oil. This was caused by both a fall in demand and an increase in supply.



First, demand fell. Extract A states that the prices of competing vegetable oils (rapeseed, soybean and sunflower) fell in 2018, by between 12.71% and 17.75%. As these substitutes became cheaper, buyers switched away from palm oil. Also, lower crude oil prices reduced the demand for biodiesel, and since palm oil is used to produce biodiesel, its derived demand fell. So demand shifts to the left from D1 to D2.

Second, supply increased. More palm oil was produced in 2018 than was consumed, so there was

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an abundant supply, which led to a stockpile of three million tonnes. This shifts supply to the right from S1 to S2.

At the original price P1 there is now excess supply, so producers lower the price to sell their stocks. Together, the leftward shift in demand and the rightward shift in supply cause the equilibrium price to fall from P1 to P2, at the new equilibrium where D2 meets S2. The effect on quantity depends on the relative size of the shifts; here supply rose by slightly more, so quantity rises a little from Q1 to Q2.

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(d) With reference to Figure 2 and Extract A, examine the likely price elasticity of supply for palm oil.

(8)

Price elasticity of supply (PES) is the responsiveness of quantity supplied to a change in price: PES = % change in quantity supplied ÷ % change in price. Supply is price inelastic if PES is between 0 and 1 (a less than proportionate response) and price elastic if PES is greater than 1 (a more than proportionate response).

There is evidence that palm oil supply is price inelastic. Extract A says that when first planted, palm trees can take up to 30 months to produce fruit. So if the price of palm oil rises, farmers cannot quickly increase output by planting new trees: there is a long time lag of about two and a half years before new supply arrives, so quantity supplied rises less than proportionately.

Also, the fruit can only be harvested twice a year. If the price rises between harvests, producers must wait until the next harvest before they can supply more, which again makes supply inelastic.

Figure 2 shows that production is concentrated in a few countries: in 2017 Indonesia produced 36 million tonnes and Malaysia 21 million tonnes, out of about 66.8 million tonnes in total, around 85%. Palm trees need a tropical climate, so only a limited number of countries can increase supply when the price rises, so supply is inelastic.

However, there is also evidence that supply may be more elastic. Extract A shows that a stockpile of three million tonnes built up in 2018. If the price rises, producers can quickly release palm oil from these stocks onto the market, so quantity supplied can increase quickly, suggesting more elastic supply. Harvesting twice a year rather than once also means producers can respond within about six months.

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The time period is key. In the short run, the number of trees is fixed, so supply is inelastic once stocks run out. In the long run, after 30 months, new trees produce fruit and factors of production become variable, so supply becomes more elastic.

PES also depends on the size of the stockpile relative to the market: 3 million tonnes is only about 4.5% of the 66.8 million tonnes produced, so it would only allow a small, temporary increase in supply. Supply also depends on factors such as the weather, which can damage harvests, and on new technology which could raise yields and help supply respond better.

Overall, palm oil supply is likely to be price inelastic, especially in the short run, because of the 30-month growing period and limited producing countries, although the stockpile makes it more elastic for small price changes, and it becomes more elastic in the long run.

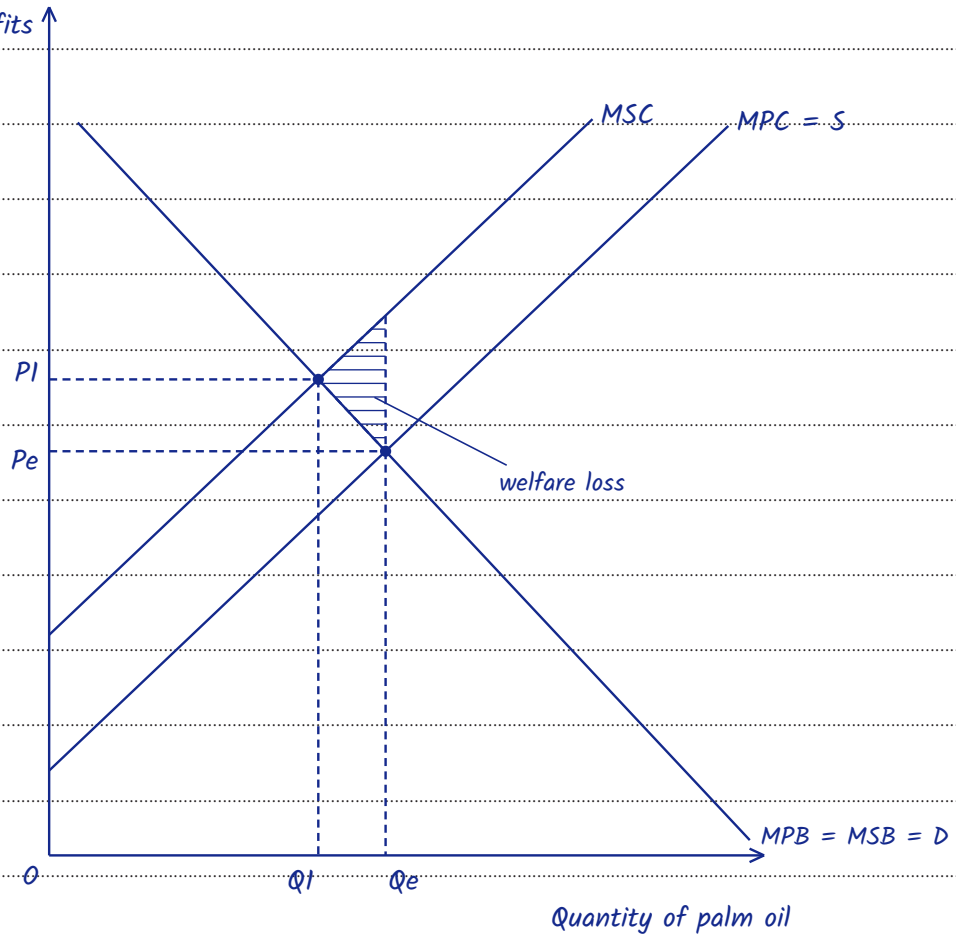
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(e) With reference to Extract B, discuss the externalities associated with the production of palm oil.

Illustrate your answer with an appropriate diagram.

(14)

Externalities are the costs or benefits of a transaction that affect third parties who are not directly involved and are not compensated or do not pay. External costs are negative effects on third parties, so marginal social cost (MSC) = marginal private cost (MPC) + external cost.



Palm oil producers only consider their private costs, such as land, labour and fertiliser, and ignore the external costs to third parties. So the market produces at Qe where MPB = MPC, at price Pe, rather than at the social optimum Q1 where MSB = MSC. The price Pe is too low and the quantity Qe is too high, so palm oil is over-produced and the shaded triangle shows the welfare loss to society.

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Extract B shows that the rapid and poorly managed expansion of production, which more than tripled between 1998 and 2018, has caused large-scale deforestation. Clearing and burning tropical rainforests releases significant greenhouse gas emissions, which add to global warming, and the smoke damages people's health, so third parties and governments face higher health care costs. Deforestation can also increase the risk of flooding for local communities.

There is also a large loss of habitat and biodiversity in Indonesia and Malaysia. Between 2001 and 2017 the population of orangutans fell by 100 000, 69% of elephant habitats in western Indonesia have been lost and only 100 rhinos are left in the wild. Future generations lose these species and potential medicines from the rainforest, an external cost that the producers do not pay for.

However, palm oil production also creates external benefits. More than 4.7 million workers are employed directly and a further 11 million indirectly in Indonesia and Malaysia. These workers spend their incomes in the local economy, creating more jobs and incomes for third parties, and the export revenue from 36 million tonnes (Indonesia) and 21 million tonnes (Malaysia) can fund imports of capital goods and boost long-run growth.

Also, the external costs of palm oil may be smaller than those of its alternatives. Palm oil needs one-tenth of the land, one-seventh of the fertiliser and one-sixth of the energy of soybean to produce the same amount of oil. If palm oil were replaced by soybean, even more forest would need to be cleared and more fertiliser would pollute water supplies, so the external costs could rise.

The magnitude of the welfare loss is very hard to measure, as it is difficult to put a monetary value on an orangutan, biodiversity or the future effects of greenhouse gases. Many of the costs

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are long term and global, while the benefits of jobs and income are immediate and local, so producing countries may weigh them differently.

In conclusion, the production of palm oil creates significant external costs, as the scale of deforestation and wildlife loss suggests, so the free market over-produces it. These are partly offset by the benefits of 15.7 million jobs and its land efficiency, so the problem is mainly the poorly managed expansion; better regulation of where palm is planted, rather than a ban, would reduce the welfare loss.

(Total for Question 12 = 34 marks)

TOTAL FOR SECTION C = 34 MARKS

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SECTION D BEGINS ON THE NEXT PAGE

SECTION D

Answer ONE question from this section.

Write your answer in the space provided.

EITHER

13 In the Netherlands 68% of the price consumers pay for a litre of petrol is indirect tax. In neighbouring Germany indirect tax represents just 59%.

Evaluate the impact of these indirect taxes charged on petrol.

(Total for Question 13 = 20 marks)

OR

14 In the UK, in 2018, 10 million consumers travelling abroad did not take out travel insurance. This is despite 30% of consumers with travel insurance having to make a claim and the average medical bill costing £5620.

Evaluate reasons for the underconsumption of travel insurance.

(Total for Question 14 = 20 marks)

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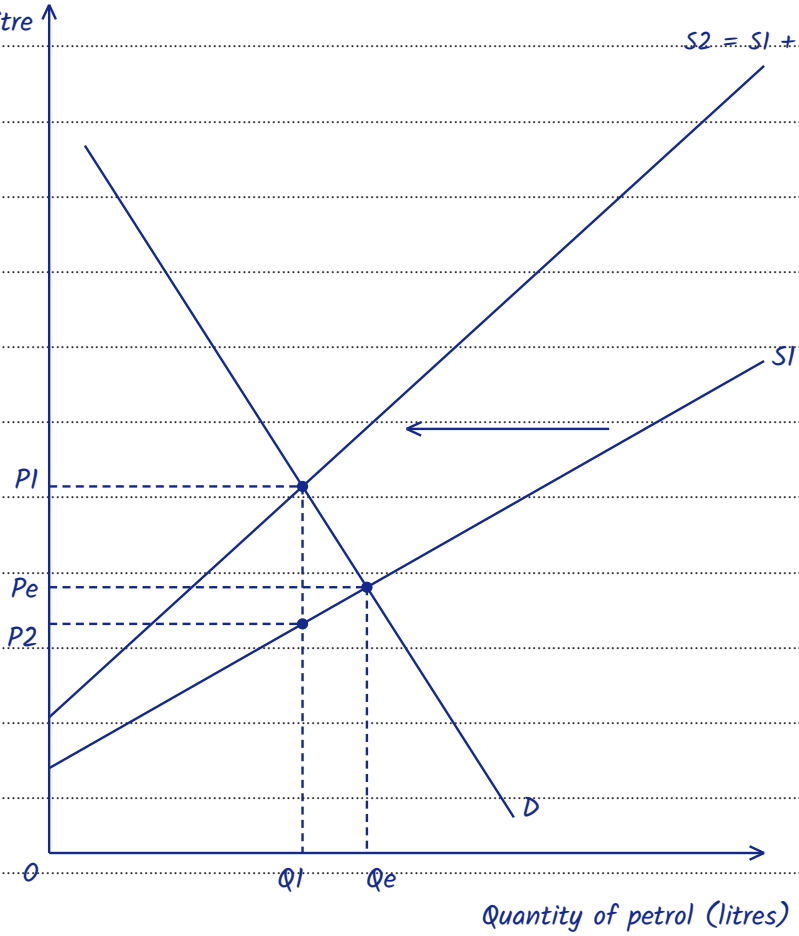
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Indicate which question you are answering by marking a cross in the box ☒. If you change your mind, put a line through the box ☒ and then indicate your new question with a cross ☒.

Chosen question number: **Question 13** ☒ **Question 14** ☐

Write your answer here:

An indirect tax is a tax on expenditure on goods and services, paid to the government by the producer but partly passed on to consumers. Petrol taxes in the Netherlands and Germany include specific taxes (a fixed amount per litre) and ad valorem taxes (a percentage of the price, such as VAT). In the Netherlands 68% of the price of a litre of petrol is tax, compared with 59% in Germany.



The tax increases firms' costs of production, so the supply of petrol shifts to the left from S1 to S2. Because it is a percentage of the price, the gap between S1 and S2 widens as price rises. The price consumers pay rises from Pe to P1 and the quantity bought falls from Qe to Q1. The

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price producers keep after paying the tax falls from Pe to P2. The tax per litre is P1 – P2, of which the consumer incidence is P1 – Pe per litre and the producer incidence is Pe – P2. The government receives tax revenue equal to (P1 – P2) × Q1, the rectangle between P1 and P2 up to Q1.

Demand for petrol is price inelastic because there are few close substitutes for most drivers and it is a necessity for getting to work. So, as the diagram shows, most of the tax is passed on to consumers (P1 – Pe is larger than Pe – P2) and quantity falls less than proportionately.

The first impact is on consumers. They pay much higher prices, which reduces their consumer surplus and real incomes. As petrol takes a larger share of the income of poorer households, the tax is regressive. Consumers have an incentive to drive less and switch to public transport, cycling or walking, or to hybrid and electric cars.

The second impact is on the environment. Burning petrol creates external costs such as air pollution, carbon emissions and congestion. By raising the price, the tax makes drivers pay closer to the full social cost, reducing quantity towards the social optimum and reducing the welfare loss. The higher Dutch tax of 68% should, in theory, reduce these external costs more than in Germany.

The third impact is on government. With inelastic demand, the tax raises large and reliable revenue, which can be spent on improving public transport and roads, or on subsidies for electric cars, which increases the incentive to switch away from petrol.

The fourth impact is on producers and businesses. Petrol stations sell less and receive a lower price, so their revenue and producer surplus fall. Firms that rely on road transport, such as

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logistics and delivery companies, face higher costs, which may be passed on as higher prices of other goods.

However, because demand is so price inelastic, the tax may do little to reduce petrol consumption and pollution in the short run: drivers keep using their cars and simply pay more. Changing to alternative fuels takes a long time, as electric cars are still significantly more expensive than petrol cars and public transport is less convenient for many people, especially in rural areas. So the environmental impact is likely to be larger in the long run, when demand becomes more elastic.

The difference between the two countries may also cause unintended consequences. Since petrol tax is 68% of the price in the Netherlands but only 59% in Germany, Dutch drivers who live near the border have an incentive to buy petrol in Germany, and some petrol may be smuggled. The Netherlands then loses tax revenue and Dutch petrol stations lose sales, while pollution is not reduced, which is government failure. However, this only applies to people close to the border, as the cost of travelling further would outweigh the savings.

It is also difficult for the governments to measure the value of the external costs, so they cannot know the correct rate of tax. If the 68% tax is higher than the external cost, it causes overcorrection and a new welfare loss, while 59% may be too low. The impact on businesses also depends on how significant fuel is as a proportion of their total costs.

In conclusion, the main impacts of these high indirect taxes are higher prices for consumers and large tax revenues for the governments, rather than a big fall in petrol consumption, because demand is price inelastic. The environmental benefits are likely to be limited in the short run but greater in the long run if the revenue is used to improve public transport and support

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electric vehicles. The regressive effect on low-income households means some of the revenue should be used to compensate them.

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TOTAL FOR SECTION D = 20 MARKS
TOTAL FOR PAPER = 80 MARKS

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Pearson Edexcel International Advanced Level

Monday 11 May 2020

Time: 1 hour 45 minutes | Paper Reference **WEC11/01**

Economics

International Advanced Subsidiary
Unit 1: Markets in action

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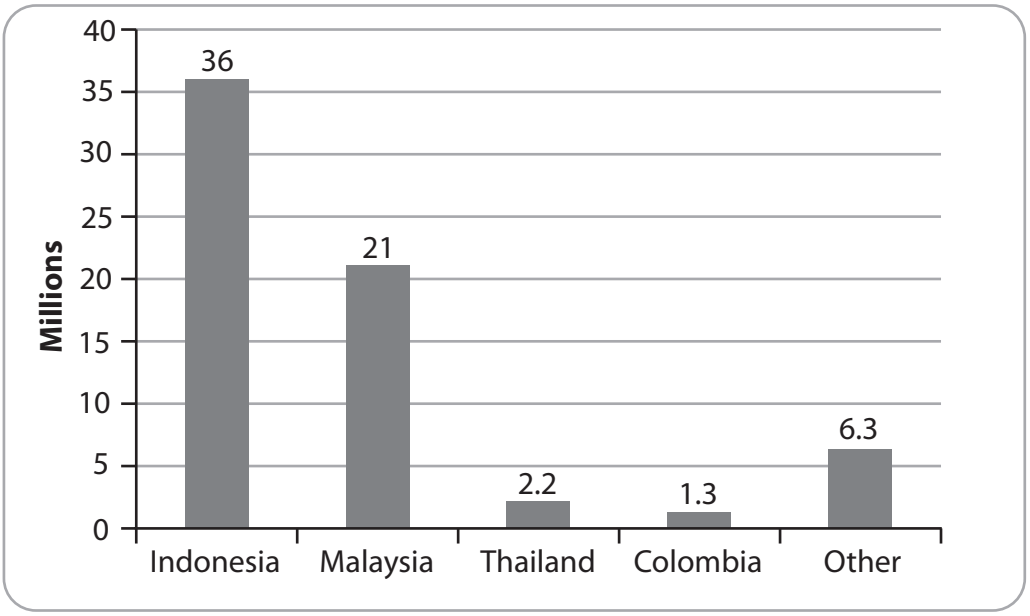
Sources for use with Section C.

The global market for palm oil

Figure 1 Price changes of selected vegetable oils, 2018

Type of vegetable oil	% price change
Palm	–25.94
Rapeseed	–12.71
Soybean	–17.75
Sunflower	–12.81

Figure 2 Global palm oil production in 2017 (million tonnes)



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Extract A Palm oil price falls

The equilibrium price of palm oil decreased in 2018. The price of competing vegetable oils, including rapeseed, soybean and sunflower also fell in 2018. Palm oil is used in the production of biodiesel, a substitute for crude oil. Lower crude oil prices during 2018 caused a fall in the demand for biodiesel.

More palm oil was produced in 2018 than was consumed. This abundant supply led to a stockpile of three million tonnes. When first planted, palm trees can take up to 30 months to produce fruit. The fruit can then be harvested twice a year and converted into palm oil.

Extract B Palm oil production

Palm oil production more than tripled between 1998 and 2018. It is now used in many goods including processed foods, cosmetics, detergents, chocolate and biodiesel.

Palm oil requires one-tenth of the land, one-seventh of the fertiliser and only one-sixth of the energy to produce the same amount of oil as soybean. In Indonesia and Malaysia more than 4.7 million workers are employed directly in the palm oil industry. A further 11 million workers are employed indirectly.

The rapid and poorly managed expansion of production has caused large-scale deforestation. The clearing and burning of tropical rainforests has also caused significant greenhouse gas emissions.

Palm oil production in Indonesia and Malaysia has led to habitat and biodiversity loss. Endangered animals have been negatively affected. For example, between 2001 and 2017 the population of orangutans fell by 100000 in these countries. Orangutans spend 95% of their time in trees and Indonesian rainforests have been disappearing rapidly. In western Indonesia 69% of elephant habitats have been lost and there are only 100 rhinos left in the wild.

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Acknowledgements

Figure 1 based on data taken from https://www.indexmundi.com/commodities/

Figure 2 adapted from http://www.worldagriculturalproduction.com/crops/palmoil.aspx

Extract A adapted from https://www.thestar.com.my/business/business-news/2018/12/08/palm-dips-under-pressure-from-weaker-related-edible-oils-crude-oil/#cbGmRlDAGsSjRGsa.99 and

Extract B adapted from https://engagethechain.org/palm-oil and https://www.theguardian.com/commentisfree/2018/may/10/palm-oil-orangutans-multinationals-promises-deforestation and https://epthinktank.eu/2018/02/19/palm-oil-economic-and-environmental-impacts/