

## Chapter 1

### Answers to exercises

- 1** The fundamental economic problem occurs because resources have to be allocated amongst competing uses since wants are infinite whilst resources are scarce.
  - i** You and your family: unless you are very wealthy, you and your family will never have enough money/income to satisfy all of your wants. For example, you might want to go to see a film but do not have enough money to do so; your family may want to buy the latest flat-screen TV but does not have enough spare income to purchase it.
  - ii** Government: all governments face the economic problem since they never have enough money in their budgets to be able to fund all of the wants that are required. As a result choices and priorities have to be made. Typical choices to be made are, for example, between spending more on an infant health programme or on an infant educational programme. The limited budget means that both cannot be funded.
  - iii** Manufacturing business: revenue and capital funds for any business are limited either through what is available inside a business or what can be borrowed outside. So, a firm might like to replace all of its outdated machinery but because it lacks the capital available to be able to do so can only replace some of it.
- 2** A typical answer, which includes examples from your country, could be:

	Description	Typical Examples
Land	Natural resources	Copper, water, tropical climate
Labour	Workers, human resources	Labourers, supervisors, managers
Capital	Man-made aids for production	Factories, machines airports
Enterprise	Organisation of production, taking risks	Business managers, entrepreneurs

- 3** A possible answer:

Specialisation is where *a firm concentrates its production on those goods where it has an advantage over others*. It can apply in the case of people in the workplace, for example, *where a firm concentrates production on a limited range of products*. A consequence of specialisation is that *the firm can produce more than if it is producing a wider range of products with the same resources*. The division of labour is where *the production process is split into individual tasks that are carried out in order*. It has important benefits for a firm and for the economy including *an increase in productivity and quality of goods that are produced compared to if each worker was making the product from scratch*.
- 4 i** Free market economy: Singapore

The market mechanism operates across a wide range of goods and services; there is limited government intervention, mainly in terms of regulations, budgetary and foreign policy. Minimal provision of public goods and merit goods.

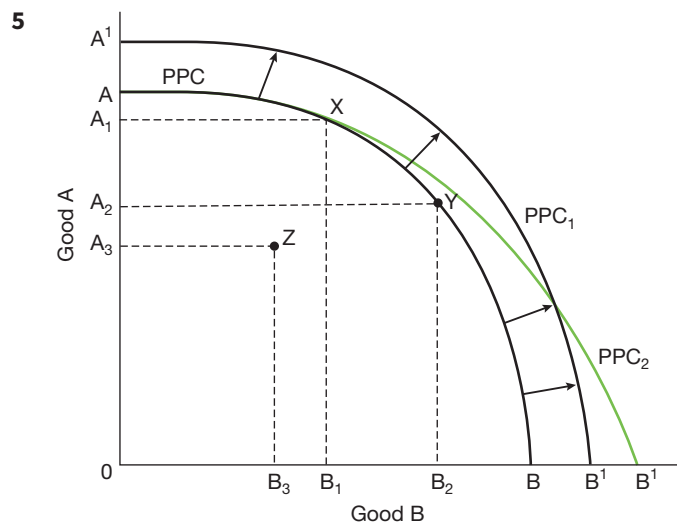
**ii** Planned economy: North Korea

Here the market is controlled by the government. There are very limited opportunities for small businesses. The Government allocates resources, including employment and wages. No McDonalds or Coca Cola!

**iii** Mixed economy: UK

Over the last 30 years, a policy of privatisation has resulted in an ever-increasing role for the free market in the allocation of resources. The government provides a range of public goods and merit goods and is responsible for budgetary and external policy.

It is not easy to classify economies in this way since none meet in full the exact specifications of each type of economy.

**Figure A1.1**

- i** See diagram. Production of good B increases from  $OB_1$  to  $OB_2$ ; production of good A decreases from  $OA_1$  to  $OA_2$ .
- ii** The opportunity cost of increasing production of good B to  $OB_2$  is  $(OA_1 - OA_2)$  of good A.
- iii** See diagram. At point Z, the production of both goods has decreased to  $OA_3$  and  $OB_3$ .
- iv** The PPC has now shifted outwards to  $PPC_1$ . This means that more of both goods can now be produced. The maximum quantities are now  $A^1$  or  $B^1$ .
- v** The original PPC pivots from the vertical axis to a new point  $B^{11}$  on the horizontal axis since as result of specialisation, more of good B is produced. There is no change in the production of good A.
- 6 i** You and your family: the opportunity cost of a take-out meal might be two chocolate bars; for the family, the opportunity cost of a new sofa might be a new cooker.
- ii** Government: the opportunity cost of a new hospital might be the building of four new secondary schools; the opportunity cost of a new military tank could be the refurbishing of military barracks.
- iii** Manufacturing business: the opportunity cost of installing a new sock producing machine might be a new IT system; the opportunity cost of a factory extension could be the replacement of ten garment making machines.

**7**

	Which one?	Relevance in your country
Medium of exchange	C	Vital for the operation of the market.
Unit of account	A	Allows prices to be easily understood.
Standard of deferred payment	D	Allows bills to be paid later.
Store of wealth	B	Permits money to be held in bank deposits and accumulated over time.

The above is a typical answer for a country with a fully developed, responsible money system.

**8** The table below is a typical answer.

Example	Comment
Fire services	Essential public service that should be provided for all people at all times. Impossible to charge for.
Defence	Funded centrally – Residents have no choice in decisions – meets both characteristics.
Police force	Locally provided for all. Could be rival if there are a lot of incidents at the same time.
Street lights	Available in some places. Impossible to levy charges. Meets characteristics in full. Free rider issue is relevant.

**9** The table below is a typical answer.

	Who provides and how	Benefits
School education	Private sector for all ages Government up to aged 13; funded from taxes	Better job prospects Enhanced future growth prospects for the economy
Local health care	Private sector Government in case of infants and accidents and emergencies	More contented people Healthier population in general Less outbreaks of diseases means more output

**10** The table below is a typical answer.

	Costs	How does your government intervene
Smoking	Lower life expectancy. Poor air quality in public spaces	High taxes on cigarettes Health information on packets
Gambling	Possible bankruptcy Families suffer	Tries to regulate some types but not easy to control all forms
Junk food and fizzy drinks	Increase in number of diabetics and obese people Increased costs to health services	Very little at present

## Answers to exam-style questions

### Data response question

- a i** – The NHS budget in terms of cash has steadily increased over the period.
- In real terms, the budget was relatively flat from 2009/10 to 2012/13 though increasing slightly from 2014/15.
- ii** – The projected trend is for the budget in terms of cash to continue to increase until 2020/21.
- In real terms, the projected budget appears to be more or less unchanged, with a slight increase planned in 2020/21.
- iii** Real prices take inflation into account, cash does not.
- b** Opportunity cost is defined as the best alternative that is forgone. It is clear from the data and its title that the NHS budget is not sufficient to meet all of the wants that are asked for. Choices, therefore, have to be made. For example, should money be allocated to expensive drugs or to employing more nursing staff and doctors?
- c** A merit good is one that provides positive side effects to those who consume it. These benefits are not always appreciated due to information failure. An example is the benefit that individuals and the community get through inoculation against potentially life threatening diseases. Another example is in the case of regular eye examinations that can detect various serious conditions if not treated.

- d** Most treatments through the NHS are free at the point of use for UK residents. If charged, the cost of treatments is relatively low compared to what private sector healthcare providers charge. Being free at the point of use is a good way of helping those on low incomes. It is also a form of recompense to tax payers since the NHS is funded through tax revenue.

There are counter arguments. For example, some people who receive NHS treatments are able to afford to pay. A charge is also likely to mean that trivial conditions could be treated at much lower cost by a pharmacist. It can also mean that a charge for those missing scheduled appointments would mean that fewer appointments are missed. Revenue from additional charges could be used to increase the NHS budget.

There are therefore valid arguments for and against the introduction of charges for treatments that are currently free.



#### TIP

Both of these answers refer to specific dates. This is good practice when describing time-series data.

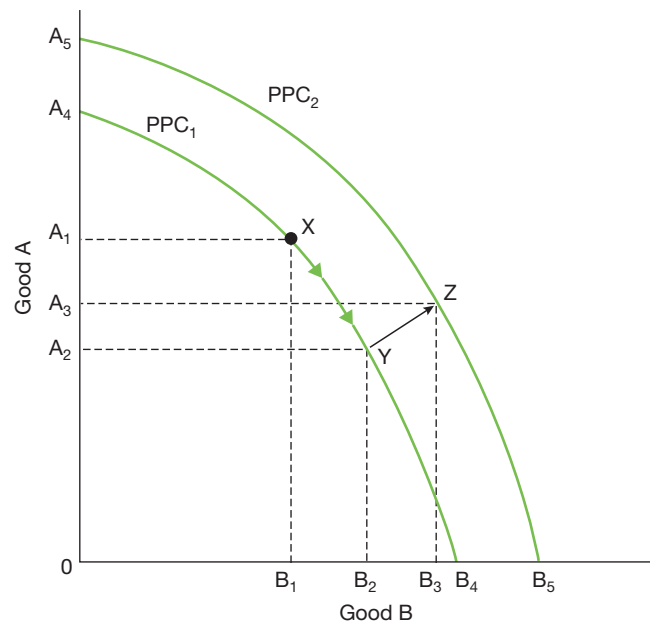


#### TIP

The last sentence makes clear that there is no simple answer to this problem in line with the 'discuss' directive word.

## Essay questions

- 1 The diagram below shows typical production possibility curves (PPCs).



**Figure A1.2** Production Possibility Curves

PPC<sub>1</sub> shows the various possible combinations of the two goods, A and B, that can be produced. Any point on this curve is the maximum possible output when all available resources are fully used. For example, at point X, OA<sub>1</sub> of good A and OB<sub>1</sub> of good B are possible. If resources are allocated due to an increase in demand for good B, for example, the only way in which this can be done is if less of good A is produced. On the diagram, this is shown by a movement along PPC<sub>1</sub> from X and Y. All other points on this PPC show the other combinations of the two goods that can be produced.

A shift of the PPC is different. When PPC<sub>1</sub> shifts outwards to PPC<sub>2</sub>, the diagram shows that more of both goods can now be produced. For good A, the maximum possible output increases from A<sub>4</sub> to A<sub>5</sub>; for B, it increases from B<sub>4</sub> to B<sub>5</sub>. A shift from Y to Z shows that more of each can be produced. There are various causes of a shift of a PPC, including economic growth, which means more and better quality resources are available. Other possible causes of a shift are an improvement in technology or an increase in the productive efficiency brought about through the increased use of capital equipment.

- 2 Enterprise is one of the factors of production. It can be defined as when business people are prepared to take risks when looking for opportunities for production. Such people are known as entrepreneurs.

The organisation of production requires the three other factors of production: land, labour and capital to be used in an enterprising way. This invariably involves taking risks – any new business enterprise is risky and many new start-ups fail because the organisation of production is weak. A successful business is one when an entrepreneur has researched the market, taking into account the risks that are involved.

The scope for enterprise depends very much on the type of economy. In a modern, developed economy such as the USA or UK, there are many on-going opportunities for entrepreneurs to seek out new business ventures. In Eastern Europe, moves from a planned to a mixed economy have resulted in opportunities becoming available to those entrepreneurs who are willing to take risks.

**TIP**

Where a question refers to 'your own country', this must not be ignored in your answer. The named entrepreneurs add substance to the conceptual material.

In emerging economies such as India, my own country, there is an increasing range of opportunities as the economy benefits from economic growth. As people become better off, new market opportunities come about. A growing number of entrepreneurs are starting new businesses, especially in retailing, restaurants, fast food outlets and information technology. A few well-known examples are Sridhar Vembu and Kailash Kathar (IT) and PC Mustafa and Patricia Narayan (food production and restaurants). These are new entrepreneurs. Established ones such as the Hinduja and Tata families are well known.

- 3** Public goods have two characteristics, non-excludability and non-rivalry. The former means that it is not possible to exclude anyone from their consumption. Non-rivalry is a situation whereby the consumption by any one person does not reduce the availability of the public good for others. Bearing these characteristics in mind, examples of public goods are the local police force, national defence, street lights and lighthouses. They are sometimes called pure public goods since they match the key characteristics.

Merit goods are different and, in some cases, may contain some of the characteristics of a public good. A merit good is one that is under-provided by the market due to information failure. This is so because the benefits to individuals and the community are not fully recognised. The best examples of merit goods are education and health provision. In the case of education, it has been shown that a well-educated workforce is very important for a country's economic well-being as well as for the individual who, being well educated, can expect to earn more than someone who has few, if any, academic qualifications.

It is impossible for the market economy to fully provide public goods. This is because it is impossible to charge for them and there is the 'free rider' problem. Since everyone benefits, people who have not paid any taxes cannot be excluded from benefitting from the provision of public goods. Another very important point is that of the opportunity cost of providing public goods. These are funded by the government and invariably there are not enough resources to meet all of the demands placed upon its funding.

Similar issues arise with merit goods. In many market economies, merit goods are provided by the private sector as well as by the government. Not everyone can afford private education or health and therefore have to rely on the government to provide these for them. The truth is that there are not enough resources to meet all of the needs and wants that people have for education and health services.

Unlike public goods, merit goods can be provided successfully by the private sector. The extent of provision varies from one economy to another. In some Asian economies, for example, it is quite normal for school and college fees to be paid for in full by the extended family. This can also apply for healthcare. As a consequence, the overall level of provision will be less than what is needed.

- 4** The term 'money' is, in some respects, obvious. Economists say that it is anything that is generally acceptable as a means of payment. In modern economies, money includes bank notes, coins, credit cards and bank deposits. In principle, it can also include valuable commodities such as gold, diamonds and oil as well as far less valuable things, for example sheep, horses or crops such as tea and coffee where these are acceptable as a means of payment.

In terms of characteristics, it follows from the above that whatever its form, money must be acceptable to buyers and sellers alike. It must also be portable – that is, it can easily be transferred from one place to another. It also needs to be durable or long-lasting over time. Money must also be in a form that is divisible – this means that it can be split easily into smaller distinct amounts. Finally, and significantly, it needs to be scarce, in limited supply.

To be so-called, money must fulfil four functions: a medium of exchange, a unit of account, a store of value and a standard of deferred payment. The most important function is that of a medium of exchange. This means that money is used to buy and sell goods and services. This is consistent with its characteristic of being 'acceptable'. A second function of money is that of a unit of account, meaning that it acts as a measure of value which can be divided into parts

that are easily understood. Thirdly, it functions as a store of value – where money is owned or received, it is not always required to be spent. So, by being able to be stored, money can be stored to be spent later. The final function is known as a standard of deferred payment. This means that if someone borrows from someone else, they will know that they can get their money back in the same form at some later date. This function is important since it underpins the basis on which credit operates in virtually all economies.

The characteristics of money therefore are not the same as the functions. There is a link in so far as for the functions of money to be applicable, the characteristics of money must act as appropriate underpinning.

- 5** Opportunity cost is defined as the best alternative that is forgone. It can also be seen in relation to the benefits that have to be forgone through not consuming the best alternative. This idea can be considered from the point of view of consumers, producers and the government.

For consumers, consideration has to be made to what has to be given up when purchasing something. For example, the opportunity cost of a fast food meal might be the alternative of two bottles of iced tea. Students are also faced with the problem of knowing whether it is a good idea to go to university rather than leave school to get a job. Here, the opportunity cost of not going to university is the benefits a graduate receives of spending time at university and by way of additional income after graduation.

Producers also have to make decisions where opportunity cost is relevant. A typical example might be where a firm is deciding whether to buy a new machine to increase production or whether it would be better off if it recruited three more workers into its workforce. If the firm elects to buy the new machine, the opportunity cost would be the output of the additional workers.

Governments are faced with the unenviable task of producing budgets. Invariably, there are never enough finances to meet all the needs of its population. Consequently, choices have to be made and priorities determined. Typically, the opportunity cost of buying a new war plane might be the building of four new secondary schools.



**TIP**

Key terms have been defined at the start of each of the five answers. This is good practice and should be encouraged.

### Multiple choice questions

- 1** Correct option: C

Opportunity cost is the best alternative forgone. A and D are not best alternatives; B could be but it is irrelevant. This leaves C as the answer.

- 2** Correct option: B

An increase in unemployment and less spending on consumer goods would be represented by changed positions within the PPC. An increase in the capital stock of the economy will shift the PPC outwards, not inwards. This leaves B as the correct answer.

- 3** Correct option: A

The crucial word is 'not'. Options B, C and D are normative statements since they are subjective or not certain about what has happened. A is a positive statement and therefore the correct answer.

- 4** Correct option: D

The correct answer can be read off the straight line PPC. To increase production of shirts from 25 to 50 means that production of 50 units of blouses has to be forgone.

- 5** Correct option: D

The local police force is the only service where non-excludability and non-rivalry can apply. In the other cases, non-rivalry applies since there are capacity issues that can limit those benefitting. Excludability can also apply especially for libraries and health services.

## Chapter 2

### Answers to exercises

1 i See diagram.

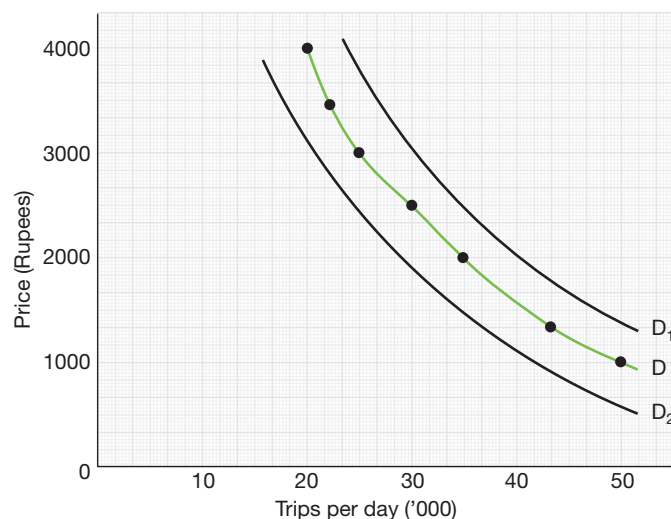


Figure A2.1

- ii 31,000 trips per day.
  - iii – The demand curve shifts to the right to  $D_1$  if there is an increase in disposable income.
  - The demand curve shifts to the left to  $D_2$  if a new express bus service undercuts the rail fare.
- 2 i – Both have experienced a falling change in sales.
- Total sales of Macs are still increasing, those of total PCs are falling as negative annual change in sales since 2011.
  - Rate of change in Mac sales has been more fluctuating.
- ii Various factors could explain these changes such as:
- Mac prices have fallen more than PCs overall.
  - Mac’s popularity has continued to grow, that of total PCs has declined.
  - More people can now afford to replace a PC with a Mac.
  - Mac’s technology is more sophisticated than that of other PCs.
- 3  $PED = \% \text{ change in quantity demanded} \div \% \text{ change in price}$

PED	Numerical Values*	Typical Products*	Effect on total revenue when price changes
Price elastic	1 to $\infty$	Kit Kat bar Take-away food Toyota car	Price rise – total revenue decreases Price fall – total revenue increases
Price inelastic	0 to 1	Petrol Cigarettes Rice	Price rise – total revenue increases Price fall – total revenue decreases

\* ignoring minus sign

\* assuming all other factors remain constant



4 YED = % change in quantity demanded ÷ % change in income

Type of good	Numerical Value	Typical Products <sup>+</sup>	What happens when income changes?
Normal Good	Positive 0 and above	Cars Restaurant meals Chicken	Demand increases as income increases
Inferior Good	Negative 0 and above	Bus transport Poor quality grains Second hand clothes	Demand decreases as income increases

+ assuming all other factors remain constant

5 % change in quantity demanded of product A ÷ % change in price of product B

Type of product	Sign and size	Typical examples	Use of cross elasticity to a business
Substitutes	Positive >0	Coca Cola and Pepsi Cola Toyota 4x4 and Suburu 4x4 McDonalds and KFC	A rise in price will lead to an increase in demand for a substitute good.
Complements	Negative >0	Cricket bat and balls DVD player and DVDs Motorcycles and petrol	A fall in price will lead to a rise in demand for a complement.

6 i Price elasticity of supply =  $\frac{\% \text{ change in quantity supplied}}{\% \text{ change in price}}$

$$= \frac{20/200}{250/1000}$$

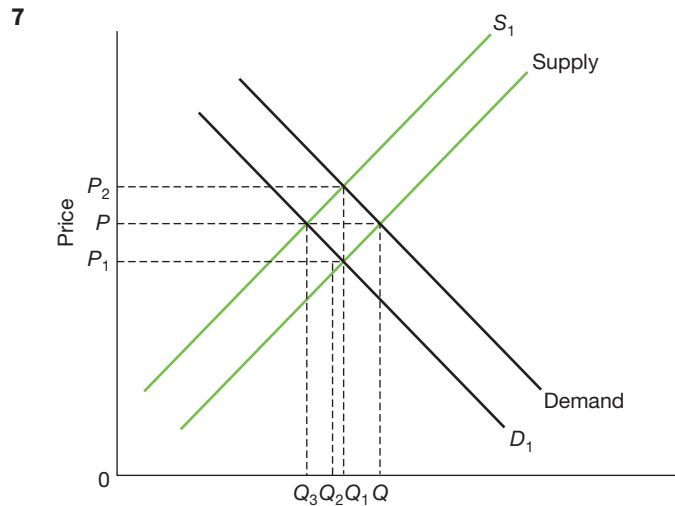
$$= \frac{0.1}{0.4}$$

$$= 0.25$$

- ii The price elasticity of supply is inelastic. The Kenyan manufacturer is wrong in believing his business can respond quickly to price changes in the markets.
- iii Price elasticity of supply for the German manufacturer is 1.2. It seems that supply from this manufacturer is more responsive to a price change.

The Kenyan manufacturer could:

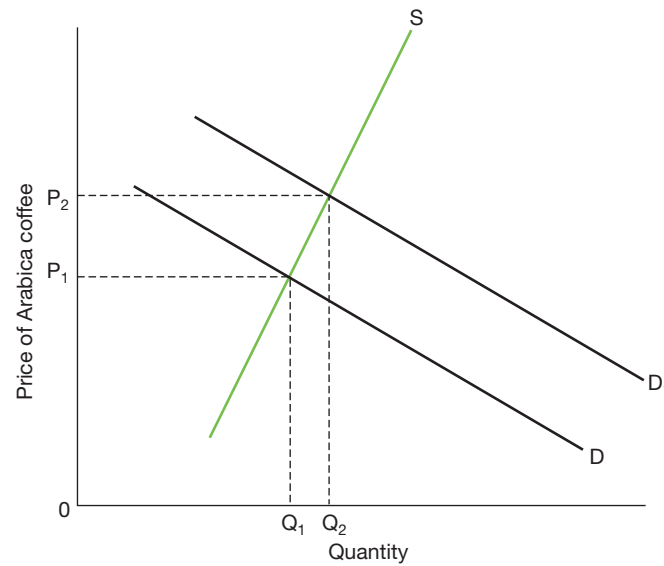
- increase the stocks of solar water pumps
- use any spare workshop capacity to build more pumps
- improve the efficiency of production through installing more capital equipment.



**Figure A2.2**

- i**
- A fall in consumer income leads to a shift to the left of the demand curve to  $D_1$ . Price falls to  $P_1$  and the quantity traded falls to  $Q_1$ .
  - A reduction in supply leads to a shift to the left of the supply curve to  $S_1$ . The price now increases to  $P_2$  but with a fall in the quantity traded to  $Q_2$ .
  - When there is a simultaneous fall in consumer income and reduction in supply, price returns to its original equilibrium position but with a fall in the quantity traded to  $Q_3$ .
- ii** The change in the equilibrium positions depends on the price elasticity of demand and price elasticity of supply respectively and the extent of the shifts in each case. The change in the equilibrium position will be greater where both curves are elastic rather than inelastic.
- 8 i** The price elasticity of demand is elastic (1.25) but during holiday periods it becomes inelastic (0.9). This means that demand for Sambal sauce is not particularly sensitive to a price change during holiday periods whereas at other times, the quantity demanded is sensitive to an increase or decrease in price.
- ii** The estimates differ because there is likely to be a greater demand during holiday periods as consumers will want to purchase it irrespective of any price change. At other times, consumers may be more willing to buy another type of sauce if the price of Sambal sauce increases; they are likely to purchase more if its price falls.
- iii** Price is unlikely to be the only factor that determines demand for Sambal sauce. It is quite likely that taste has an important influence on the quantity demanded – Sambal sauce is either liked or not. A second factor could be the price and availability of substitutes and complements. There will be other sauces that are perfectly acceptable alternatives to Sambal; the price of chicken or vegetables that complement the sauce might also determine the quantity demanded. Income changes are unlikely to have much influence on the quantity demanded.

9 i See diagram.



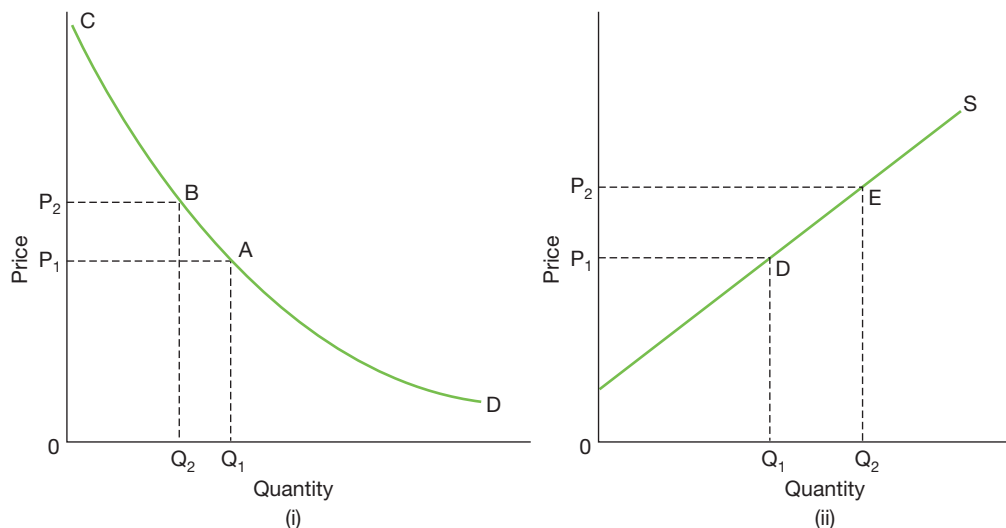
**Figure A2.3**

The original equilibrium is  $P_1Q_1$ . An increase in demand shifts the market demand curve outwards to  $D_1$ . As supply is relatively inelastic, price increases to  $P_2$  but with a smaller increase in the quantity traded, to  $Q_2$ .

- ii the increase in global demand for high quality Arabica coffee could be due to:
- increased disposable incomes in countries such as China and India, linked to the increase in consumption of coffee at franchised outlets
  - increase in demand for a better quality of coffee
  - an increase in price of poorer quality substitute types of coffee.
- iii The fall in Arabica coffee prices could be due to:
- an increase in supply of poorer quality coffee meaning there is short term over-supply of Arabica coffee
  - an increase in supply of Arabica coffee due to the release of accumulated stocks.

The effect on Arabica coffee producers will depend on the scale of the price decrease. The fall in price will affect their incomes and therefore their ability to plan for future harvests. This may to some extent be protected if they are in a co-operative or fair trade partnership.

- 10 i** Consumer surplus is the difference between the value a consumer places on what is consumed and the payment that is required to purchase that product.
- Producer surplus is the difference between the price a producer is willing to accept and what is actually paid by the consumer.



**Figure A2.4**

- ii** See diagrams.

Consumer surplus – an increase in the price of a good reduces consumer surplus from  $P_1CA$  to  $P_2CB$ .

Producer surplus – an increase in the price of a good increases producer surplus from  $P_1PD$  to  $P_2PE$ .

- iii** Consumers can maximise their consumer surplus by purchasing goods and services when their prices are low but expected to increase. A good example is to buy airline tickets well before departure as they are most likely to increase closer to the flight departure time.

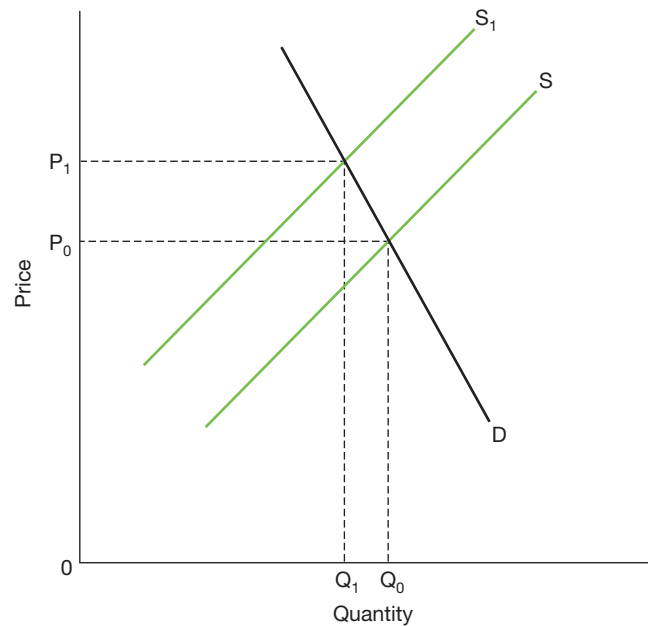
Producers can maximise their producer surplus by encouraging consumers to buy their goods and services at a price above what they might be expecting to pay. Again, an airline might charge a high price for a seat that is booked very close to its departure time; it could also charge a high price when bookings first open, claiming that prices cannot be guaranteed for later reservations.

## Exam-style questions

### Data response question

- a** The world price of cocoa beans is determined by the twin forces of the demand for cocoa beans and the supply of cocoa beans. The world price is determined where demand and supply are equal.

**b** The diagram below shows the effects of a fall in supply on the market for cocoa beans.



**Figure A2.5** The effects of a fall in supply on the market for cocoa beans

This shows that when there is a fall in supply, the supply curve shifts to the left. As a result, the quantity traded falls from  $Q_0$  to  $Q_1$ , whilst the world price of cocoa beans increases from  $P_0$  to  $P_1$ .

- c** The rise in price is greater than the fall in production **[2]**. Farmer's incomes will increase **[1]** meaning that they can purchase more goods and services **[1]**.
- d i** The demand for chocolate in the BRICs countries is increasing as incomes are increasing. This is indicated by there being 'more and more middle class consumers' who will have more disposable income to spend on luxury goods such as chocolate bars.  
(An alternative answer is the availability of chocolate bars from multinational corporations in response to the changing taste/fashion of consumers for chocolate).
- ii** The demand for chocolate in the UK is falling due to concerns over the effects that increased consumption of sugar in the diet is having on the health of young people. There is a growing problem of childhood obesity – this is changing attitudes/taste towards chocolate consumption and reducing demand.
- e** Forecasting in economics is by no means easy. In this case, the projected 30% rise in cocoa prices is based on forecasting the supply of cocoa beans and the demand for cocoa beans over the next five years.

There are many uncertainties, some of which are referred to in the Bloomberg feature. On the supply side, it is impossible to predict what extreme weather conditions there might be. It is possible that producers in West Africa and elsewhere increase their supply by planting more cocoa bushes. This will take time. On the demand side, there are conflicting situations of markets where the demand for chocolate is increasing and other markets where demand is falling. So, overall, being certain that the 30% increase in price will happen is very problematic.

## Essay questions

- 1 a** Price elasticity of demand is a numerical measure of the responsiveness of the quantity demanded for a good following a change in its price. It is measured by the formula below

$$\text{PED} = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in price}}$$

Convention is that the negative sign is usually ignored.

When a good is price inelastic, this means that the quantity demanded is not particularly responsive to a change in its price. So, a large change in the price of good will result in a lesser change in the quantity that is demanded. This results in a numerical value for price elasticity of demand of between 0 and 1.

There are two main factors that can be identified as being important determinants of the price elasticity of demand for a product. These are the availability or otherwise of substitute goods and time.

Price inelastic goods invariably have few substitutes. A good example is salt. When its price increases, the demand for salt will change little if at all. Hence, its price elasticity is low. Another example is petrol, a necessity for anyone who owns a conventional car. There are no particular substitutes, although hybrid and electric vehicles are slowly gaining in popularity. A third example is essential peak period commuter travel by bus or rail. Workers need this transport to get to work and must bear the increased cost when ticket prices increase. A less obvious case could be luxury items such as a Rolex Watch or Tiffany bracelet. Although not essential like the other three examples, the quantity demanded is unlikely to be seriously affected by a price increase.

The demand for a good is also affected by time. In the short term, consumers tend to be 'locked in' to a pattern of expenditure and invariably, are prepared to pay an increased price for anything they buy on a regular basis. The longer the time period, the more elastic the quantity demanded as consumers have more time to research the market for substitutes.

- b** A successful entrepreneur ought to have a good understanding of price elasticity of demand. This is because in a competitive market, a change in the price of what is being sold could have a negative as well as positive effect on the business's revenue. Not all goods sold are price inelastic and in some ways, it is an entrepreneur's vision to make what is being sold as price inelastic as possible.

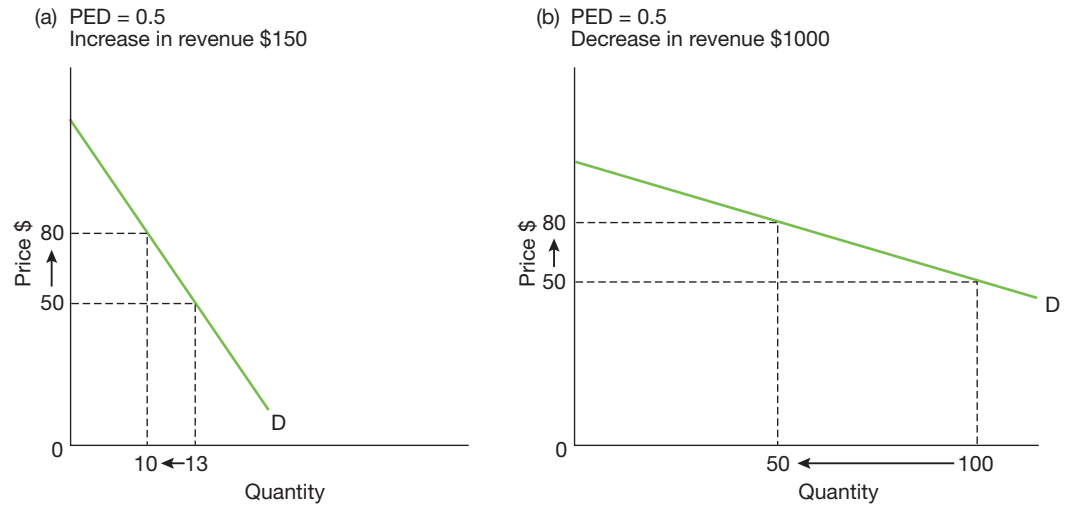
A very good way of doing this is through creating a brand image for a product. A successful advertising campaign possibly fronted by a celebrity could do this, resulting in a shift to the right of the demand curve. This is a typical way of establishing a superior brand image in the eyes of consumers. By doing this, the good is seen as superior to the products of competitors and therefore, less likely to be affected by a price increase. Establishing a good in this way is a slow, time-consuming process and if the good is price elastic, may never happen due to competition in the market. Examples of typical goods that are likely to have become more price inelastic over time are Coca Cola, Heinz beans, Nescafé instant coffee and Kit Kat, all of which are now well established in international markets.

If a good is price inelastic, an increase in its price is likely to be beneficial to an entrepreneur since the relative fall in quantity demanded will be less than the increase in price. This is shown in diagram (a) below. A reduction in price would not be beneficial and only appropriate in a short-term price war.



### TIP

Note how this answer consistently refers to 'quantity demanded' and not 'demand'.



**Figure A2.6** The impact of a price change on revenue for a relatively inelastic and relatively elastic demand

If a good is price elastic, raising its price is not a good option as revenue would fall. This is shown on diagram (b). Reducing the good's price though should increase a business's revenue.

So, entrepreneurs are likely to be happiest when increasing the price of a price inelastic good; they could also be happy when reducing the price of a price elastic good, although the former option is likely to be less uncertain in terms of the revenue gain.

- 2 a** The price elasticity of supply is a numerical measure of the responsiveness of the quantity supplied to a change in the price of a product. It can be calculated using the formula below:

$$PED = \frac{\% \text{ change in quantity supplied}}{\% \text{ change in price}}$$

A product has an inelastic price elasticity of supply when the numerical value is between 0 and 1. This means that there is a less than proportionate response in supply following a change in price.

Two factors that might make the supply relatively price inelastic are whether a business has unsold stocks of its product and the time period involved.

A manufacturing business is likely to hold some stocks, although with sophisticated production methods such as JIT, this is more and more unlikely. The release of products from stock can be a business's response, for example, a price increase in the market. If a business has little or no stock, then the supply of its product is much more price inelastic.

The time period is also important. The response of a business to a price increase in the market could take a few months if it has to increase its productive capacity. In the case of agricultural goods, it is likely to be even longer given that most products take at least a year to be planted and then harvested.

- b** Any policy to increase the supply of essential goods such as food and housing is likely to take time. Supply-side policies can be used to achieve this objective but these are not necessarily easy to implement.

With food, the government could provide loans to farmers to increase the supply of essential food crops. These loans could be used to purchase new equipment for farms or to put on training courses for farmers and their workers to make them more aware of modern, effective production methods.

In the case of housing, the government could take steps to make more land available for building purposes. It could also offer apprenticeship training for school leavers seeking a career in the building industry. Subsidies could also be used to put pressure on businesses to build new homes.

Both the above examples are supply-side policies that, if effective, will increase aggregate supply. Whether they will be effective is a difficult question to answer. A lot will depend on whether both workers and the unemployed respond to the new training opportunities that are available. Supply-side policies also take time to be effective – this could well hold back any increase in the supply of essential goods. A third issue to address is the opportunity cost involved; the government might not have the resources available to fund the policies that are required since there are other needs to be met from its budget. To conclude, it is clear that supply-side policies may not be able to guarantee an increase in the supply of essential goods.

- 3 a** Income elasticity of demand can be defined as a numerical measure of the responsiveness of the quantity demanded for a product following a change in income. The formula is:

$$YED = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in income}}$$

When the income of a consumer changes, the effect on the quantity demanded can be either positive or negative. For most products, a rise in income (real disposable income in particular) leads to an increase in the quantity that is demanded. These are known as normal goods and include things such as take-away meals, visits to the cinema, maybe buying a car, new clothes, meat products and so on. For other products, known as inferior goods, the opposite is the case – a rise in income leads to fall in their demand. Examples might be poor quality foodstuffs, second hand clothes and other things that have better quality alternatives. The income elasticity of demand for normal goods is positive and is negative for inferior goods.

Cross elasticity of demand is different. It measures how the quantity demanded for one good responds to a change in the price of another good. It can be calculated as follows:

$$XED = \frac{\% \text{ change in quantity demanded of product A}}{\% \text{ change in price of product B}}$$

This elasticity measure enables us to know whether two products are substitutes for each other or complements.

The cross elasticity of demand for substitute goods is always positive, meaning that an increase in the price of one good will lead to an increase in demand for the substitute good. The reverse also applies – a fall in the price of one good will increase its quantity demanded but lead to a fall in demand for the substitute good. Examples of substitute goods are different brands of drinks, types of mobile phone and bus travel compared to rail travel.

Goods that are complements to each other have a negative cross elasticity of demand. This means that a rise in the price of one good, which leads to a fall in its quantity demanded, will also reduce the demand for its complement. For example, a rise in the price of petrol might lead to less use of cars or a rise in the price of mobile phones could reduce the demand for ear phones. Such examples are sometimes referred to as goods with joint demand.

- b** Both income and cross elasticity of demand are of potential value to a car manufacturer in an emerging economy such as China or India.

Regarding income elasticity of demand, it is the case that income levels in emerging economies are increasing. A new, more affluent class of consumer can be found, particularly in China but increasingly so in India. One of the first things families usually buy with their increased income is a car or, if they already have one, exchange it for a newer, prestigious model. A car manufacturer ought to know not only the overall income elasticity of demand but also how this varies between cities or between urban and rural areas. After all, China

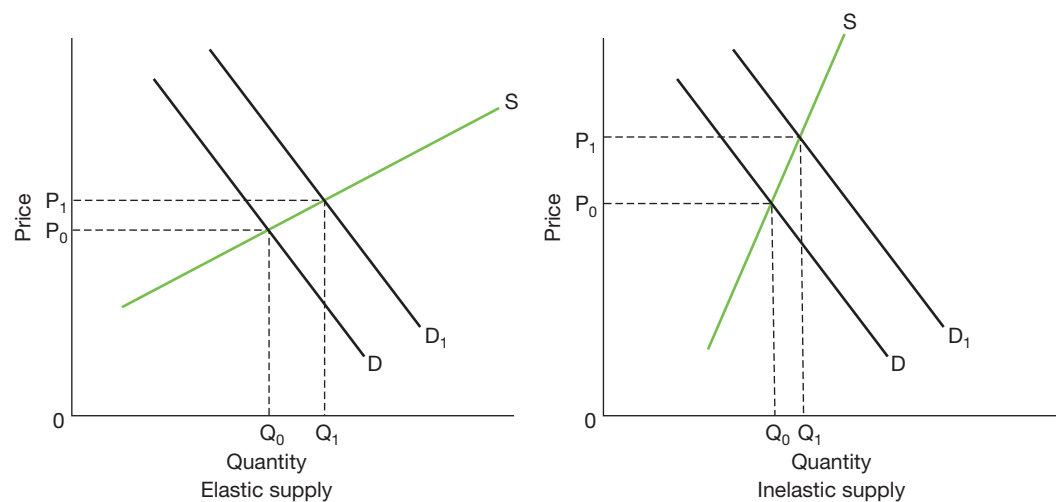


and India are huge diverse countries. The knowledge of income elasticity might allow target markets to be identified.

In some ways, cross elasticity of demand is likely to be more useful. The car manufacturing market is very competitive with many domestic and multinational companies making similar vehicles. Knowing the cross elasticity of demand will give the manufacturer a good understanding as to which are the main competitors. This will be most useful if it is for different models or types such as small saloons, prestige models, SUVs and so on.

The car manufacturer should be advised that elasticity data is not always reliable and, at best, is an estimate due to how it is calculated and collected. Therefore, data on income and cross elasticity of demand should be used with caution, ideally as just one bit of marketing information at the manufacturer's disposal.

- 4 a** The revelation in the television programme will increase the demand for turmeric, resulting in a shift to the right in the demand curve. This is shown in the diagrams below.



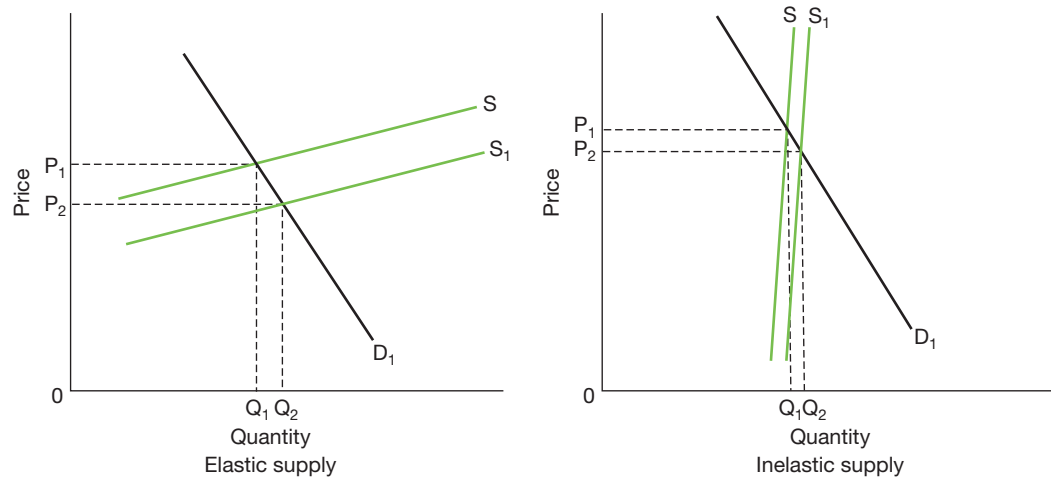
**Figure A2.7** Impact of an increase in the demand for turmeric

Both diagrams show an increase in demand from  $D$  to  $D_1$ . The quantity increases from  $Q_0$  to  $Q_1$  and the price increases from  $P_0$  to  $P_1$  in each case. The extent of these increases depends on the price elasticity of supply. Fresh turmeric is likely to have a more inelastic supply than ground turmeric since it takes time for more fresh turmeric to be produced whilst ground turmeric could be provided from stocks held by manufacturers.

- b** As stated in part (a), the response of the market is dependent on the elasticity of supply. Farmers who grow fresh turmeric will be encouraged to plant additional crops. This will probably take a year before it is ready for the market.

For ground turmeric, the response from the processors will depend on how much stock they already have and the speed with which they can put this stock on the market. If they have no available stock, then the price is likely to stay at  $P_1$ .

**TIP**  
Two diagrams are not essential but make for a very good answer.



**Figure A2.8** Variability of price and quantity traded

These diagrams show how the price and quantity now traded varies, depending on the elasticity of supply. The extent of the fall in price and the quantity supplied follows the same direction but it depends on whether the elasticity of supply is elastic or inelastic. If supply is elastic, then there will be a shift to the right of the supply curve to  $S_1$ . This increases the amount traded but with a fall in price. If supply is inelastic, as is likely with fresh turmeric, the increase in supply will be small and there will be a small fall in price.

The assumption made is that there is no change in the demand for turmeric over time. This is shown by identical demand curves on the two diagrams. As shown, differences in the price elasticity of supply are the key when establishing the market's response to a change in supply.

### Multiple choice questions

**1** Correct option: B

A shift to the right in the demand curve (for lap top computers) means that more will be demanded at every price. This can occur due to an increase in disposable incomes. Option A is incorrect as personal computers are a substitute product – an increase in their demand would shift the demand curve for lap tops to the left. A fall in the price of lap tops is shown by a movement along the demand curve, option C. Option D is not likely to affect the demand for lap tops.

**2** Correct option: A

The price elasticity of demand is  $20\% \div 10\% = 2$ . Therefore, options C and D are wrong. With an elastic demand, a fall in price will increase revenue. So, B is wrong, leaving A as the correct response.

**3** Correct option: D

Option A is clearly wrong – income elasticity does not measure a price change. For option B to be correct, the demand for designer jeans needs to increase by 60 and not 6 per cent. Option C may well happen but option D is the most correct.

**4** Correct option: C

The point about a demand curve with unitary price elasticity of demand is that any change in price leads to an exact equivalent change in quantity demanded and hence, total expenditure. Options A, B and D are therefore incorrect.

**5** Correct option: C

Time is the key consideration here. The availability of spare capacity means that production can increase very quickly. Options A, B and D will also result in increased production but they will take longer to do so.

# Chapter 3

## Answers to exercises

**1**

	Above or below equilibrium price	Effect on market	Where used
Maximum price	Below	Shortage	Staple food items Fuel Bus fares
Minimum price	Above	Excess supply	Demerit goods Low skilled workers' wages Imports with domestic substitutes

**2**

	Direct or Indirect?	Progressive or Regressive?	Likely purpose
Income tax	Direct	Progressive	Income redistribution
Goods & services Tax (GST)	Indirect	Regressive	To provide revenue
Excise duties on tobacco and mah-jong tiles	Indirect	Regressive	To deter consumption of demerit goods
Real property gains tax	Direct	Progressive	Wealth redistribution
Import duties	Indirect	Regressive	To limit import expenditure
Corporate taxes	Direct	Progressive	To provide revenue To encourage new investment

**3** See diagrams

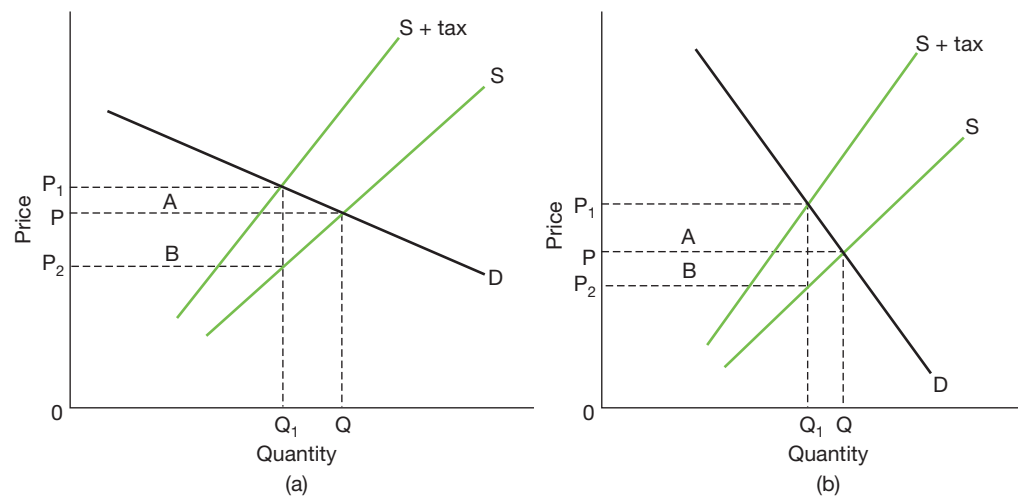


Figure A3.1

Diagram (a) – elastic demand  
 Diagram (b) – inelastic demand  
 A – burden on consumer  
 B – burden on producer

The relative burden of an indirect tax is determined by the price elasticity of demand. Where demand is price inelastic, for example in the case of cigarettes or petrol, the tax burden falls largely on the consumer. If the good has a price elastic demand, then the burden will fall mainly on the producer. It follows that it is best to impose indirect taxes on cases where demand for a good is price inelastic.

4 Below is a typical answer.

Type of subsidy	Advantages of Subsidy	Disadvantages of subsidy
Subsidy on wheat prices Subsidy for seeds required by vegetable farmers	Keeps prices down Contributes to more equitable distribution of income	Cost has to be met from taxation Difficult to estimate
Subsidy on local bus and rail services	Reduced negative impact of congestion Changed preferences Encourages consumption of merit goods	Could encourage inefficiency Money could be better spent elsewhere Open to fraud

5 Below are typical answers.

- a A transfer payment is one that is paid out by the government to members or groups in the community. An example from my country is the money paid to the poorest families as a form of social welfare. It affects the market through providing for a more equitable distribution of income.
- b The direct provision of goods and services is used by governments in order to reduce income equalities. In my country, such provision includes free health care for children under five years of age. It may not be the most effective way of provision because some families can afford to pay for it.

6 i There are two valid reasons. These are:

- to keep prices down to benefit the lowest paid
- to stop the hoarding of these products and to stop their sale above the maximum permitted price.

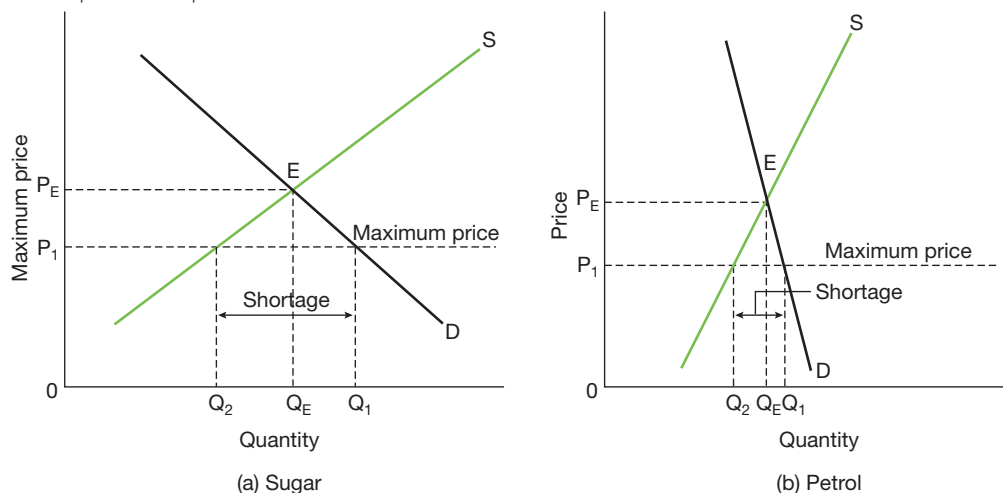


Figure A3.2

- ii The diagrams are based on the assumptions that the demand and supply of sugar are price elastic and the demand and supply of petrol are price inelastic.

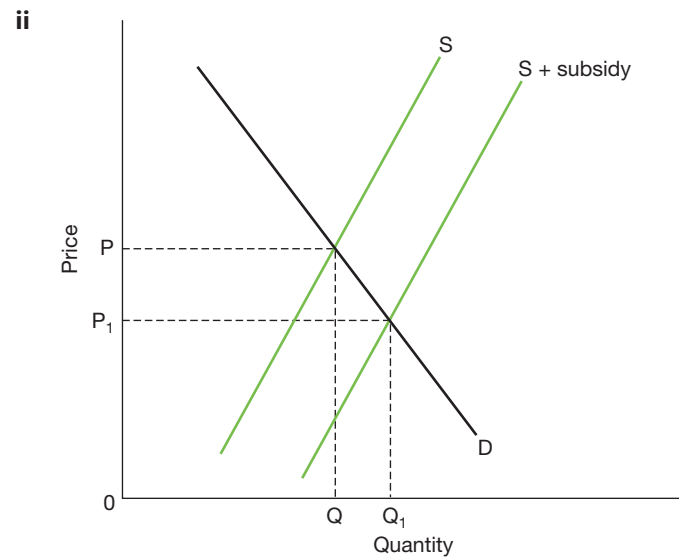
Shortages occur in both markets. The shortage of sugar is greater than that of petrol. It could be explained by sugar farmers switching to more profitable crops once a maximum price has been imposed.

- iii The free market would determine prices in the normal way based on supply and demand. Any increase in demand, increase in supply, reduction in demand or reduction in supply would automatically result in a change in the market price.

The risk with maximum prices for agricultural goods like sugar is that the price might be too low to give farmers a reasonable return. They could decide not to produce sugar any more, switching production to crops with no price controls or to other price-controlled crops where they know they can earn a better living.

- 7 i There are two possibilities for these subsidies, such as:
  - to keep down costs of production
  - to increase export revenue (to provide foreign exchange).

(Reasons for increasing domestic consumption are not relevant given the two products.)



**Figure A3.3**

A subsidy will shift the supply curve downwards and to the right. This will reduce the price of pistachio nuts on the world market, with an increase in the quantity traded.

- iii Subsidies, such as those paid by the Iranian government to its farmers, conflict with the WTO’s policy of promoting free trade. Agricultural subsidies distort free trade. There are particular issues where subsidies are paid by developed economies as these may well protect their agricultural sectors but distort competition from poorer developing economy producers.

*(Iran is not a member of WTO – this useful point could be added in the evaluation, although you would not be expected to know this.)*

8 The usual benefits and costs of privatisation are:

#### Benefits

- Lower costs than state-owned operations, hence lower prices
- Less bureaucracy
- Wider choice for consumers
- More innovative than public sector
- Reduced public borrowing
- Market forces provide a better allocation of resources.

#### Costs

- Could lead to a private sector monopoly
- Greater negative externalities compared to state-owned business
- Prices could be higher
- Once sold off, assets are gone forever.

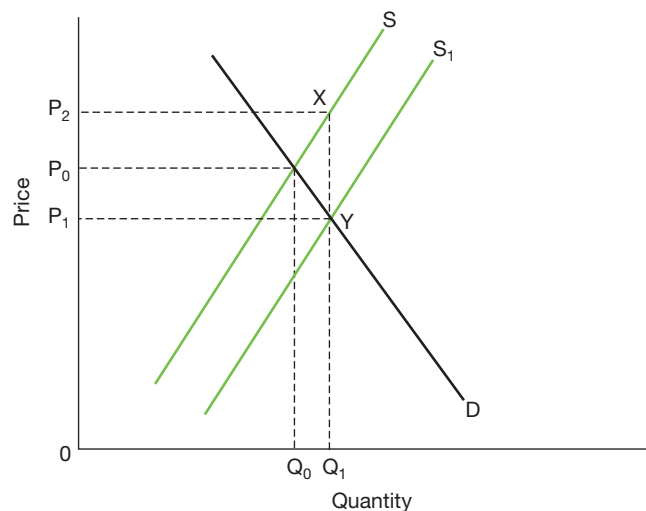
(Make sure you give a balanced answer with a particular emphasis on how the likely benefits and costs may affect both the economy and its people.)

## Exam-style questions

### Data response question

a Opportunity cost is the cost in terms of the best alternative that is forgone. The issue for the federal budget is that a new subsidy paid on agricultural inputs would mean that funds would have to be diverted from some other area of government expenditure. This is the opportunity cost.

b



**Figure A3.4** How a subsidy to Pakistan's wheat farmers affects the market for wheat

As the diagram shows, when the government provides a subsidy on wheat it leads to a shift to the right of the supply curve for wheat from  $S$  to  $S_1$ . The effect of this on the market is at the new equilibrium where the price will be lower,  $P_0$  to  $P_1$ , and the equilibrium quantity will increase from  $Q_0$  to  $Q_1$ . The subsidy paid by the government is the vertical distance  $XY$ .

c The subsidy paid to Pakistan's wheat farmers will make Pakistan-produced wheat more competitive in the export market. The price will be lower than before the subsidy and is likely to make Pakistan's wheat competitive with that produced by India and Bangladesh whose farmers already receive a subsidy from their governments. As a result, the value of Pakistan's exports will increase, possibly helping Pakistan to meet any deficit in its trade in goods in the current account of the balance of payments.

- d** An alternative to subsidies is for farmers who are badly affected by extreme weather conditions to be given a direct cash payment by the government. Unlike a subsidy, which is a blanket payment, the level of direct payment could be varied depending on how serious wheat yields have been affected. A longer-term measure might be for the government to provide better advice to farmers on how to combat bad weather or maybe, to put resources into developing seed varieties that are more durable.
- e** This is a controversial issue, as the Pakistan government's representation at the WTO indicates. For many years, developed countries such as the USA and many EU member states have paid huge sums of subsidy to protect their agricultural sectors. Large sums of support have been paid to farmers producing crops like sugar and wheat, both of which can be produced more cheaply in developing countries.

A crucial issue here is that of security of supply, especially when it comes to food crops. This is an important reason why governments in developed countries do not always want to rely more heavily on the world market for supplies. Other considerations are with respect to employment and the need to ensure the sustainability of the rural economy in already deprived regions of, for example, parts of the US, France, Germany, Italy and so on.

### Essay questions

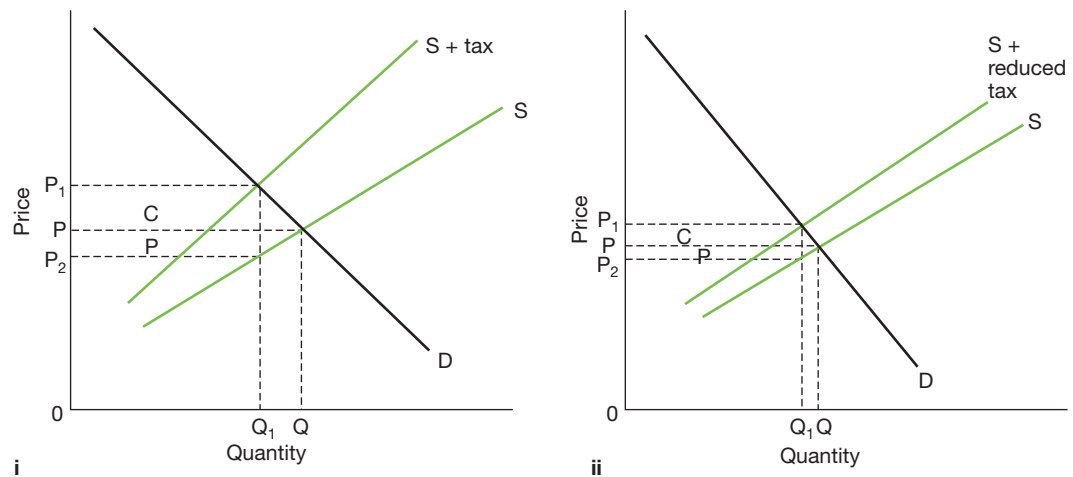
- 1** Governments provide goods and services in all types of economy, even in those countries that have a predominantly free market system like the USA and Singapore. In this type of economy but more especially in mixed economies where there is both private sector and government involvement, governments find it necessary to provide public goods and merit goods. These are not provided or will be under-provided if left solely to the private sector. Some merit goods are also provided for equity reasons.

Examples of public goods provided out of tax revenue by governments are flood defences, street lighting, local fire services and national defence. They are characterised by non-rivalry and non-excludability. Non-rivalry means that the consumption for any one individual is the same, resulting in zero marginal cost. Non-excludability means no one can be excluded from the consumption of public goods – this leads to the so-called 'free rider' problem whereby some consumers who have not paid anything towards their operational costs benefit in the same way as all others.

Merit goods are much more controversial. They are so called because the government believes that they are under-consumed when left to the free market. They produce positive externalities which are not always recognised because of information failure. Hence, individuals are not always aware of the benefits they provide for those who consume them, for the wider community and for the macroeconomy. Classic examples of merit goods are health care and primary and secondary education. Such services are invariably provided by the government as they could be under-provided and under-consumed if left entirely to the private sector. Merit goods are often heavily subsidised – users often pay a nominal sum for their consumption. Health care and education are sometimes provided free of charge by governments for equity reasons.

Providing public goods and merit goods invariably requires substantial funding from governments out of tax revenue. This raises the opportunity cost issue, namely could the resource spent on health and education generate a higher return if used to fund other forms of government spending. There is also the issue that some people benefit from public goods and free merit goods when they could afford to pay for them. This is particularly controversial with respect to health care in the context of escalating central budgets.

- 2 An import tax such as that levied by the Indian government on wheat and refined palm oil is an indirect tax. Its effect on the market is shown in diagram (i) below.



**Figure A3.5** The effects of reduction of import tax on wheat and palm oil

Before the import tax is applied, the equilibrium position is at  $P$  and  $Q$ . Imposing an indirect tax leads to a shift to the left of the supply curve  $S$  to  $S_1$ . The outcome of this is that the market price increases to  $P_1$  and the quantity traded falls from  $Q$  to  $Q_1$ . The incidence of the tax is also indicated. Here, consumers and producers share the burden, although relatively, the effect of the tax is greater on consumers (see diagram (i)).

If the import duty is reduced, then  $S_1$  will still shift to the right to  $S_2$  but by a lesser amount. This is shown in diagram (ii). The market price remains above the equilibrium and the quantity traded remains below the equilibrium. The incidence of the tax on consumers and producers is less.

The extent to which the tax incidence falls on consumers and not producers depends on the elasticities of demand and supply. The more inelastic the demand for the product, the easier it is for the seller to pass on the indirect tax to consumers in the form of higher prices. For products with a price elastic demand, consumers will buy less of the product as price rises, meaning that the producer is left to absorb a greater part of the indirect tax.

From the data, it is not possible to tell whether demand for the two goods is price elastic or inelastic. The likelihood is the demand for wheat is more inelastic than refined palm oil for which more substitutes will be available. This probably explains why the import tax reduction on wheat is much greater than that on refined palm oil. Consumers of wheat will still have to suffer the incidence of the import tax but to a lesser degree than when the tax was 25%.

- 3 Obesity is a growing problem, particularly in developed economies such as the UK and the USA. There are concerns about the link between the consumption of fizzy drinks and increasing obesity in children and young adults. Doctors argue that increased sugar consumption is also responsible for the growing incidence of type 2 diabetes, particularly in young people.

The tax on sugar in fizzy drinks is designed to increase their price, resulting in a fall in the quantity demanded. The big assumption though is that demand is price elastic. This may not necessarily be the case since fizzy drinks can be addictive to users. If this is the case, other methods to reduce consumption will have to be considered.

An alternative method, already practiced to some extent, is the provision of information on the packaging of fizzy drinks. This is shown on cans with guidelines as to what constitutes a recommended daily intake. This information is clearly presented for the sugar content.



Manufacturers of fizzy drinks have responded to the new sugar tax by reducing the sugar content of some drinks and promoting new low sugar alternatives. The success of these new products is very important if positive steps are to be taken to reduce the sugar content of fizzy drinks.

### Multiple choice questions

1 Correct option: B

$P_2 CDP_1$  is the burden of the tax on producers. The areas shown for Options A and C have no specific meaning. So, Option B is correct.

2 Correct option: D

Each of options A to C are transfer payments to different groups in the community. Their impact on the distribution of income is not stated and is difficult to assess. So, D is the only correct option:

3 Correct option: C

The initial equilibrium level of income is \$500. In year 1, the income falls to \$480, the same in year 2. In year 3 it is \$420 and in year 4, \$450. Therefore to raise incomes to the equilibrium level, most subsidy will need to be provided in year 3 (\$80).

4 Correct option: C

Each of the reasons is a valid one. Options A, B and D can only be realised if the motorway is actually built. So, option C is the strongest likely reason for privatisation.

5 Correct option: A

To be effective, a minimum price must be set above the equilibrium; a maximum price will only be effective when fixed below the market equilibrium. So, Option A is correct through elimination.

## Chapter 4

### Answers to exercises

1 A typical answer is:

	Cause of short-run change	Causes of long-run shift
Aggregate demand	A rise or fall in the price level	Increase or decrease in consumer confidence Change in government spending Fall in corporate taxes
Aggregate supply	A rise in price of raw materials An increase in indirect taxes Disruption of production due to flooding	Increased number of migrant workers Better qualified workers Increase in capital stock Discovery of new mineral resources

2 i

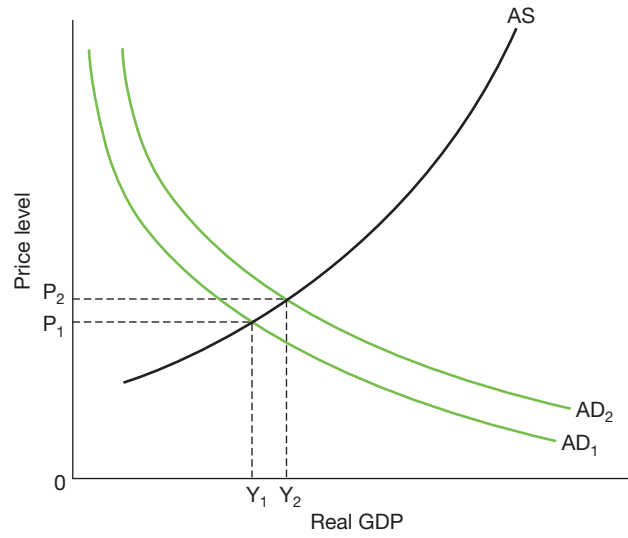


Figure A4.1

ii

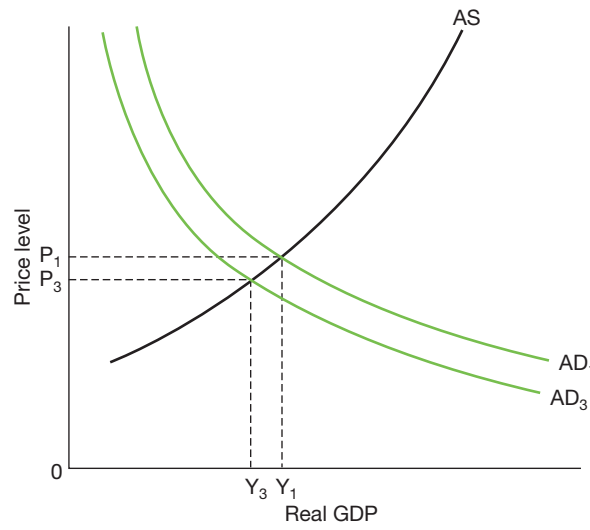


Figure A4.2

iii

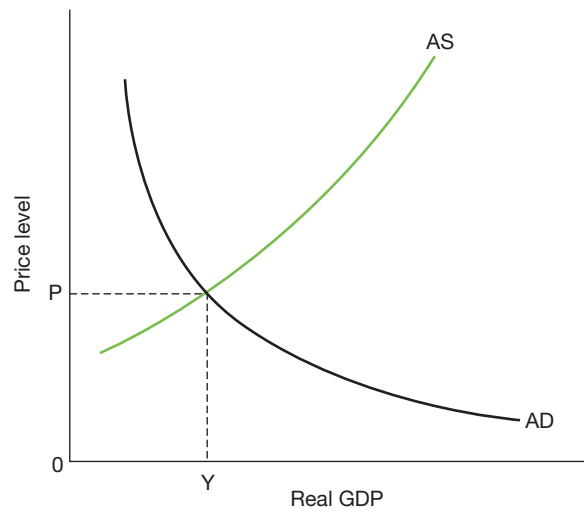


Figure A4.3

The combined effect is a new macroeconomic equilibrium where the combined effects of the two shifts in AD are taken into account. The two effects on AD seem contradictory. The increased business confidence shifts AD to the right; increased unemployment shifts AD to the left.

**3 i**  $Y = C + I + G + (X - M)$

$$7918 + 4566 + 3107 + (5271 - 8225) = \text{US\$m } 12,647$$

**ii** G, government spending.

**iii** The depreciation of the exchange rate will increase the price of imported goods relative to the price of home-produced goods.

$(X - M)$  – net exports should rise, leading to a rise in aggregate demand.

C – likely to see a shift towards domestically produced goods where appropriate substitutes are available. Overall effect is uncertain.

I – the rise in aggregate demand could lead to inflationary pressure; the increase in prices of essential imports could add to this pressure. Interest rates may have to increase, reducing I. The currency depreciation could also affect business confidence, again reducing I.

G – not easy to say as it will depend on the change in tax revenue received by the Namibian government.

Y – overall, the expectation from the depreciation of the currency is that Y will increase but this is by no means certain and there could be a time lag.

**4 i** – Consumer prices have been volatile from around 1–13% per year.

– Large increases coincided with the onset of global recession in 2008/09.

– More stability since 2011 but still at a worryingly high annual rate of increase.

**ii** The Namibian government should be concerned because the inflation rate has resulted in a continuous fall in the purchasing power of the currency and a doubling in the cost of living. It is unlikely that wages will have kept pace with the rate of inflation. This is likely to mean a fall in living standards unless the government has compensated with additional welfare benefits.

**5 i** The balance of trade in goods and services is the net of trade in visibles (goods) and invisibles (services).

$$\text{This is calculated } (51,938 - 89,131) - 1132$$

$$= \text{N\$m } - 38325$$

**ii** The current account balance is the overall balance, taking into account the five items that are shown.

$$\text{This is calculated: } -38325 - 631 + 18,792$$

$$= \text{N\$m } - 20,164$$

**iii** The government of Namibia should be concerned about this position as the current account is in disequilibrium. The cost of imports is excessively high; current transfers in the form (probably) of aid and workers' remittances helps to reduce the deficit but the country will need to keep borrowing to pay for its imports.

The government could:

– devalue its currency

– increase taxes on imports

– encourage and promote domestic production to reduce imports

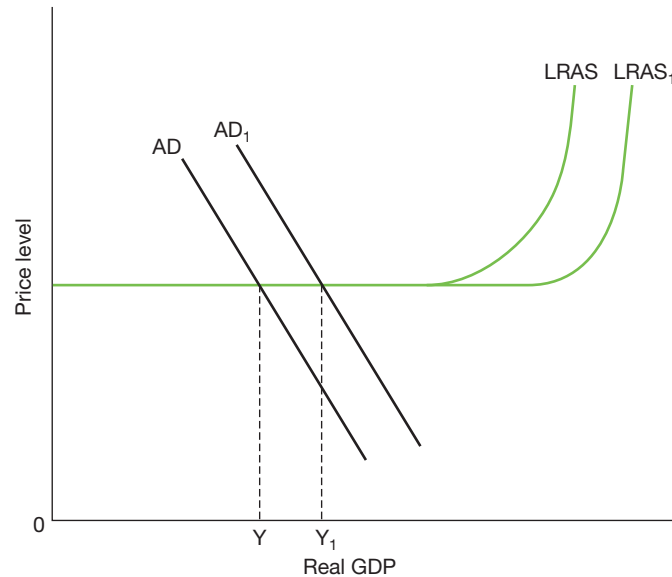
- reschedule its external debts
- increase exports that do not rely on imported raw materials.

- 6 i** The real depreciated up to 2016 but has then appreciated against the US dollar.
- ii** The real has consistently appreciated in 2016, meaning that visitors to the Games get less local currency per \$US. Hotel prices, ticket prices and other expenses will therefore seem more expensive than when visitors were planning to visit the Games.
- 7 i** The terms of trade for Australia have consistently deteriorated whilst those for China improved but then fell back to their January 2014 level in July 2016.

For Australia, import prices are rising faster than export prices. This means more goods have to be exported for the same volume of imports. The changes are most likely a consequence of the composition of Australia's exports and imports.

The problem for China is that over a short period of time, there has been a 10% or so fluctuation. The deterioration in the terms of trade since July 2015 is due to falling export prices, rising import prices or a combination of both. This raises issues about future competitiveness.

**8 i**



**Figure A4.4**

The financial boost to farmers will increase short-run aggregate demand, raising real GDP from  $Y$  to  $Y_1$ .

The expansion of higher education will take time to have an effect on aggregate supply; in the long run this will increase from  $LRAS$  to  $LRAS_1$ .

- ii** Financial boost to farmers – relevant criteria are the extent to which the boost has stabilised their incomes and standard of living and how they might have used this finance to buy more drought-resistant seed or to obtain more reliable water supplies. The final change in aggregate demand might be compared with the original financial boost.

The impact of higher education spending will take much longer to affect the quality of the workforce. It can be viewed as a form of future investment assuming that it results in better qualified graduates who can then enhance India's future economic prospects.

- 9 a** Inflation rates are likely to differ depending on whether inflation is caused by cost-push or demand-pull factors. They might also differ if the economies are operating at different points on the economic cycle.

- b** The extent to which differing rates of inflation affect competitiveness depends on:
- the price elasticity of demand of a country's exports to the rest of the world
  - how the annual rate of inflation in a country compares with inflation in its main trading competitors.

Both reasons should be analysed. On the surface, it seems that India's exports appear to be in danger of being more uncompetitive compared to those of China. India is mainly an exporter of grains and other food crops; China is still a huge agricultural producer although exports relatively little compared to India.

- 10 a** Various reasons including:
- to safeguard a sunset industry such as steel or coal
  - to protect the economy from cheap imports that are being dumped
  - to protect strategic industries such as iron and steel, coal mining, agriculture
  - to improve the balance of trade/balance of payments
  - to protect a country's workforce from cheap, migrant workers.
- b** Free trade is the principal objective of the World Trade Organization. The rationale is that free trade provides the best allocation of scarce resources and allows countries to be able to specialise in those goods and services where they have a comparative advantage. (A simple example here could show the gains from trade.) What else they need can be imported. This view is one that few economists would dispute.

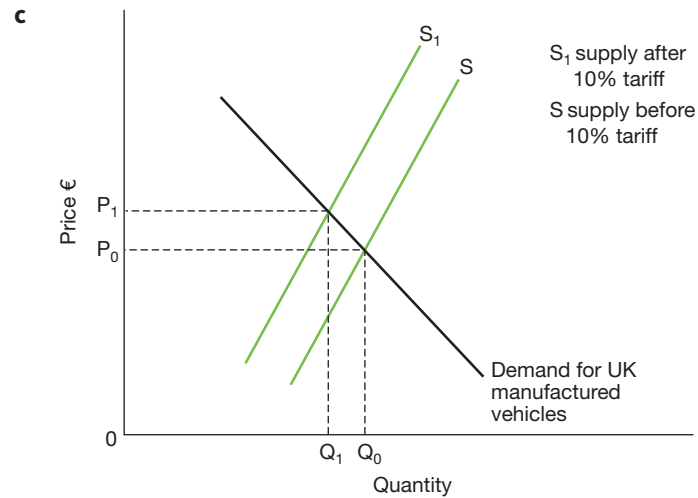
This view is particularly relevant for the UK Brexit ministers, who have had preliminary talks with trade ministers in other countries; in particular, where there is an opportunity to provide a bilateral trade agreement.

## Exam-style questions

### Data response question

- 1 a** The principal benefit of free trade is that it leads to an efficient allocation of resources. Countries can specialise in those goods and services where they have a relative advantage. This is shown to raise world output and so increase living standards. Competition through free trade is a means of keeping quality up and prices down.
- b** For members, these are the dynamic effects of forming a customs union. Trade creation is where a member of a customs union is able to specialise in producing goods where they have a comparative advantage. Goods that were produced inefficiently are replaced by lower cost imports from another member of the customs union.

Trade diversion is different. A member of the customs union buys imports from a fellow member rather than a cheaper source of supply from outside of the customs union. This does not give a more efficient allocation of resources.



**Figure A4.5** The effects on the market of a 10% tariff for import of UK vehicles in the EU

The diagram above shows the effect of imposing a 10% tariff on UK vehicle exports to the EU. The effects of the tariff are the same as if an indirect tax of 10% is imposed, namely the price increases with the likely reduction in the number of UK vehicles that are sold in the EU market. The extent of the reduction in quantity traded will depend on the price elasticity of demand.

- d** Few economists would disagree with the view that universal free trade is of benefit to all. This was the view of classical economists like Smith and Ricardo; it is also one of the underlying principles governing the work of the WTO to reduce protectionist measures in the global economy.

Minford's view is based on his empirical analysis of how trade creation and, more especially, trade diversion impact on the UK economy. Being in the EU is sometimes, as Viner said, a case of 'second best'. In the EU, as indicated in the extract, the UK is not free to fully trade with Commonwealth countries such as Australia, Canada and New Zealand, all of which are major food producers. Additionally, India, Pakistan and Bangladesh are major producers of garments and sportswear – their products are subjected to tariffs when imported into the EU.

So, economic theory would support Minford's view. Only time will tell if this is the case.

- 2 a** The two series have followed a very similar pattern since 2010. However, the current account balance peaked in early 2013 when the balance of trade dipped; in late 2015, it dipped whilst the balance of trade was moving into surplus. The gap between the two series widened slightly from 2015.
- b** Two examples are:
- profits earned by Japanese companies operating abroad; these are the proceeds from FDI
  - bank interest that is paid to foreign nationals holding bank accounts in Japan; this item is a debit since the money goes back to the country where the account holder lives.
- c i** a rising or appreciating yen will lead to a loss of competitiveness for Japanese exports. This is likely to reduce the surplus for the trade in goods in the current account section of the balance of payments. The overall impact will depend on the price elasticity of demand for Japanese exports and how the yen's appreciation compares with changes in the currency value of Japan's main trading competitors.
- ii** The terms of trade are measured as:
- $$\frac{\text{Index of export prices}}{\text{index of import prices}} \times 100\%$$

The rising yen will mean that export prices will rise whilst import prices will fall. This should mean that the terms of trade improve.

- d** The appreciation of the yen means that the price of imported goods in Japan will fall relative to those that are domestically produced. This is not necessarily good news for the macroeconomy since unemployment could rise and there could be a reduction in the trade in goods surplus.

A second impact is that the price of Japanese exports will become that bit more expensive. Again, this could cause similar macroeconomic problems.

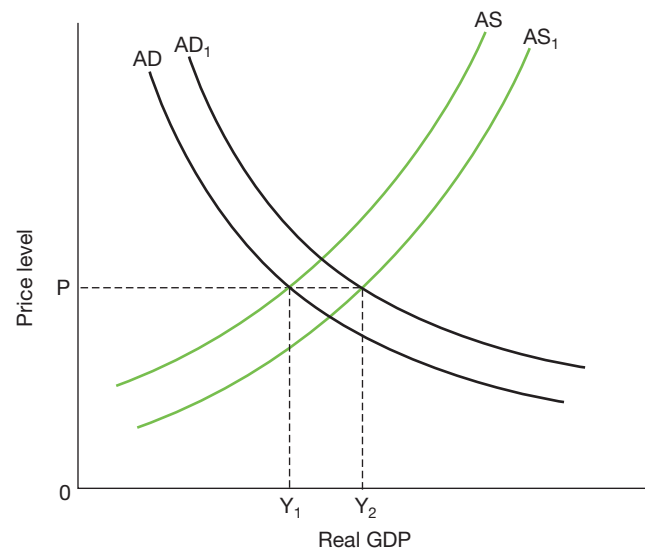
The problems are not necessarily all bad. Japanese producers will have more incentives to become more efficient. Consumers will benefit from lower-priced imports, notably food. So, overall, there are positive as well as the more obvious negative effects of a rising yen.

### Structured essay questions

- 1 a** Aggregate demand is the total spending on goods and services in an economy at a given price level; aggregate supply is the total output or real GDP at a given price level. Both of these important variables are subject to change over time.

Government spending is one of the components of aggregate demand. An increase in it will lead to a shift to the right of the aggregate demand curve. This is shown in the diagram below when AD shifts to  $AD_1$ . With no change in aggregate supply, real GDP and the price level will increase.

Improved labour productivity means that there has been an increase in output per worker in the economy. This is good and will lead to an increase in aggregate supply since the costs of production have been reduced. This is shown by a shift to the right of AS to  $AS_1$  on the diagram.



**Figure A4.6** Aggregate demand and aggregate supply analysis to distinguish between an increase in government spending and improved labour productivity.

Assuming both occur simultaneously in the short run, real GDP increases from  $Y_1$  to  $Y_2$  and there is no change in the price level. The two shifts cancel out each other on this diagram. This is not always the case. An increase in AD with a smaller increase in AS will lead to an increase in the price level. Similarly, an increase in AS with a smaller shift in AD will lead to a reduction in the price level.

- b** Inflation occurs when there is a sustained increase in the price level of an economy over time. For many countries, particularly developed ones, inflation rates for much of this century have been low, typically 2–4%. This is quite acceptable and invariably in line with

targets set by their central bank or government. Hyperinflation is where the price level is out of control as in Zimbabwe and Venezuela of late. A rate of inflation of 10% is still high and should give a government cause for concern if it is not reduced through contractionary macroeconomic policies. It is nowhere near enough to be called hyperinflation.

Domestically, an inflation rate of 10% will have various consequences, particularly with respect to the redistribution of income. If interest rates are below 10%, savers lose out relative to borrowers who experience a real reduction in the value of their debt. Another group to suffer are those on fixed incomes as these are not adjusted for inflation. Workers on low incomes could also lose out if their wages increase by less than the rate of inflation due to their weak bargaining power in the labour market.

Other domestic consequences are due to the uncertainty that arises from a 10% inflation rate. Businesses may be less certain about investing as they are not able to plan effectively for the future. There are also the so-called 'shoe-leather costs' which come about through consumers spending more time than they would wish shopping around for the best prices. Finally, there are on-going 'menu costs' due to retailers and restaurants having to keep changing prices on a regular basis.

The main external costs of inflation are with respect to competitiveness. What is crucial is how the 10% inflation rate compares to the rate of inflation in trading competitors. If it is higher, and there is no change in currency prices, exports will become relatively less competitive whilst imports will compete more strongly with domestically produced goods. Much will depend on the respective price elasticities of demand; if exports are price elastic and imports price inelastic, there is every likelihood that the balance of trade will suffer.

So which is the most serious? Much will depend on how important trade is for a particular economy. Where a country relies heavily on trade, then the external effects are likely to be more serious. This is also likely to be true for small economies. For larger economies that are comparatively less reliant on international trade, the domestic consequences are likely to be more serious. These comments though are generalisations—each case should be assessed individually.

**TIP**

An alternative approach would be to use a simple  $2 \times 2$  table to demonstrate the benefits of specialisation. If you do, make sure your numbers reflect comparative advantage.

- 2 a** On the surface, it might seem there is no potential for trade. This is not so. With the two products, the key determinant is the relative efficiency of production. A country should concentrate resources to produce the product where it is most efficient and trade with another country for the product where it is less efficient. The outcome of this is that both countries gain. There is an increase in production of each good, due to specialisation and, as a result, living standards should increase through a more effective use of resources. This is sometimes referred to as the gains from trade.
- b** The less efficient economy may use tariffs, quotas and other methods to protect its industries. Whether this is justified is debatable.

The less efficient economy may seek to protect an infant (sunrise) industry. This is especially the case for developing and emerging market economies where there is a danger that new start-ups could be driven out of the market by more established overseas competitors. A declining (sunset) industry might also be protected through export subsidies being made available to reduce prices in global markets.

Protection might also be justified to protect an economy from a situation where a low cost foreign producer sells goods below cost. A present-day example is steel products – Chinese producers have been accused of dumping steel at below cost in developed economies such as the UK and the USA.

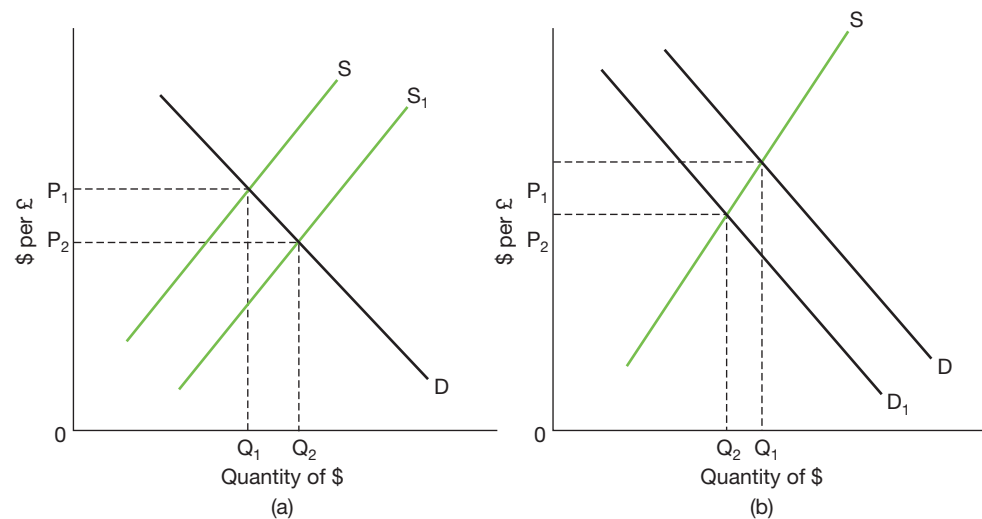
A third justification for protection is where a country seeks to protect a weak balance of payments position. Here, a tariff will increase the price of imported goods making them less competitive compared to domestically produced substitutes. Hopefully, this will improve a weak balance of trade position.



The above justifications are just three of many reasons why a less efficient economy may wish to protect one or more of its industries. Whether it is justified is not easy to assess. There may on the surface appear to be valid reasons for protection. However, it must be stressed that protection is counter to the principle of comparative advantage and its resulting benefits. If protection is used, most economists would argue that it should be short term and not long term.

- 3 a** A floating exchange rate system is one where exchange rates are determined solely by the market forces of supply and demand. There is no government intervention in the market. The exchange rate, therefore, is a form of price.

The diagrams below show how rates in a floating exchange rate system can vary.



**Figure A4.7** Exchange rates in a floating exchange rate system

In both diagrams, D is the demand curve for UK pounds in terms of US dollars; S is the supply curve. The demand curves slope downwards since, if the pound falls against the dollar (which it has been doing), the price of UK goods will be less in dollar terms. The supply curve slopes upward since a fall in the value of the pound will increase the price of imported goods, leading to fewer imports being purchased.

In diagram (a), the supply curve for pounds shifts to the right. This could occur when there is an increase in imports from the USA or elsewhere that trades in dollars. British consumers and producers will need to buy more dollars to pay for these imports – they will have to pay for them in pounds, resulting in a fall in the exchange rate from P<sub>1</sub> to P<sub>2</sub>.

A free-floating exchange rate as shown in diagram (b) can also fall when there is a decrease in demand for UK exports to the USA. American firms will now buy fewer pounds, the demand curve shifting downwards from D to D<sub>1</sub>. The new exchange rate will be P<sub>2</sub> with less dollars traded.

- b** A devaluation of an exchange rate is where there is a deliberate move by a government to lower the price of its currency on the international market. This is invariably where there is a disequilibrium in the balance of trade. The usual intention for this is to reduce a deficit on a country's balance of trade. Devaluation results in a relatively lower price of exports compared to the prices of competitors. Through devaluation, the intention is that the value of exports will increase to reduce pressure on the balance of trade deficit. At the same time, devaluation increases the price of imports, some of which could become less competitive when compared to domestically produced goods.



**TIP**

Remember to clearly label the axes on such diagrams to reflect the foreign exchange situation. An alternative approach would be to explain a fall in US imports and an increase in demand for UK exports in the US.

The above is the theory. The reality is that whether devaluation is effective will depend on the so-called Marshall–Lerner condition. This states that to be successful, the sum of the price elasticities of demand for exports and imports must be greater than 1. Overall, if this applies, there should be an improvement in the balance of trade in goods and services.

A further consideration is known as the J-curve effect. This explains how, following a devaluation, the current account will actually worsen before it gets better. This is because in the short term, the demand for imports and exports is likely to be price inelastic. It will take time for export sales to increase and for imports to fall, assuming that there is a domestic supplier whose products can replace imports.

So, correcting a disequilibrium in the balance of trade is by no means as straightforward as economic theory might have us believe. It also depends on the extent of the deficit in the balance of payments. If this is fundamental, then devaluation is unlikely to cure the problem. A fundamental restructuring of the economy might be the only solution.

- 4 a** Protection is the term used to describe the way in which an economy seeks to cushion its activities, industries especially, from foreign competition. It restricts free trade and is practised by most countries, developed as well as developing. The purpose is to make domestically produced goods and services more price competitive compared to foreign producers.

There are various methods that a developing economy can use. One that is most commonly applied is a tariff or import duty on imported goods. This is a type of indirect tax which is used deliberately to restrict imports by raising the price of imported goods to consumers. It is widely used in most developing economies to help domestic producers and the balance of trade in goods and services.

A second method of protection is a quota, a physical restriction on imported goods. Again, the purpose is to help domestic producers by giving them a bigger share of the market. Restricting supply is likely to force up the price of the imported goods, which in some cases may be perceived as being superior to those produced domestically.

Other methods include exchange control, which limits the amount of foreign exchange for purchasing imports, and subsidies. These may be given to exporters as well as to domestic firms to reduce import expenditure.

- b** Developed countries also use protectionist measures, often for the same reasons as developing economies. The USA and EU, for example, impose tariffs on certain types of manufactured goods. For cars produced outside the USA, the duty is just 2.5%; for imports into the EU, it is 10%; US tariffs though are much higher on luxury goods.

Developed countries are much more likely to protect their agricultural industries with tariffs and quotas. Again, both the US and EU do this largely to protect inefficient producers, usually located in poor farming regions. This is controversial as it discriminates against farmers in other developed countries as well as in developing economies.

Quotas are also used by developed countries. A recent example has been the quotas imposed by the US and EU on cheap imports of steel from China. These imports have been dumped and sold at below cost due to over production. A second example is in the case of garments, again from China. Difficult negotiations have resulted in both tariffs and quotas being agreed on a range of textile products.

Developed countries also use export subsidies. A recent example has been the subsidies paid by the UK and French governments to Airbus, the aircraft manufacturer. These subsidies have infuriated Boeing, the US's plane producer, since they reduce the cost of purchasing a European-made aeroplane.

In developed economies, job protection is usually the principal reason for protection. The methods used are the same as in developing economies – the difference tends to be more in terms of motives rather than methods.



**TIP**

The examples quoted in this answer enhance its quality. They are most likely to be found in up-to-date news items.

- 5 a** Terms of trade is concerned with exports prices and import prices. It takes the form of an index and is measured as follows:

$$\text{Terms of trade index} = \frac{\text{Index of export prices}}{\text{Index of import prices}} \times 100\%$$

It is compiled regularly for most countries and involves recording the average prices of a wide range of goods and services that are traded. From a base year of 100, if the index rises above 100, then the terms of trade have improved; an index of below 100 means that the terms of trade have deteriorated.

There are various factors that affect the terms of trade. One of the most important ones is the foreign exchange rate of a country. If there is an appreciation in the exchange rate, this leads to a fall in the price of imported goods. If export prices remain the same, the index will increase numerically, meaning that the terms of trade have improved.

A second reason is that inflation in an economy is likely to result in increased prices for domestically produced goods for export. If demand for these is inelastic then the higher prices are likely to persist, improving the terms of trade. An increase in demand for a country's exports is also likely to improve the terms of trade. The increased demand should prompt an increase in price.

- b** Developing economies in general have faced deteriorating terms of trade for many years. In other words, the prices they have received for their exports have fallen relative to the prices they have had to pay for imports. This means that more exports will be required to pay for the previous amount of imports.

A significant cause for the deterioration has been the pattern of trade for most developing countries. Exports tend to be heavily weighted towards agricultural products, whilst imports tend to be manufactured goods. Even for products such as coffee, which is in heavy demand, the prices paid to exporters have fallen in recent years due to an increase in supply. This also applies to other farmed crops like wheat and maize. Having said this, in the last few years, agricultural prices have rallied for some crops leading to an improvement in the terms of trade for some developing countries.

Recent changes in exchange rates have not helped many developing countries whose exchange rate is directly linked to the US dollar. The depreciation of the rupee is typical. In 2012, there were 50 rupees to the US\$; in 2016 there are typically 65 rupees. This depreciation means that the terms of trade have deteriorated. Almost 30% more has to be paid for imported goods.

Another reason is that demand for the exports of many developing countries is not increasing and, in some cases, there is intense competition between countries to meet the needs of developed countries. Consequently, export prices are very competitive at a time when import prices are rising. The terms of trade index are likely to be deteriorating.

With recession in the global economy, the price of oil has fallen a lot from its peak of almost \$150 a barrel. This is good news for oil importing developing economies as their terms of trade will improve. It is not good news for Nigeria, which relies very heavily on its oil exports. Nigeria's terms of trade have deteriorated badly. In general, the terms of trade of developing economies have deteriorated for many years, due to the reasons explained earlier.

- 6 a** The balance of payments is a record of the transactions of one country with all other countries. The standard presentation of the balance of payments account consists of three parts. These are: the current account, the capital account and the financial account.

The current account is very important and includes a range of items. Two of these are the trade in goods (visible) and the trade in services (invisibles). Where goods – such as cars, metals or textiles – are exported, there is a reverse flow for their payment. This is recorded as positive. For imports, the opposite occurs. Taken together, this is known as the balance

**TIP**

Terms of trade is not an easy topic to understand and it often confuses students.

of trade in goods. The trade in services such as payments for shipping, banking and tourism works in the same way leading to a balance of trade in services.

Another part of the current account relates to various types of income. A good example of this is the earnings made by companies who invest overseas. The profits and dividends returned to them becomes a credit item. The equivalent debit is when foreign-owned companies return the same back to their own country of origin. A final part of the current account is for transfers, for example, money earned in one country being returned home by foreign workers.

The financial account records movement of funds into and out of a country. Items included here are when a firm invests heavily in another country or a foreign firm takes over a business elsewhere. The capital account is now relatively insignificant and records capital transfers.

- b** A persistent deficit in the current account of the balance of payments is not good news for the domestic economy. It means that a country's expenditure is greater than its income and therefore, corrective measures have to be put in place. These take two forms: expenditure-switching and expenditure-reducing or dampening policies.

An expenditure-switching policy, as the name suggests, is a policy that aims to switch expenditure from imported goods and services to those products that are produced in the domestic economy. One way in which this can be particularly effective is through a devaluation or a steady depreciation of the currency. These approaches will make imported goods and services relatively more expensive than those produced at home and so encourage consumers to switch their demands. However, the success of this policy will depend on the respective price elasticities of demand.

An expenditure-switching policy will affect the domestic economy in two ways. First, it should increase employment in those businesses that are experiencing an increase in demand. The more elastic the price elasticity of demand, the greater the likely increase in jobs. Second, and this is negative, the increase in price of imports could generate cost-push inflation, especially if the demand for imports is price inelastic.

A second type of policy is one that reduces expenditure. This is a deflationary policy that reduces aggregate demand through a variety of possible measures such as increased taxation or reduced transfer payments and other forms of government spending. The reduction in aggregate demand leads to less expenditure on imports but also less expenditure on domestically produced goods. This is not good news in some respects for the domestic economy – employment is likely to fall although deflation may help to reduce the effects of inflation.

To conclude, where a country experiences a persistent deficit in the current account of its balance of payments, policies to correct this have rather mixed effects. They are essential policies since, if unchecked, the persistent deficits could lead to capital flight and much more serious implications for the economy.

### Multiple choice questions

- 1** Correct option: C

The crucial word in the question is 'not'. Options A, B and D are all causes of cost-push inflation. Option C is likely to cause demand-pull inflation.

- 2** Correct option: A

Option B leads to an increase in AD as does option C. Option D reduces aggregate supply. So, A is the correct answer.

3 Correct option: D

This question requires a knowledge of the Marshall–Lerner condition, which states that, to be effective following a devaluation, the sum of the price elasticities of demand for exports and imports must be greater than 1. Options B, C and D all meet this requirement. Option D is the greatest sum and therefore the correct response since the question says ‘most likely to produce the largest improvement’.

4 Correct option: C

Option A is correct since consumer prices did increase in this period. B is correct since prices increased after a negative rate of change in year 1. D is also correct since 5.0% is the largest figure shown. This leaves C as incorrect – prices increased in year 5 but at a slower rate than in year 4.

5 Correct option: D

Options A, B and C should make the current account deficit less. Option A is an expenditure-reducing policy; Option C is an expenditure-switching policy whilst B will increase the price of imports and reduce the price of exports. Option D is likely to increase the value of imports since the price elasticity of demand for essential raw materials will be inelastic.

## Chapter 5

### Answers to exercises

1 A typical answer is:

Objective Type of policy	Balance of payments equilibrium	Low and stable inflation	To combat deflation
Fiscal	Taxes on imported goods Reduce government spending	Increase taxes Reduce government spending	Reduce taxes Increase government spending
Monetary	Increase interest rate Exchange controls	Increase interest rates Control money supply	Low interest rates Quantitative easing
Supply-side	Incentives for import-reducing industries	Stable business confidence Subsidies	Positive business prospects Cut corporate taxes
Direct controls	Import quotas Export subsidies	Maximum price controls	Cash handouts (‘Helicopter money’)

2 i Diagram **a** shows a fall in aggregate demand and a fall in aggregate supply. Real GDP falls and there is no change in the price level.

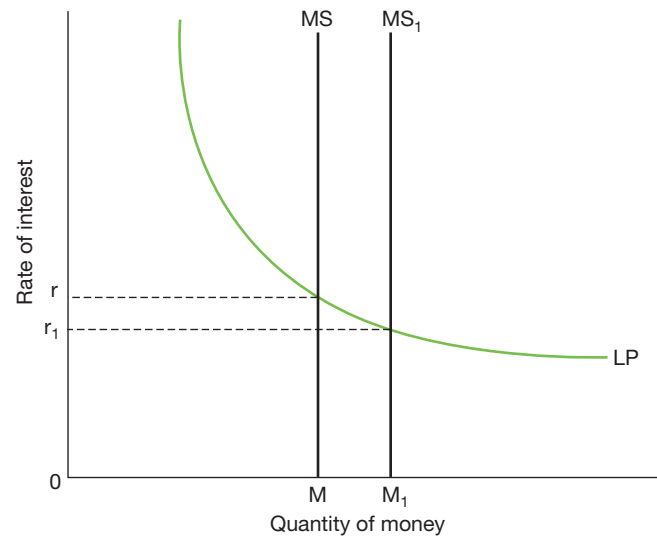
Diagram **b** shows a fall in aggregate demand and a fall in real GDP. The price level falls to  $P_1$  due to the fall in aggregate demand.

ii **a** fall in aggregate demand – various possibilities including an increase in income tax or a drop in business confidence

fall in aggregate supply – net migration of workers out of the economy or a reduction in the retirement age

- b** fall in aggregate demand as above but not strong enough to fully correct inflation.
- iii** The changes may not always be effective because of:
- time lags
  - uncertainty over the impact of policy changes
  - external shocks.
- 3 a** Two obvious signs are:
- deteriorating current account balance
  - increasing overall deficit.
- Other less significant points are:
- a substantial fall in net service receipts, especially in travel
  - fall in both exports and imports.
- b** The devaluation of the currency is an obvious starting point – import prices increase whilst export prices should be cheaper, assuming little or no domestic inflation. Import tariffs and quotas are other possibilities.
- Expenditure dampening policies such as a fall in government spending or an increase in taxation could be used to suppress the demand for imported goods.
- 4 a** An increase in the number of apprentices will result in a shift outwards of the long-run aggregate supply curve, although the effect on real GDP will be subject to a time lag. The productive potential of the economy will increase. This can be explained on an AD/AS diagram.
- b** Various incentives to both the apprentices and their employers will be needed. These could include a training wage, some or all of which to be paid by the government. Tax allowances could be paid to employers who participate.
- 5 a** The tax charged on vehicle imports from Australia and Japan is a way of protecting domestically produced vehicles. Removing this tax will open up the market and increase the pressure on Malaysian producers to be more efficient in order to remain competitive. Factors other than price could become more important in purchasing decisions.
- There are two likely macroeconomic effects:
- an increase in imports, which, in turn, will affect Malaysia's balance of trade
  - potentially, the loss of jobs in Malaysian manufacturers leading to a fall in aggregate demand and real GDP.
- b** There could be two possible negative effects:
- i** Closure of Malaysian vehicle manufacturing plants.
  - ii** A possible takeover by a global producer from Australia or Japan.
- However, there could be a positive effect:
- i** Malaysian vehicle producers could become more efficient to remain price competitive.
  - ii** Quality, technical advances and other non-price considerations will play a role in a positive response to the threat to their markets.
- On balance, the threats may seem greater than the positives.

- 6 a** The diagram below is a useful starting point.



**Figure A5.1**

A fall in the rate of interest from  $r$  to  $r_1$  will lead to an increase in the money supply from  $M$  to  $M_1$ . This will increase aggregate demand and hence the rate of inflation.

- b** A crucial factor is to understand whether or not inflation has been caused by demand-pull or cost-push reasons.

A rise in interest rates would normally discourage consumer spending and deter firms from investing in new capital resources. However, there is no guarantee that consumers will reduce their spending; neither is there any guarantee that firms will abandon plans to re-equip. Even so monetary policy is the best way of dealing with this type of inflation.

For cost-push inflation, fiscal and supply-side policies are likely to be more effective. Increasing taxes and cutting back on government spending will reduce aggregate demand.

A supply-side policy to correct cost-push inflation could involve increased spending on training unemployed workers. Over time, this policy would see an increase in labour productivity and hence a reduction in labour costs. For a business, lowering corporate taxes could release funding for new capital equipment – this will be more efficient, reducing the costs of production.

## Exam-style questions

### Data response question

- a i** Pakistan's balance of trade has been in deficit for the whole period from 2011 to 2016. There has been an increasing deficit towards the end of the period although there have been fluctuations, again towards the end of the period.
- ii** Remittances made by Pakistani workers employed overseas are included as a credit item in the transfers section of the current account of the balance of payments.
- b** A strong rupee in principle increases the price of Pakistan's exports relative to that of some of its competitors. It also means that import prices are relatively less expensive. Both these forces work together to create a deficit or exaggerate a deficit in the balance of trade.
- c** The article states that Vietnam, one of Pakistan's main trade competitors, is a member of the TPP. This means that it will have preferential access over Pakistan when trading with other

members. The USA and Australia are particularly large markets where Pakistan exports could be replaced by those from Vietnam.

- d** The balance of trade disequilibrium for Pakistan is very serious. It is huge and the deficit is increasing. From the data, it would seem that the most effective policy is likely to be a substantial devaluation. This ought to reduce the value of imports and increase the value of exports due to their lower prices. This is a type of expenditure-switching policy.

In theory, an expenditure-reducing policy is also feasible. Reducing aggregate demand might cut back on imports but it is likely to reduce employment in an already fragile economy. There are other policy options, such as quotas, tariffs and embargoes, that are arguably better suited to situations where the disequilibrium is not as serious.

### Essay questions

- 1 a** Aggregate demand is a term used to refer to the total expenditure on goods and services in an economy. This is for a given price level and at a particular period of time.

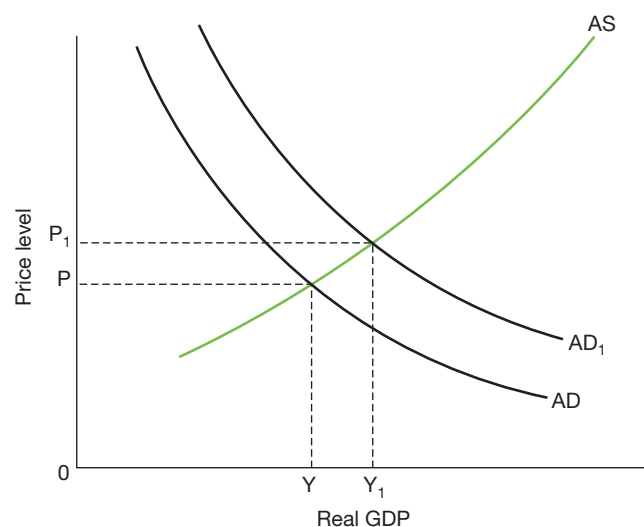
Aggregate demand consists of:

- Consumption or spending by households on goods and services.
- Investment or spending by firms on capital goods.
- Government spending on goods and services.
- Net exports or the difference between the value of exports and the value of imports.

Aggregate demand can increase for various reasons, one of which is an increase in government spending. This could be on new capital infrastructure projects or an increase in spending on transfer payments. The effect is to put more money into the hands of people, thus increasing aggregate demand.

Aggregate demand might decrease when there is an increase in taxation, for example an increase from 6% to 8% in a general sales tax. This means that consumption expenditure falls, so reducing aggregate demand.

- b** Demand-pull inflation is caused by an increase in aggregate demand that is not matched by an equivalent increase in aggregate supply. This is shown on the diagram below.



**Figure A5.2** Demand-pull inflation

The aggregate demand curve shifts to the right to AD<sub>1</sub> due to an increase in, for example, government spending. The aggregate supply curve is relatively elastic in the short term; the outcome is that the price level increases but with a less than equivalent increase in aggregate supply as the increase in producer costs will be small with some factor prices unchanged.



There are two main types of policy to solve the problem of demand-pull inflation. These are fiscal policy and monetary policy.

Fiscal policy involves either reducing government spending, increasing taxation or maybe both in order to reduce aggregate demand. A reduction in government spending will take time to have any effect and this may mean that the government is more likely to favour an increase in indirect taxes, some of which can be changed in a matter of hours. This is fine except for the fact an increase in, for example, GST will increase most retail prices and fuel inflation, and therefore be counter to the problem it is seeking to resolve.

Monetary policy could tackle demand-pull inflation through an increase in interest rates. This would increase the cost of borrowing, encourage more savings and so reduce aggregate demand. As with fiscal policy, employment in the economy would fall.

Both fiscal and monetary policies have their advantages and disadvantages. With demand-pull inflation, the best policy would be one that dealt quickly to cut back on aggregate demand, otherwise there will be a danger that the level of inflation may get out of control.

- 2 a** Fiscal policy is an important instrument of macroeconomic policy. It involves the use of taxation and government spending to influence aggregate demand. It can be tuned to deal with problems of inflation, unemployment and the balance of trade in an economy.

There are two main types of taxation, direct taxes and indirect taxes. The former are levied on the incomes of people and profits of companies and in principle, cannot be avoided. Typical examples are income taxes and corporate taxes, which affect individuals and businesses respectively. Indirect taxes can be avoided since they are levied on goods and services that are produced. Typical examples are fuel duty, excise duty on alcohol and tobacco and general service tax. They are indirect since the tax is paid to the government by retailers and manufacturers who are obliged to charge a price that includes taxation.

Government expenditure is the second instrument of fiscal policy. How this occurs is a function of the type of economy, although usually government spending is at national, state and local level. This money is spent on capital projects such as a new road or hospital or as part of current expenditure on transfer payments and providing a local police force.

- b** Fiscal policies have various advantages and disadvantages. For taxation, it is possible to target taxation to influence consumption. A good example is the taxes on demerit goods and green taxes that aim to cut back on pollution. A second advantage is the automatic stabilisers that operate with fiscal policy. Changes in government spending and taxation can reduce the fluctuations in aggregate demand without the need to alter government policy. A third advantage is that certain types of tax and government spending can be used to reduce poverty and promote a more equitable society. With government spending, an advantage is that spending on infrastructure can increase aggregate supply and through this, enhance the rate of growth.

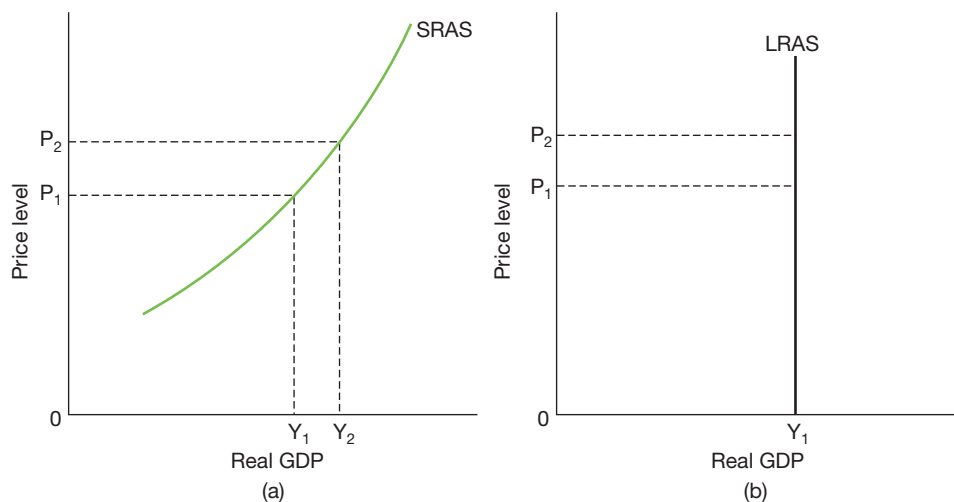
Fiscal policy also has inherent disadvantages. A significant one is that there is invariably a time lag between spending and the benefits arising from it. This time lag can be particularly serious if spending is being reduced to cut back demand-pull inflation. It also leads to a trade-off issue with respect to increasing unemployment, another macroeconomic variable. The timing problem also affects decisions made to change taxation – there is likely to be a delay in the impact on consumer spending. A related issue is that tax changes are normally only made annually in government budgets and any changes tend to be largely limited in their scope.

Where an economy faces disequilibrium in its balance of payments, fiscal policy can help in a deficit situation by reducing aggregate demand and therefore the value of imported goods and services that are consumed.

The trade-off will be an increase in unemployment, which will not be very acceptable. A further problem is that an increase in certain indirect taxes could increase inflation.

It is possible to conclude that other policies such as a depreciation of the currency or an increase in the interest rate are arguably better ways to deal with a disequilibrium in the balance of payments.

- 3 a** A supply-side policy is one that increases the aggregate supply in an economy. A wide range of policies can achieve this. However, it is necessary to distinguish between policies that are short run and long run. The diagrams below can be used to distinguish between them.



**Figure A5.3** Difference between short-run aggregate supply curve and long-run aggregate supply curve

The short-run aggregate supply curve, SRAS, is shown in diagram (a). It is assumed that input costs such as wages and raw materials are fixed in the short run; with the rise in price paid to firms, aggregate supply in the economy increases from  $Y_1$  to  $Y_2$ .

In the long run, diagram (b), the aggregate supply curve is vertical. This indicates that input prices have now increased from  $P_1$  to  $P_2$  and the economy is now producing at a new level of output,  $Y_1$ , the maximum output given the level of resources.

There are many different types of supply-side policy. In the short run, one way of achieving an increase in aggregate supply is through reforms or adjustments to the taxation system. For example, a reduction in income tax is likely to encourage more people to have an incentive to work or to work longer hours. A tightening of the welfare benefits system could also achieve this. For firms, a reduction in corporate taxes should encourage more investment in a business.

Long-term supply-side policies are designed to promote an outward shift of the production possibility curve of an economy. Examples of such policies are for the government to increase funds available for training and re-training the workforce, help for new business enterprises and trade union reform to increase productivity and competitiveness. However, such policies clearly take time to influence aggregate supply.

- b** An on-going deficit on the balance of trade is usually the result of poor competitiveness compared to trading competitors. This can be tackled by supply-side policies but it will take time to have an impact. Even then, the outcomes are uncertain.

One relevant supply-side policy is to increase competition in the economy. Many countries – for example the UK – have sought to do this through the deregulation of markets and the privatisation of former nationalised industries. Opening up market opportunities and selling assets to the private sector aim to create a more competitive business environment where firms are able to thrive and compete in international markets.

A second supply-side policy concerns the labour market. In many economies, there are resources of unemployed workers, many of whom have lost their jobs due to structural change. They constitute a valuable resource and could be re-trained with new skills. Help

in moving to areas where there are job vacancies could also be provided. A controversial labour market reform is to improve flexibility through trade union reform.

A third supply-side policy is to increase the educational quality of the workforce through funding more apprenticeships and encouraging more people to go to university. Education is an investment for the future and if the policy is successful, the competitiveness of the economy should increase.

These are just three of many supply-side policies designed to improve the efficiency and hence competitiveness of the economy. Their effectiveness though is by no means guaranteed – there are many uncertainties involved. Their success also depends on the extent to which competitors are pursuing similar policies in the very competitive global arena.

### Multiple choice questions

**1** Correct option: C

Fiscal policy instruments are either taxation or government spending. So, Options A, B and C are these. Option C is an instrument of monetary policy.

**2** Correct option: C

Option D is a normal type of tax. Options A and B are hinting at the correct response but not fully matching C.

**3** Correct option: D

The question refers to 'least likely'. Options A and B should lead to an improvement in the deficit on the current account. Option C will not lead to an improvement although the outcome is uncertain. Option D is least likely since the increased price of essential oil will not reduce the value of imports and is therefore the correct answer.

**4** Correct option: A

Options B, C and D will increase aggregate demand and not aggregate supply. This leaves Option A as the correct answer.

**5** Correct option: B

Options A, C and D are expenditure-switching policies. Only Option B is an expenditure-reducing policy.

## Chapter 6

### Answers to exercises

**1** In simple terms, efficiency can be described as *where something is being produced in an effective way*. Economic efficiency is more specific and is defined as being *where scarce resources are used in the most efficient way to produce maximum output*. Productive efficiency occurs when *a firm is producing at the lowest possible cost*; allocative efficiency is different and it is where *price is equal to the marginal cost of production*. Perfect competition ensures an efficient allocation of resources because *both productive and allocative efficiency occur*. This is not true for monopoly since *the firm is not producing at the lowest possible cost and price is greater than marginal cost*.

**2 a**  $Q_3$  because average cost at all other three levels of output is higher.

**b** If the scale of output is expanded beyond  $Q_3$ , average cost would increase, assuming everything else remains the same.

- 3 a** Market failure occurs here because there are negative externalities since the discarded batteries will have to be cleared by a third party (a rubbish collector) and the acid from the batteries could leak into the ground or even into the water supply. These externalities will impose costs on others who are not the ones who discarded the batteries in the first place.
- b** Not an example of market failure. This is a consequence of the garage not having enough stock to meet demand.
- c** The infant immunisation programme will have positive side effects through reducing the possible effects of disease on another child in the local area who has not been immunised. There is therefore a positive externality, hence market failure
- d** This is another situation of market failure since there is a negative impact on the environment. Third parties have to bear the costs of polluted air or ground pollution around the factory. The manufacturer does not have to pay for the costs of the pollution. People who live near the factory may suffer from an increased incidence of respiratory problems.
- e** Surprisingly this is not a case of market failure. The problem arises because the city authorities have not put adequate resources into funding an efficient mass transit system.

**4 a and b**

Possible answers include:

- 1** My government funding drugs to combat cholera resulting in less deaths and a healthier population. There may also be wider benefits for the economy in terms of increased output.
- 2** A local coal-powered power station has spent money funding a new filtration system, resulting in cleaner air. This benefits people who live nearby since they are less likely to suffer breathing problems.
- 3** Free secondary education will enhance the job prospects of students who would otherwise not be able to go to school since they could not afford the school fees. They can expect higher pay and dependents will also benefit from additional family income.
- 4** The city authorities have recently built a new recreation park for the use of residents in the district where I live. The positive externality is the pleasure obtained from being able to play cricket and enjoy running in a safe place.
- 5** The opening of a new Metro system has relieved traffic congestion. This has meant that car drivers are now able to travel to work in a shorter time. They can use the time saved productively and will feel less strain and stress when travelling to work.
- 6** The Indian government has withdrawn 500 and 1000 rupee notes overnight. The positive externality is that because more people will now have to pay taxes; the benefit from the additional money received by the government can be used to fund social programmes for low income families.

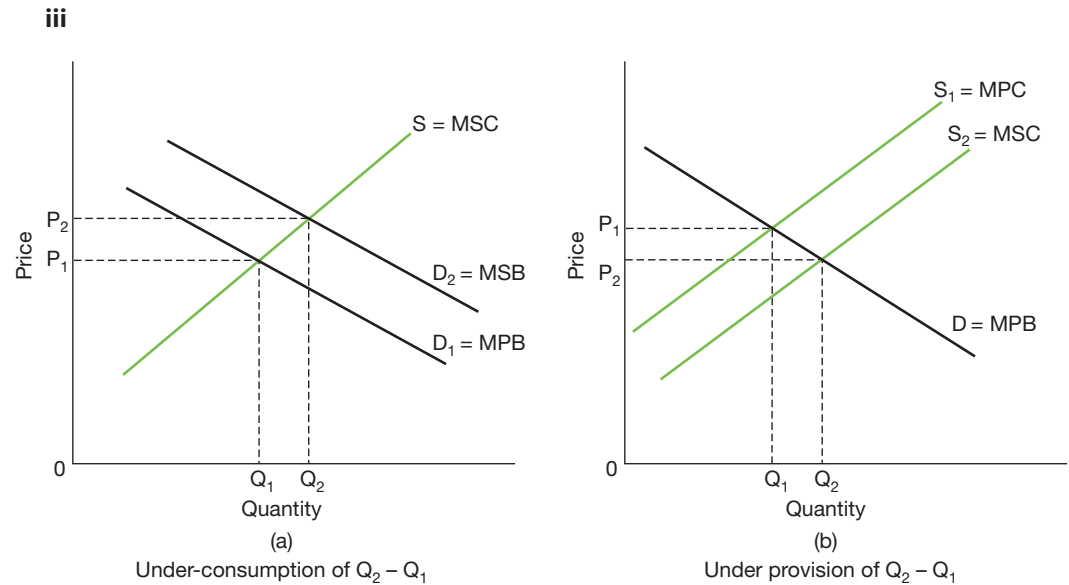


Figure A6.1

5 a and b Possible answers include:

- 1 People who live in apartments adjacent to a road flyover have to put up with poor air quality since the exhaust fumes from the traffic pollute the air. This is a particular problem when the temperature is hot. The negative externality is that they cannot sit outside and could experience respiratory problems on account of where they live.
- 2 A local metal refining factory discharged waste metal into a nearby stream which is used as a source of drinking water. Some people drank this water and incurred expense when they had to visit the doctor for treatment.
- 3 Smoking is now banned in local restaurants because of the costs to non-smoking diners in terms of the discomfort they experienced when having a meal. There is also an issue about restaurant staff experiencing health problems through long periods of exposure to the smoke.
- 4 There has been a huge increase in air travel in recent years. This has had a particular impact on climate change due to the increased emissions of greenhouse gases. The negative externality is that millions of people have suffered from the effects of rising temperatures and sea levels.
- 5 Obesity is a growing problem in many countries. As it has resulted in more people having to have hospital treatment, the cost of treatment has to be paid for by the government in the case of a state-funded system.
- 6 After the last Test Match, cricket fans deposited a mountain of drinks cans and food packaging outside the ground. They saw this as the easiest, costless way of getting rid of this rubbish. The cricket ground owners and the city authorities have had to fund the bill for employing people to clear up.

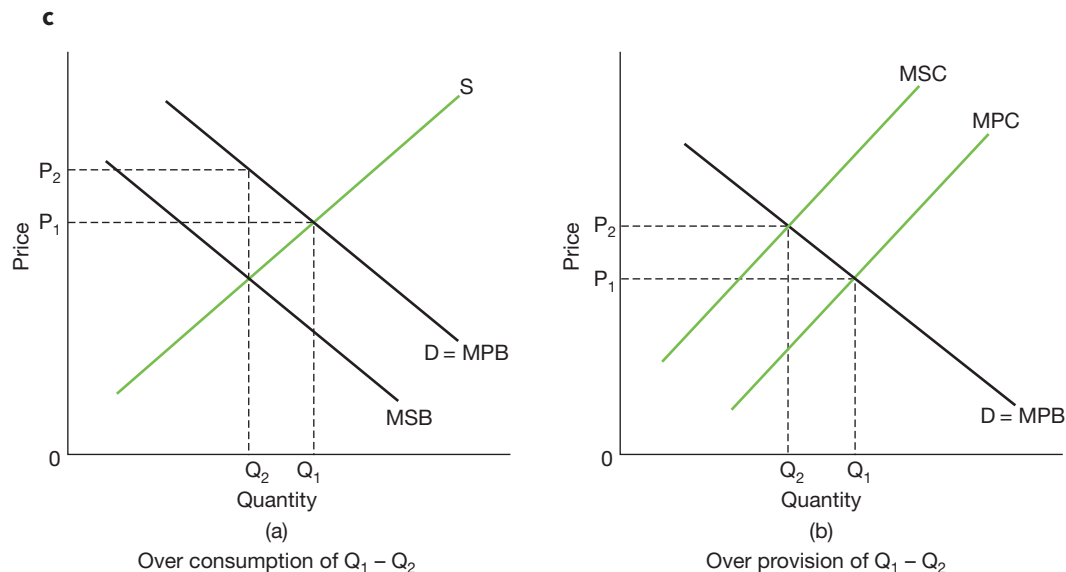


Figure A6.2

6 After the pollution tax has been imposed:

Output (tonnes)	Marginal private cost ('000\$)	Marginal external cost ('000\$)	Marginal social cost ('000\$)	Marginal revenue ('000\$)
10	30	18	48	66
20	30	21	51	60
30	30	24	54	54
40	30	27	57	48
50	30	30	60	42
60	30	33	63	36
70	30	36	66	30
80	30	39	69	24

Before the tax, the firm maximises profits where:

$MPC = MR$ , an output of 70 tonnes.

After the tax, the firm maximises profits where:

$MSC = MR$ , an output of 30 tonnes.

Output falls by 40 tonnes.

7 a The following are typical benefits:

Private benefits	Reduced personal spending on healthcare Increased life expectancy Less expenditure on bottled water Higher crop yield
External benefits	Reduced government expenditure on health facilities
Social benefits	More productive workforce Increase in GDP

- b** Cost-benefit analysis can be used to calculate the benefit-cost ratio of competing projects. This will allow priorities to be determined in relation to the budget that is available.

This should be a guide rather than an exact basis for decision-making as to which facilities should be provided. Estimating the above benefits is by no means an easy task, particularly with respect to the external and social benefits.

## Answers to exam-style questions

### Data response question

- a** The direct economic benefits, as the name suggests, apply to users of the new bridge once it is open. These benefits include:

- value of time savings
- operating cost savings
- improved vehicle utilisation.

The value of time savings are likely to be the greatest, given what is said about the significantly reduced journey time. This is a recognised benefit in transport appraisals and is based on the opportunity costs involved. The values are particularly high for time saved in the course of business or travel to work.

There will probably be cost savings through the cost of travelling on the bridge relative to the ferry costs. Freight companies will also find that, with the bridge, they will need fewer goods vehicles to do the same amount of trips.

Value of time savings are based on a given sum per hour saved. This is derived from the hourly wage rate, with lower values for leisure trips compared to those made for business. The other costs can be calculated on a before and after basis since market prices are available.

- b i** A rate of return is calculated as the (total benefits/the capital cost) of a project. It is usually expressed as a percentage.
- ii** It follows that the rate of return will be less if the construction costs increased. Construction costs have increased by over 10%, so the rate of return will be around 10 percentage points less.
- c** There are various indirect benefits that will accrue, mainly to the local economies. It is projected that tourism flows will increase, particularly to Macao; the attractiveness of Zuhai, an industrial zone, will be enhanced and is likely to attract new investment. Hong Kong's international airport is also likely to see increased business due to its improved connectivity.
- d** This is not easy to assess from the evidence. It is necessary to consider the full benefits in relation to the final costs to see the economic case. The benefits are the receipts from tolls that are generated from those vehicles that use it. At present, this is an unknown although estimates of future revenue will have been made to justify the bridge in the first instance.

The wider economic and political benefits should not be overlooked, particularly as the bridge will provide a safe crossing between three different parts of the Pearl River Delta region.

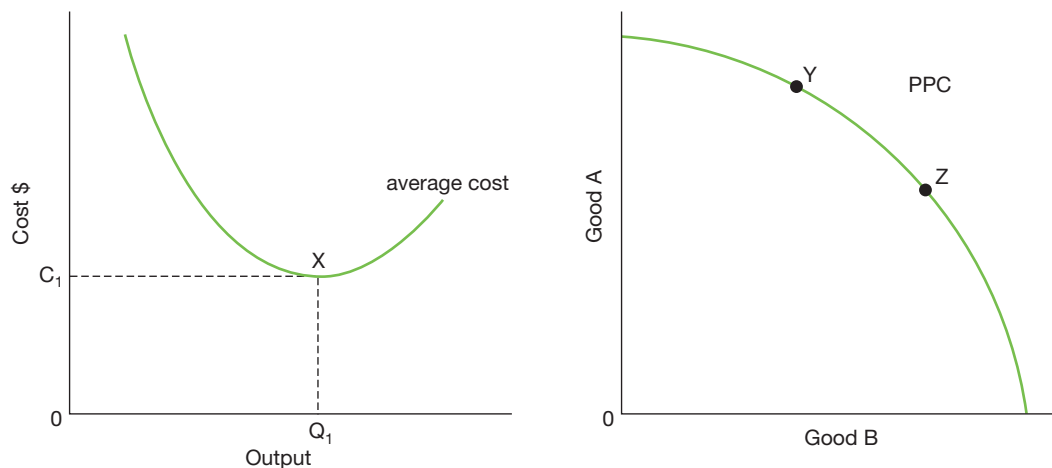
The costs are easier to determine. These are the final construction costs plus annual operational and maintenance costs.

Whether or not the bridge is justified will depend on the net of the benefits in relation to the costs.

### Essay questions

- 1 a** Economic efficiency is the term that applies when scarce resources are used in the most effective way to produce maximum output. It consists of productive efficiency and allocative efficiency.

Productive efficiency can be represented for both a firm and an economy as shown in the diagrams below.



**Figure A6.3** Productive efficiency

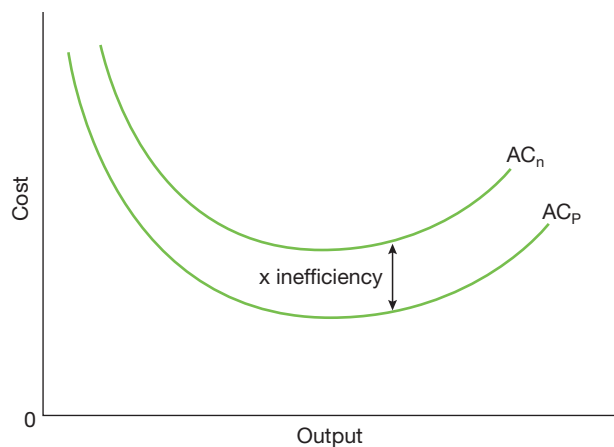
Productive efficiency occurs when a firm is producing at the lowest possible cost. This is shown by point X on diagram (a). Here output is  $Q_1$  and the average cost is  $\$C_1$ . If the firm produces any more or any less output, then the average cost increases. It is therefore producing too much or too little for it to be productively efficient.

An economy is said to be productively efficient when it is producing on its PPC, at Y or Z, given the resources available. The combination of goods produced at any point within the PPC is inefficient; a point outside the PPC is not achievable given the present level of resources.

Allocative efficiency is different. It is where the price paid by consumers is equal to the marginal cost of production. This means that the resources used produce those goods and services most wanted, maximising welfare.

- b** Privatisation refers to a situation where government owned assets are sold to private sector businesses. In some cases, this follows an earlier nationalisation. Privatisation is a much practised supply-side policy. It was extensively applied in the 1980s by the UK government when large sectors of the economy were privatised. More recently, it has been an important process in the restructuring of former command economies in central and eastern Europe as well as in other emerging and developing economies.

It is argued by many economists that public-sector ownership is inefficient in so far as costs are higher than if the business was privately owned. It is also believed that private sector owners are more willing and able to innovate since their hands are not tied up by government regulations. The diagram below shows the first reason.



**Figure A6.4** x inefficiency



The diagram shows that the average costs of a nationalised operation ( $AC_n$ ) are higher than those of a private sector business ( $AC_p$ ). This is referred to as x-inefficiency. If costs are higher, it follows that consumers will have to pay higher prices for the goods and services produced. It can also be argued that productive efficiency declines over time.

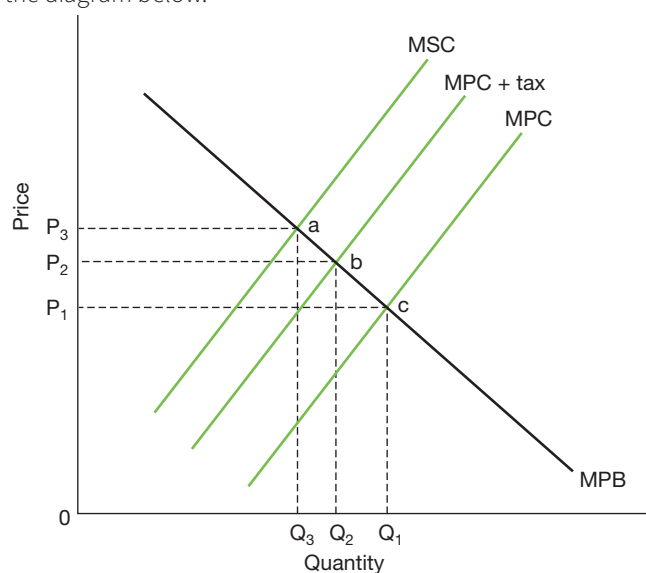
A privatised business is not necessarily always more efficient than one that is state owned. In the case of a natural monopoly, competition invariably makes little sense. There is always the possibility in the case of other monopolies that a private monopoly takes over a government monopoly and is able to charge higher prices and make excess profits. This is clearly not an efficient outcome.

- 2** An efficient allocation of resources occurs when scarce resources are used in the most effective way. Economic efficiency consists of two aspects, productive efficiency and allocative efficiency.

Productive efficiency occurs when a firm is producing at the lowest possible cost. This equates to its lowest point on the average cost curve. This is efficient since there is no incentive in the short run for the firm to produce more; if it produces less, then it is inefficient since average cost will be higher.

Allocative efficiency is where price equals marginal cost. This equates to an efficient allocation of resources since producers are happy and consumer welfare is maximised; in other words, what is produced is wanted by both.

Where resources are not efficiently allocated, there is market failure which usually requires government intervention. A good instance of this is where there are negative externalities in the market, for example, where a chemical firm discharges toxic gases into the atmosphere. It may be efficient from the firm's perspective, but from a wider social standpoint, it is inefficient because it leads to third-party costs as a result of the polluted air. This situation is modelled in the diagram below.



**Figure A6.5** Partial tax on a negative externality

Government involvement can be through regulations which are not always efficient and can often be difficult to apply. An alternative is by means of the 'polluter pays' principle whereby the polluter would be taxed on account of the toxic waste discharge. An efficient allocation of resources is at point a, where price is  $P_3$  and quantity is  $Q_3$ . The initial equilibrium of  $P_1$  and  $Q_1$  is inefficient as there is over production. Even with the level of tax shown, resources are not being efficiently allocated as the tax paid does not fully equal the marginal external cost.

The market mechanism also fails in situations where there is information failure and positive externalities. An example is in the case of health care. If left only to the market, some people with serious illnesses may not be able to afford to see a doctor; equally, others with minor complaints may not realise how easily they could be cured and the benefits not only to

themselves but to their families and to the economy as a whole when they access health care. This is one of the reasons why governments provide large subsidies for health facilities with many services being provided free of charge at the point of use.

A second example involving information failure is in the case of demerit goods such as cigarettes, fizzy drinks and many types of junk food. The problems here are that consumers are not fully aware of the harm they can do to themselves through excessive consumption. Governments do provide information such as the images and warnings on cigarette packets, but this is never enough to reduce consumption to what is an efficient level from society's standpoint.

Another relevant example of market failure is the case of monopoly. The equilibrium position is inefficient since the price charged is higher and the output is lower than in a competitive market. The monopolist earns abnormal profits due to the power its firm has over the market.

So, as these examples show, there are many situations where the market mechanism fails to produce the best allocation of resource. Government intervention is therefore required to correct market failure. It can take various forms such as indirect taxes, subsidies, regulations and even a total ban on the production and consumption of goods. As economies continue to grow and develop, then so there will be more and more situations where the market fails to produce the best allocation of resources.

- 3 a** Cost-benefit analysis (CBA) is a technique that is extensively used, particularly in the public sector, where it is necessary to take a long and wide view as to whether a project is desirable. It is perhaps most widely applied in the case of new road schemes; it is also well documented in the case of new airport developments, rail upgrades and estuary crossings.

The first stage of a CBA is to establish the respective costs and benefits. In the case of a road, the benefits are to users, especially by way of value of time savings and cost savings. The costs are the capital costs of construction and on-going maintenance. The second stage is to give the costs and benefits a monetary value. Over the years a standard methodology has emerged, particularly with respect to putting a value on travel time savings. This is done by taking an average hourly rate and establishing savings for work-based and non-work trips.

The third stage requires forecasts to be made for the benefits and costs over the projected length of life for the road, typically 25–35 years. This is not easy because of all the uncertainties that are involved. The final stage is where a decision is taken on how the net benefits work out relative to costs over the given time period. A rate of return on capital is the way in which this is sometimes done.

- b** A cost-benefit analysis is a guide and not a definitive basis for decision-making. This is largely due to the uncertainties that are involved, some of which were referred to in part (a).

One obvious reason why a project may not proceed even if the CBA was favourable is due to funding issues. Governments have limited resources to spend. Where there is a limited budget, some schemes offering a good return may be delayed or scrapped because the budget is not big enough. There are also opportunity cost issues involved with this like any other type of government spending.

A second reason is that for some projects, the decision to proceed may not entirely depend on the CBA. There could be political factors to take into account. A good example is in the case of airports. Strategically, especially in some Asian countries, airports are seen as vital infrastructure to promote economic development; a CBA may not even have been produced. Elsewhere, and the UK is a good example, there is a lot of opposition to new airport developments. This strength of feeling may well result in a good proposal and a strong CBA not actually becoming reality because of political opposition in view of the negative externalities that are involved. Many of these external costs cannot be included in the CBA, so over-stating the likely net benefit.

A third reason is that an unexpected external shock might well mean that forecasts have to be revised. This has particularly affected forecasts for air travel following 9/11 and the 2008 financial crisis. In such circumstances, a project may well have to be put back or even scrapped.

So, for various reasons, it does not follow that a favourable CBA will always guarantee that a proposed project goes ahead.

### Multiple choice questions

**1** Correct option: C

The combination that is productively efficient is the one that gives the lowest average cost per unit of output. Using the data, the average costs are \$80, \$75, \$73.3 and \$77.5. C is the lowest and therefore the correct answer.

**2** Correct option: C

Market failure occurs when the market fails to provide the best allocation of resources. Options A, B and D involve some element of market failure that requires government intervention. Option C is no more than an internal retail issue.

**3** Correct option: A

Dynamic efficiency is a long-term concept whereby a firm makes even better use of its scarce resources meaning that its long-run average costs fall. Option A fits this explanation. Options C and D are particularly short term, whereas B makes no reference to any time period.

**4** Correct option: B

The key point about a negative externality is that it involves a negative impact on a third-party not involved in the original action. Options A, C and D clearly affect third parties negatively. So, B, which involves a private cost is the correct answer.

**5** Correct option: C

The correct answer can be derived from the net benefit-cost ratios, namely (Total benefits – Total costs)/Capital cost. These are 5, 4, 7.5 and 2. So Option C is correct.

## Chapter 7

### Answers to exercises

**1 i** True

**ii** True

**iii** False – this only occurs with the highest indifference curve

**iv** True

**v** False – the slope of a budget line depends on the relative prices of the two goods

**vi** True

**vii** False – this is the case with an inferior good.

**2** Substitution effect – from b to a

Income effect – from b to c

The substitution effect means that the consumer can now substitute some of good B with more of good A since good B is an inferior good.

The income effect is positive since real income has increased. This means the consumer can now buy more of good A.

<b>3 i</b>		\$	
	Average fixed costs are:		
	Rent	1.20	
	Heating & lighting	0.40	
	Community charges	1.10	
		2.70	
	Average variable costs are:		
	Labour	0.50	
	Food ingredients	0.50	
	Packaging	0.30	
		1.30	

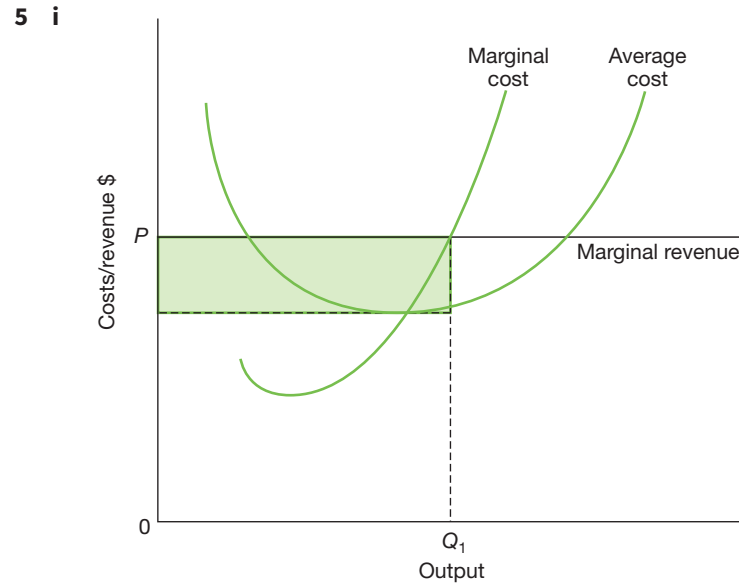
- ii** The big increase in rent raises the average fixed costs to \$4. This means that average total costs are \$5.30. Assuming no increase in price, the pizza retailer will be making a loss. This cannot be sustained for long although it is covering average variable costs which is the minimum short-run price that could be charged. In the long run the firm has little choice but to increase price to say \$6.30 if it wishes to maintain its profit of \$1 per pizza. The firm faces high fixed costs in relation to total costs, with little or no scope to reduce these. The most likely strategy is to move to another location where fixed costs are lower unless it has a monopoly (unlikely) in which case it could sustain an increase in price.

- 4 i** Typical examples are shown in the table below:

Type	Examples
Purchasing economies	Ability to buy supplies in bulk to reduce average costs
Marketing economies	Preferential rates for advertisements in print and digital sites Lower average distribution costs
Managerial economies	Can employ specialist managers – fresh foods, groceries, non-food, human resources, logistics. Their knowledge will reduce average costs
Technological economies	Bar code recognition at cash tills and loyalty cards Reduced stock levels
Financial economies	A large, financially strong company can get preferential rates on business loans
Risk-bearing economies	Could diversify by expanding in the retail field or moving back down the supply chain to reduce risk

- ii** The items referred to above are likely to reduce long-run average costs. Diseconomies of scale could occur when:
- the firm becomes too big, with managers not being informed about what is going on
  - workers are not as motivated when working for a larger organisation and customer service levels drop.

Both will lead to increasing average costs as the supermarket increases its scale of operations.



**Figure A7.1**

Profits are maximised when  $MC = MR$  at output  $Q_1$ . The shaded box shows the profits made at this level of output.

- ii** This is a short-run position since abnormal profits are being earned. Due to freedom of entry, new firms will enter the market; this will increase supply and the abnormal profits will be competed away until a new long-run equilibrium position is reached where normal profits are earned.
- iii** If market demand falls, in the short run, firms will stay in business as long as they are covering their average variable costs. A fall in demand will see a new lower price in the market. This will stabilise the market in the long run until normal profits are once again being earned by those firms who are still in the market.
- 6 i** Oligopoly
- ii** Natural monopoly
- iii** Monopolistic competition
- iv** Perfect competition
- v** Monopoly.
- 7** Other possible evidence includes:
- High barriers to entry; the cost of setting up a new mobile phone network will be enormous.
  - Product differentiation; each provider will try to offer a slightly different product, for example, in terms of its contracts and brands of mobile phone available to customers.
  - Very competitive; firms will try to anticipate what rivals might do whilst recognising they are interdependent.
  - High risk business with casualties.
  - Likely to be price rigidity although the way in which prices are set out may indicate otherwise.

8 A typical answer below is for the domestic air transport market in a SE Asian country.

Features	Evidence
Free cost entry/ barriers to entry	No. The cost of entry is excessive, given the cost to own or lease aircraft.
Normal profits	Difficult to tell.
Potential entrants	Yes. Some are international airlines operating longer services to India.
Number and size of firms	Small in number but growing. Firms own or lease aircraft.
Regulations in place	Extensive for obvious health and safety reasons. Regulations governing crew.

Another typical answer is below for a local taxi market.

Features	Evidence
Free cost entry/ barriers to entry	Minor barriers to entry A vehicle is required and owners must pay a registration fee
Normal profits	Very difficult to assess
Potential entrants	Yes, provided they own a suitable vehicle. Cost of entry is unlikely to deter
Number and size of firms	Large number of mainly driver-owned vehicles. Some networking but mainly small firms
Regulations in place	Minimal relating to quality of vehicle and professional standing of owner/ driver

9 a

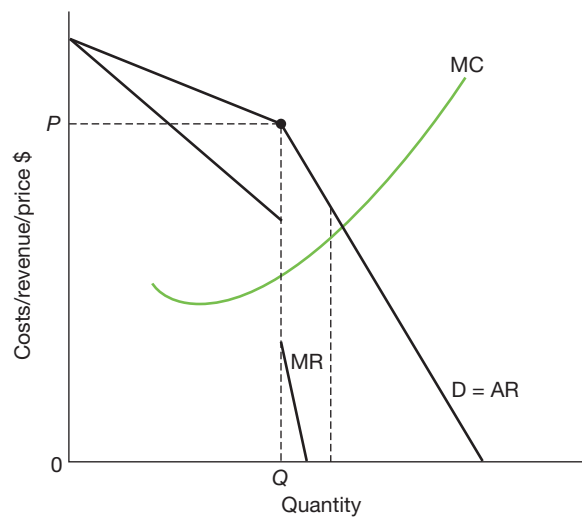


Figure A7.2

There is no generally held theory about the behaviour of oligopolists. The conventional theory is that where there is no collusion, the kinked demand curve is a means of explaining why there is price rigidity. Although oligopolists are price makers, and therefore have the means and power to set their own prices, they are always very much aware of how their competitors might react when prices do actually change. Because of this uncertainty, it is maintained that oligopolists prefer to compete on a non-price basis; branding, the range

of products, customer service and even location are used competitively as a means of establishing an oligopoly.

The rationale for the kinked demand curve and hence price rigidity is:

- if a firm increases its prices, competing oligopolists will be unlikely to do likewise
- if a firm lowers its prices, competing oligopolists will have to do likewise if they are not to lose market share. This can lead to a price war where all firms are likely to lose out.

**b** There is a growing body of empirical evidence that the idea of price rigidity and non-price competition do not necessarily apply in a market. Some examples are:

- i** Petrol retailers often compete fiercely on the basis of small differences in price.
- ii** Supermarkets, the UK being a very good example, engage in price wars in order to retain market share
- iii** Low cost airlines are very price competitive where they run the same route.

Game theory has been put forward as a more sophisticated approach to oligopolistic behaviour. Here, the key point is that decisions on price are based on assumptions as to how rival firms might react.

In some oligopolistic markets, there may well be collusion between firms that on the surface are competitors. The reason behind this is to avoid a price war, the subsequent loss of profit, and maybe even the survival of a business.

Limit pricing and price leadership are other common features of oligopolistic markets as a means of avoiding price competition whilst maximising profits.

**10 a** Small firms remain the typical business unit in both developing and developed economies. These are particularly found in the service sector (grocery stores, take-away food stores, hairdressers and professional services such as accountants and solicitors).

Examples of all the above can be found in my country despite the increasing market share of large multinational corporations in retail supermarkets and fast food (KFC, McDonalds, Costa and so on). They survive because of their location and the limited local markets they support.

There are also a growing number of small firms in the IT sector. These firms provide highly qualified graduates with work, normally in call centres and in providing essential support for the IT systems in small and large business. Design, especially for large manufacturers, is a further activity where small business prevail in my country.

**b** Profit maximisation is most unlikely to be the over-riding objective of small firms. It is most unlikely that owners will know what it means let alone know what level of output will provide maximum profits.

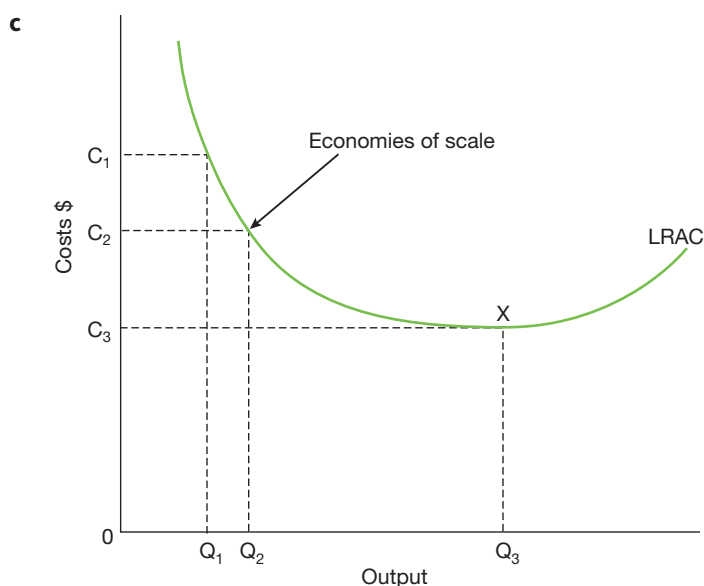
A more realistic objective is that of satisficing and being happy just to survive given the many uncertainties facing small businesses. This can be evidenced through the number of small firms that enter a market but then have to leave as they are not able to make an acceptable return and income for their owners. This is especially the case in many small service sector activities.

Small businesses invariably practise loss minimisation when they first enter a market. The hope is that if they persist, they can establish themselves in the market and earn a reasonable living for owners in due course.

## Answers to exam-style questions

### Data response question

- a** The Big Four have applied vertical integration. Evidence from the data indicates that they own plantations (or contract them), have their own sea transport, ripening facilities and distribution networks. Basically, they control a large part of the supply chain.
- b i** 2002 – 62% (22% + 20% + 16% + 4%)  
2013 – 42% (13% + 12% + 11% + 6%)
- ii** The concentration ratio for 2013 is less than that for 2002. This might seem surprising, although the data does not say what the total market was in each year. The evidence indicates it has increased markedly. The Big Four still have a large overall market share; in selected geographical markets, it is likely to be much higher.



**Figure A7.3** Economies of scale

The diagram above shows how a Big Four company can benefit from economies of scale. It indicates that as output increases, long-run average costs fall until they reach a minimum point at the bottom of the LRAC curve at point X.

- c** The Big Four's behaviour would seem to be typical of an oligopoly. The companies have a lot of control over their supply chain. The data indicates that growers of bananas receive very little relative to the retail price charged. It is unclear as to whether there is price rigidity in the retail market. Although there are barriers to entry, these have not stopped growers' companies entering the market as well as fair trade practices.

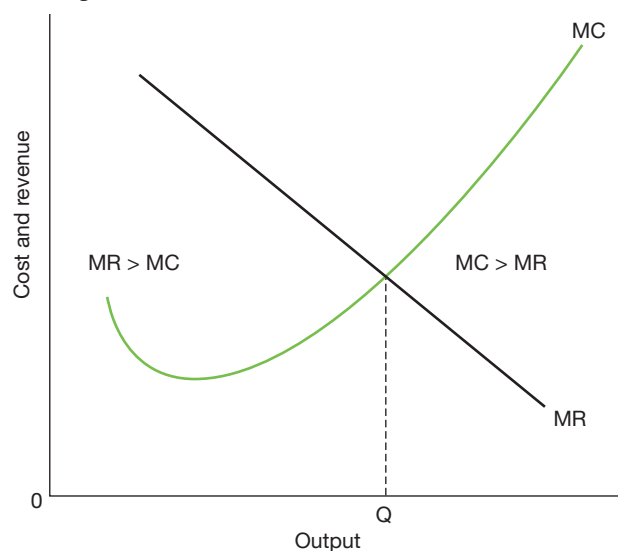
### Essay questions

- 1 a** It is a clearly stated objective in economic theory that all firms seek to maximise their profits. This is irrespective of whether we are dealing with perfect or imperfect competition.

There are two types of profit, normal and abnormal. Normal profit is defined as the profit that has to be earned by a firm to keep it in a particular industry in the long run. Firms accrue this level of profit in a perfectly competitive or monopolistically competitive market structure. Abnormal profit is that which is above normal and is earned by monopolists and, in the short run, in monopolistic competition.



A firm maximises its profits when marginal cost equals marginal revenue. This is shown in the diagram below.



**Figure A7.4 Profit maximisation**

Where  $MC = MR$ , this means that any change in output, up or down, will result in fewer profits for the firm. This is because at output  $Q$ , what is produced exactly equates the cost of producing one more unit of output with the revenue gained by the firm.

Although a firm may have an objective of profit maximisation, it does not follow that it makes a profit. In fact, it could make a loss and be forced out of business. What is relevant is the relationship between the costs of production and the firm's revenue. There may well be situations where if a firm's costs are increasing, it is not able to get back these added costs through increased revenue due to the competitive nature of the market. Another situation could be where a firm is deliberately selling its products below or at cost as a means of entering a new market. This technique could also be used by a monopolist to try to stop a new firm seeking to compete with it.

So, as shown, although firms may have profit maximisation as their objective, there can clearly be situations where firms do not make a profit.

- b** It is recognised that profit maximisation in practice is a very difficult objective for firms to demonstrate. It is also recognised that it may not be the long-term goal since it may well attract the attention of regulatory bodies or prompt a possible takeover.

Various alternative objectives have been put forward. One that can apply in imperfect markets is that of satisficing. It is particularly prevalent in oligopolies and monopolies and tends to apply more in larger firms than smaller firms. The argument here is that the shareholders of large public companies will want to maximise the return on their investment. The objectives of the paid managers and directors of a firm may be to make as much profit as possible. The idea of satisficing is a form of compromise – directors and managers have to make enough profit to satisfy the demands of shareholders otherwise they may well lose their positions in the company.

A second objective is that of revenue maximisation. In other words, the firm is seeking to maximise its sales. This objective is again one that is followed by monopolists and oligopolists; short-run profits tend to be sacrificed for abnormal profits in the long run. This objective, by definition, cannot apply to monopolistic competition, or perfect competition, since firms can only earn normal profits in the long run.

Monopolistic competition provides a further interesting example. As a market structure, it is characterised by there being a large number of small firms, each of which has a slightly differentiated product. Take-away food stalls are a particularly good example. This can be a

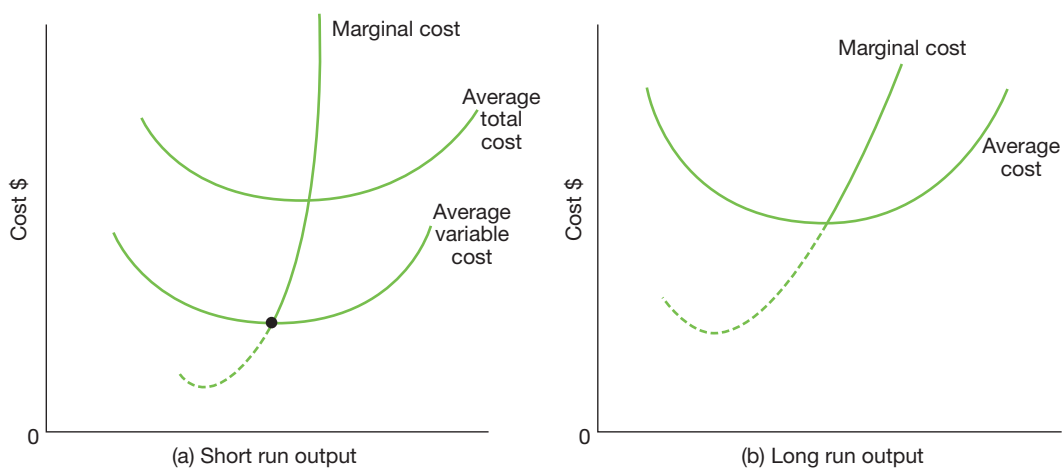
very competitive market – survival may well be the principal objective especially in the short term if new firms enter the market or there is less consumer income in the market where they operate.

A final objective might well be an ethical one. This is a similar objective to satisficing and reflects the growing number of firms that have a strong corporate social responsibility. Examples are firms who promote their ‘fair trade’ prices to suppliers or who only source from ethically recognised suppliers. An example of this is the garment industry, which is notorious for paying low wages and exploiting workers. In both cases, although the firms make profits, these profits are not maximised. This approach to profitability can be applicable to any market structure, except for perfect competition.

The maximisation of profit remains the single objective of firms in a perfectly competitive market. In other market structures, it is possible to recognise that firms have more realistic objectives related to the nature of their markets.

- 2 a** In perfect competition, the marginal cost curve of the firm equates to its supply curve. This is because the marginal cost, the cost of producing one more unit, is the lowest price that the firm will sell a product for in line with its objective of profit maximisation.

The two diagrams below explain why this is so. In the short run, shown in diagram (a), the firm will stay in production if it is able to cover its average variable costs. So, its supply curve will be its marginal cost curve above average variable cost.

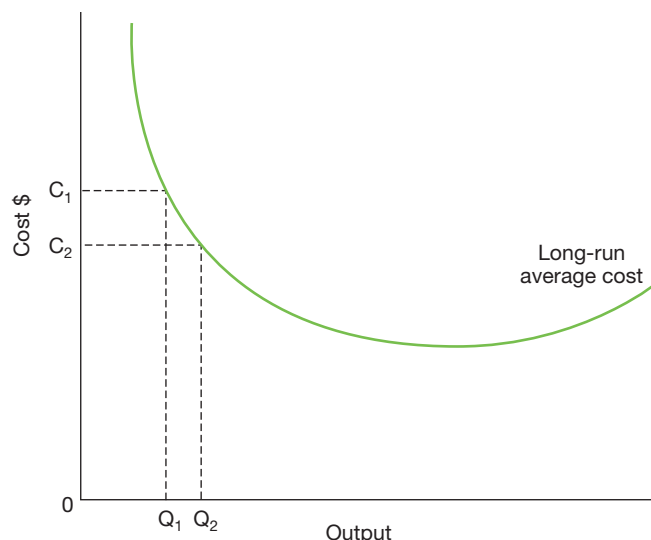


**Figure A7.5** Supply curves

In the long run, as shown in diagram (b), the firm will have to make normal profits if it is to stay in the industry. If it makes a loss, then there is no point in it persisting with production. So, the marginal cost curve above the minimum point in the average cost curve is the supply curve not just for the firm but also for the industry. This is because in perfect competition all firms have the same cost curves in the long run.

The position for a monopolist is different. By definition, a monopolist is the only producer in the market. Although the firm has a marginal cost curve and produces where  $MC = MR$ , there is no supply curve as such. This is because, if demand for the product changes, a monopoly can charge whatever price it likes.

- b** The basis for this claim is economies of scale. In the long run, there are, by definition, no fixed costs. As the scale of output is increased, the average cost curve of the firm is still U-shaped, but becomes rather flatter. This is shown in the diagram below.



**Figure A7.6** Long run average cost curve

As the output increases, average cost falls. So, at output  $Q_1$ , average cost is  $C_1$ . As output increases to  $Q_2$ , average costs fall to  $C_2$ . In general, the larger the scale of production of a firm, the lower its average cost.

Such economies of scale can benefit the firm in various ways. A good example is through technical economies of scale whereby, for a manufacturing firm, better larger scale machinery can be purchased resulting in more efficient production and reduced average costs per unit.

A second example that can benefit most businesses is purchasing economies of scale. The greater the quantities purchased, the lower the likely average cost per unit from suppliers becomes. This is particularly practised in retailing. Large supermarket chains have considerable buying power in the market and can invariably negotiate lower costs from their suppliers.

Other examples are financial and managerial economies. Here, large firms can negotiate better deals on loans on the grounds that they present less risk to lenders than small firms. Large firms are also able to hire professional specialist managers compared to a small firm where, in many cases, the owner is the sole manager.

The evidence, therefore, would clearly support the view that economies of scale very much benefit large firms over small firms. However, this view does not necessarily always apply. Small firms can benefit from economies of scale. It is all a matter of degree since, as small firms grow, their scale of output increases like any larger firm.

A further very relevant point is that, in some types of business, small firms are the norm. This is especially true in the service sector where the small firm is typical; for example, restaurants, hair dressing, food production and distribution. Such firms invariably have a niche local market, supplying a clear local need. They do compete with much larger firms but what they offer is different. As they grow (and only a very small number do) and increase their scale of output, they are then in a position to be able to benefit more from economies of scale.

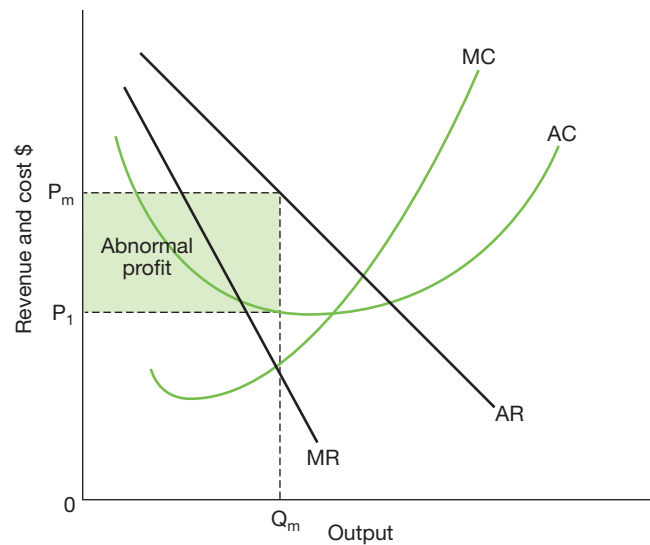
- 3** In theory, a pure monopoly is where just one firm controls the market. To do this, there must inevitably be very high barriers to entry resulting in the firm being the same as the industry. The monopolist controls price and the product is such that there are no close substitutes.



**TIP**

Be careful not to give too much detail on the various types of economies of scale ... you may lose sight of the question.

The conventional view of economists is that monopolies do not act in the best interests of consumers and the economy. This can be explained by means of the diagram below, which shows the equilibrium position of a monopoly.



**Figure A7.7** Equilibrium of a monopoly

A monopoly firm maximises profits where  $MC = MR$ . The firm earns abnormal profit since the average revenue it receives from consumers is greater than average costs. The demand curve (AR) is downward sloping meaning that the monopolist can either set price or the quantity offered for sale in the market. The firm is not able to do both.

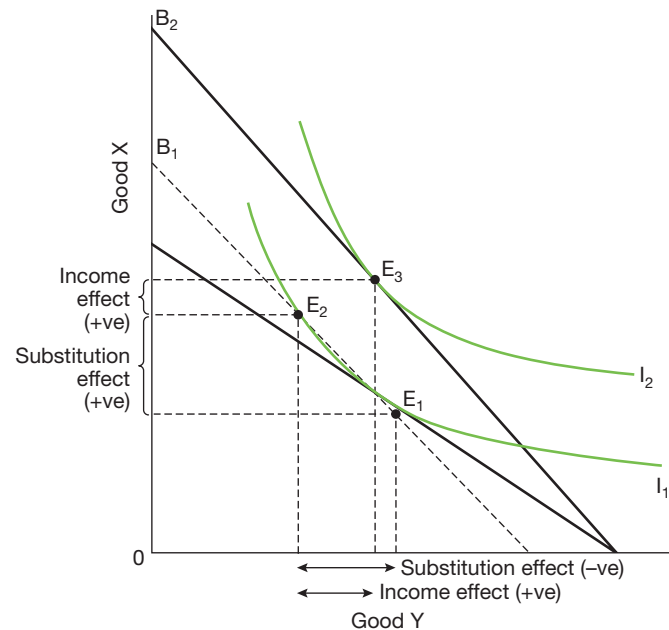
Monopolies are powerful. They protect their market through what are known as barriers to entry, which make it difficult – if not impossible – for new firms to enter the market. It is the strength of these that determine monopoly power and, hence, the level of abnormal profit.

A key point is that, with a monopoly, the price charged is higher and the output is lower than when compared to a perfectly competitive industry. Consumers therefore are losing out. A second key point is that a monopoly is inefficient since it is producing above the lowest point of its average cost curve. Thus, the monopolist is not using scarce resources to best effect – the economy is also losing out.

The above argument is the conventional view. Under some circumstances, a monopoly can work in the best interests of consumers and the economy. An example of this is in the case of a natural monopoly such as a railway where it makes little or no sense to have rival firms competing with their own tracks. A natural monopoly benefits from continuously falling long-run average costs. However, natural monopolies are often loss-making due to their cost structure and require subsidies to enable them to offer the level of service required by consumers and the economy. A pure monopoly in these circumstances would only be prepared to provide services that were deemed to be profitable.

Finally, it should be recognised that some powerful monopolies do operate in the interests of consumers and the economy. One such case is Microsoft, whose operating system has been extremely beneficial to all concerned. Its founder, Bill Gates, has set up a foundation and given away billions of dollars to projects in developing economies. Another example is Apple, whose products have brought enormous benefits and which, as a company, has always been keen to return some of its profits to charitable organisations. So, whilst in theory, monopolies may not operate in the best interests of consumers and the economy, in reality this may not always be entirely true.

- 4 a** An indifference curve shows the different combinations of two goods that give a consumer equal satisfaction. These are shown as  $I_1$  and  $I_2$  on the diagram below.  $I_2$  indicates a higher level of consumption. Consumers obviously prefer to be on a higher indifference curve; however, this does depend on their ability to purchase the particular goods and is represented by a budget line. The diagram shows how, using indifference curves, it is possible to derive the downward sloping demand curve.



**Figure A7.8** Derivation of a demand curve

The original position of the consumer is at  $E_1$ . If the price of X falls, this means that the consumer has more income to spend on both goods. Real income changes so that a new budget constraint,  $B_2$ , is now applicable. The price of good Y is unchanged. The change that takes place can be split into two effects. These are:

- substitution effect whereby there is a movement along the original indifference curve  $I_1$  from  $E_1$  to  $E_2$ . This explains how the consumer buys more of the cheaper good X, and less of the other good, Y.
- income effect shown through a shift upwards to a higher indifference curve. The pattern of consumption changes from  $E_2$  to  $E_3$ . Overall, now the consumer has more spending power due to the fall in the price of X, there is an increase in the consumption of both goods.

In this case, the substitution and income effects are both positive for good X, showing a significant increase in consumption. For good Y, although the substitution effect is negative due to the fall in the price of X, the income effect on its consumption is slightly positive. Overall consumption of good Y falls as the substitution effect is greater than the income effect.

The consumer's demand curve for a good can now be derived. By joining up points  $E_1$  and  $E_3$ , it is possible to show how, when the price falls, more of good X will be demanded. This approach can be continued for higher levels of satisfaction above  $I_2$  so that progressively, the demand curve is extended.

- b** The assumption made throughout part (a) is that consumers are rational. In other words, consumers aim to always maximise their utility or benefits to be derived from consumption in view of having a limited income. As seen, it is assumed that when the price of X fell, the consumer would automatically buy more of it and less of a substitute, good Y. From a real-world perspective, this may not be true. We are all aware of this from decisions that we take with respect to things we purchase and consume.

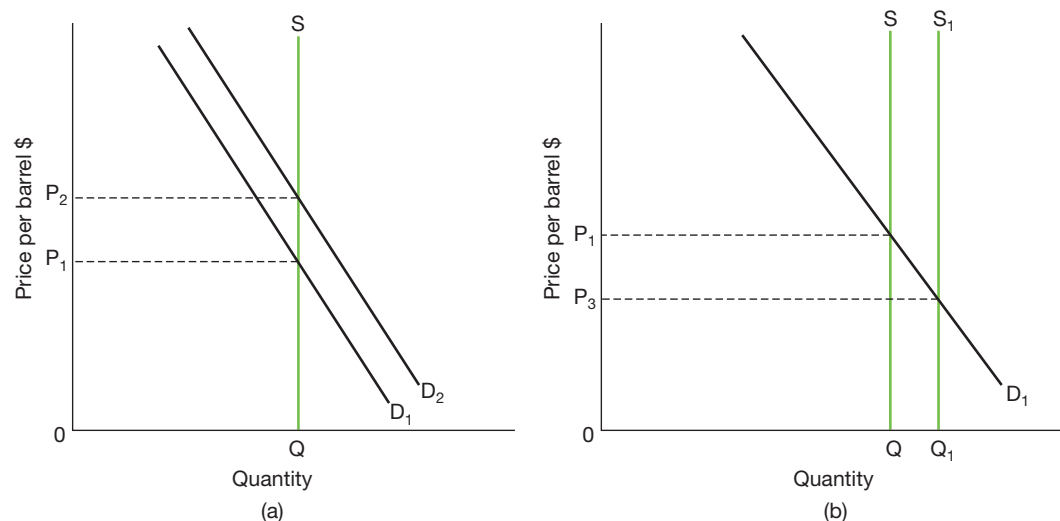
As consumers, there is invariably a lack of quality information to enable rational decisions to be made. And even if there is, it is sometimes ignored. In the case of fizzy drinks (soda), consumers are continuously being made aware of the health issues relating to excessive sugar consumption. Yet these are often ignored because the taste of a high sugar product is being favoured over a lower sugar alternative. A related factor is time. Some of the things consumers purchase are bought in a hurry with little thought being given to their contents. It is also relevant to add that the purchase of demerit goods is largely based on addiction, with little or no thought to the longer-term effects of their consumption. This is where 'nudge theory' comes in. Without actually forbidding consumption, governments try to influence choice in a subtle way through media campaigns and other means that provide gentle information on why less consumption is best. Good examples are the campaigns to stop smoking or to limit betting activity.

The role of advertising should also be recognised, especially where it is geared to increasing consumption. This is often done through special events such as Black Friday in the US or Diwali promotions in India. Here, retailers offer substantial discounts to get consumers to buy 'big ticket' items. In many cases, rationality may be over-ruled with a rash decision to buy something that may not necessarily be needed.

- 5 a** A cartel exists where there is a formal agreement between members to limit competition by restricting output or fixing prices. In this respect, a cartel operates in the same way as a pure monopoly.

OPEC is a long-standing example of a cartel. Its members are oil producing countries such as Saudi Arabia, Oman and Nigeria. They meet on a regular basis to agree a level of supply onto the global market. To be effective, members need to agree production limits and to abide by decisions that are taken. OPEC has been a strong force for many years; its influence is declining as oil is produced in increasing volumes by the USA from shale deposits. The increased production of bio-fuels has also harmed OPEC, although its members still sit on massive volumes of oil.

So, in theory, a cartel can restrict supply or fix prices. The former tends to be more effective since prices can fluctuate depending on, in this case, global demand. This can be shown on the diagrams below.



**Figure A7.9** How a cartel works

In diagram (a), supply is fixed at  $Q$ . The global demand for oil changes with the health of the global economy. So, at a time of economic growth in oil-consuming countries, the increase in demand forces up prices from  $P_1$  to  $P_2$ . OPEC members clearly gain in these circumstances.

- b** Diagram (b) shows how OPEC members will lose out if they increase supply when demand is unchanged. Price will fall from  $P_1$  to  $P_3$ , so reducing the revenue of OPEC members. If global demand were to increase and supply also increase, the price per barrel may become



**TIP**

An alternative diagram is that of the equilibrium position of a monopoly.

relatively stable. Maybe this is what Saudi Arabia had in mind, although the global economy in 2016 was not particularly buoyant. Another motive for proposing an increase in supply could be if Saudi requires more foreign currency to purchase imports.

A potential weakness of a cartel is if one of the members breaks rank by increasing supply or lowering prices when this has not been agreed. This can happen and be done in an underhand way in the hope that other members will not find out. Such an action would create tensions within the organisation. So, an agreement has to be reached otherwise the whole basis for forming a cartel will be seriously undermined.

Members of a cartel like OPEC openly collude to protect their interests. Saudi Arabia, is likely to be a recognised leader of the cartel given its massive scale of production. It could informally collude with a smaller member of the cartel to increase supply, particularly if that member also wished to increase supply.

The Saudi policy may make some sense given the ways in which technology is driving alternatives to oil in the future and providing oil companies with the ability to continuously search for new supplies. Short term, it is not acceptable to other members for the reasons referred to earlier.

**TIP**

This question is quite specific although it is possible to include some general points about how cartels function.

### Multiple choice questions

- 1** Correct option: B

The marginal cost is the same as the variable costs, so options A and C can be discounted. The average cost of producing a new digger is total costs/5 =  $(30,000 + 5 \times 5000)/5 = \$11,000$ .

- 2** Correct option: A

A key point about monopolistic competition is that freedom of entry allows new firms to enter the market and compete away any short-run abnormal profits i.e. Option A. Option B, therefore is wrong. Option D is not certain whilst Option C is not relevant.

- 3** Correct option: A

The question says 'least likely to apply'. Options B, C and D do apply to this market, leaving A as the correct response. Amalgamations are very likely to continue.

- 4** Correct option: D

Growth has been through acquiring new business in the same food and drink sector. This is horizontal integration, D, not to be confused with vertical integration, Option A. The other two responses are irrelevant.

- 5** Correct option: A

What is required here is the correct formula for explaining how firms allocate their factors of production. This is done through considering marginal productivities and factor prices.

# Chapter 8

## Answers to exercises

1 i

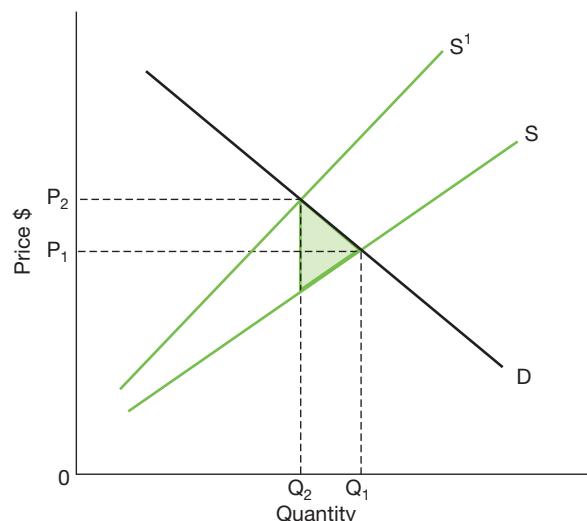


Figure A8.1

- ii The deadweight loss is the shaded area on the above diagram. It is the welfare loss due to the loss of consumption and production as a consequence of the increase in price of aviation fuel. As shown on the diagram, demand and supply are likely to be price inelastic as aviation fuel is essential for the operation of aeroplanes.
- iii The increase in duty will most likely be passed on to air travellers in the form of higher fares. All airlines operating in India will be subject to the same increase; some may choose not to pass on the full increase. Much will depend on whether demand for their routes is price elastic or inelastic. The more inelastic, then the less the likelihood of a reduction in the number of people travelling.

2 i A typical answer is:

**Problem: Atmospheric pollution from factories**

Policy	Likely effectiveness	Problems
Indirect tax	Good. Price to customers will increase. Could reduce demand	Estimating the value of the tax
Subsidy	Could be used to fund more environmentally acceptable processes	Opportunity cost considerations
Information provision	Relatively low key	Firm may not take any notice
Pollution permits	Should be very effective	Determination of quantities to be allowed
Property rights	Gives factory the right to operate	Little incentive for polluter to relocate
Licences	Very effective	Difficult to agree targets
'Nudge' principles	Relatively limited	Adverse media publicity could help but limited relevance in this situation



ii A typical answer is:

**Problem: Illegal dumping of waste**

Policy	Likely effectiveness	Problems
Indirect tax	OK in theory but not in practice	Difficult to collect
Subsidy	Could fund more legal waste disposal sites	Not easy to find an acceptable location
Information provision	Local media campaign could be helpful	Targeting the right groups
Pollution permits	Could help but only marginal	Determining what can be allowed
Property rights	Could help but only marginal	Little incentive
Licences	Could be given to those wanting to dump waste legally	Establishing quantities
'Nudge' principles	Could have an impact on community	Getting material to the groups who really recognise the problem

3 i An equal distribution of income has a Gini coefficient of 0. According to the data, the distribution of income is becoming more equal. So, growing concerns do not entirely appear to be justified. The scale of inequality does give cause for concern.

ii a Malaysia (4.6% difference)

Germany (40% difference, Sweden 39.5%)

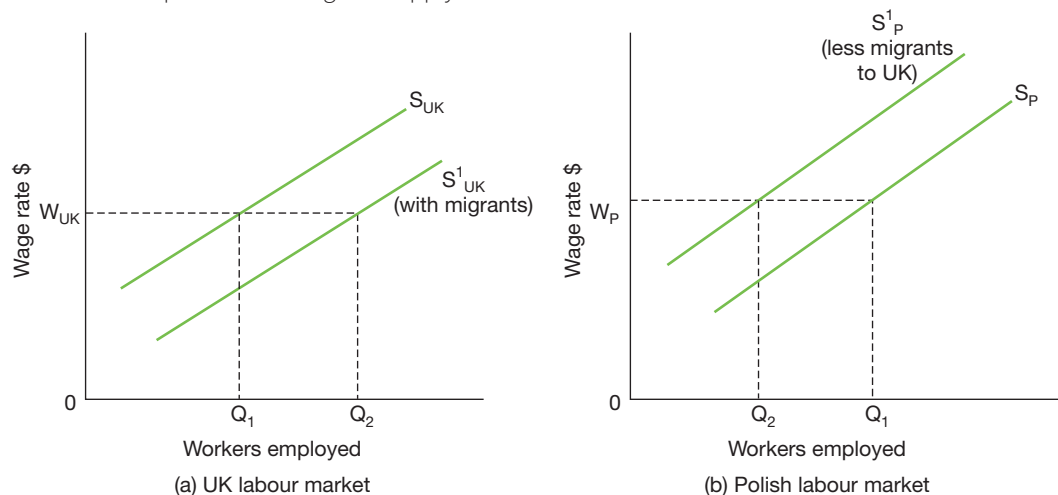
b As indicated, the difference between the two Gini coefficients is the extent of taxes and transfers. These are most effective where the difference is largest as in the cases of Germany and Sweden. In these countries, a progressive taxation regime along with a range of payments made to low income residents has had a substantial bearing on reducing inequality in the distribution of income. To some extent, the situation in Malaysia would seem to indicate that government policies to reduce inequality have had very little impact.

4 a

Labour (workers)	Total output	Marginal physical product	Price of product	Marginal revenue product	Wage per worker	Contribution of each worker
1	5	5	10	50	40	10
2	11	6	10	60	40	20
3	18	7	10	70	40	30
4	22	4	10	40	40	0
5	25	3	10	30	40	-10
6	26	1	10	10	40	-30
7	26	0	10	0	40	-40

b The firm can be expected to employ four workers. At this point the MRP equals the wage of each worker.

- c** Estimating the MRP is a little easier in a manufacturing firm than in the service sector where it is particularly difficult. Even so, given the division of labour in most manufacturing firms, it is still difficult to estimate. It is probably easiest in manufacturing where one worker completes all stages in the production process. This will allow MRP to be estimated. It is virtually impossible to estimate in most professional services since the output and MRP are difficult to determine.
- 5 a** Each of the three policies can be used to achieve a more equitable distribution of income in the following ways:
- Improved education – provided as a merit good at no or little charge will improve the job prospects and earnings potential of those who would not otherwise be able to afford to attend education. This is particularly important beyond junior and secondary education which are often provided free to students.
- Taxation – the usual approach is for there to be a progressive tax regime whereby those earning higher incomes are taxed at a higher percentage rate. The level of the allowance before income tax is paid is also relevant. The average rate of tax paid rises as earnings increase.
- Social policies – various types of benefits can be paid to those on low incomes. These are normally paid directly and subject to a means test.
- b** The answer here should consider each of the above in a country context with an assessment of the extent they are applicable and whether or not they really do have a positive effect on providing for a more equitable distribution of income.
- 6 a** For the UK, the inward migration of almost 1 million Polish workers has led to a shift to the right of the long-run supply of labour. In turn, this leads to an outward shift of the long-run aggregate supply curve. For Poland, the opposite occurs. The diagram below shows how both impact on the long-run supply of labour.



**Figure A8.2**

For the UK, it means that at any given wage rate, more workers are willing to supply their labour. For Poland, it is likely that wage rates will have to increase if the country wishes to reduce the flow of migrant workers since at wage rate  $W_P$ , less workers will be in the labour market.

- b** Labour migration is an obvious way of dealing with shortages in a labour market. It can be particularly effective at a time when business confidence is good; at a time of recession, migrant workers are likely to be the first to lose their jobs. In many cases, migrant workers undertake jobs that are not wanted by the local population e.g. in agriculture, hotels, cleaning services.

An alternative policy is for governments to encourage more domestic workers to be trained for jobs carried out by migrant workers, particularly in skilled occupations. A second approach is to tighten up on the benefits that are paid to unemployed domestic workers by requiring them to undertake a job after a period of time when they have been out of work.

## Answers to exam-style question

### Data response question

- a** The total number of vehicles has increased over the period 2012 to 2015. The biggest rate of increase has been from 2014 to 2015, particularly in the Western suburbs. Passenger trips by suburban rail have also increased since 2006, but the numbers travelling by bus has fallen by around 35%.
- b**
- People living in Mumbai have increased disposable incomes. One of their first new purchases is likely to be a car.
  - The poor quality of local bus transport has probably led to more people having a need for a car for the daily commute.
- c** Congestion is an outcome of the inefficient use of road space. It results in negative externalities being imposed on third parties. Any increased use of road vehicles reduces the efficiency of the road network for existing users. Their journey times and costs increase as a consequence of more vehicles on the road. It is also self-inflicted as maybe more road users should look to using the suburban rail network.
- d** Building new roads would seem to be a logical policy to pursue. In simple terms, it is a case of increasing capacity or supply to meet the increasing demand. Experience elsewhere has shown that this can be self-defeating in the sense that the increased capacity very quickly becomes congested as vehicle numbers increase.

An alternative longer-term approach would be to improve public transport say by upgrading the current railway network or constructing a new rapid transit system. A more radical approach would be to introduce a user charging system like that in Singapore or to bring in a system that rations who physically can use Mumbai's roads.

There is no simple, universally acceptable policy for dealing with Mumbai's congestion problems. Most economists would opt for road pricing as the only real way in which this market failure might be corrected.

### Essay questions

- 1 a** Increased labour migration is one of the features of globalisation. In the UK, for example, there has been a huge net inflow of migrants from the enlarged European Union, from Poland especially. Other significant migrant flows have been from poorer Asian countries to more affluent economies in the Gulf States. Singapore is a small relatively affluent economy and is most likely to attract migrants from neighbouring countries such as Malaysia and Indonesia.

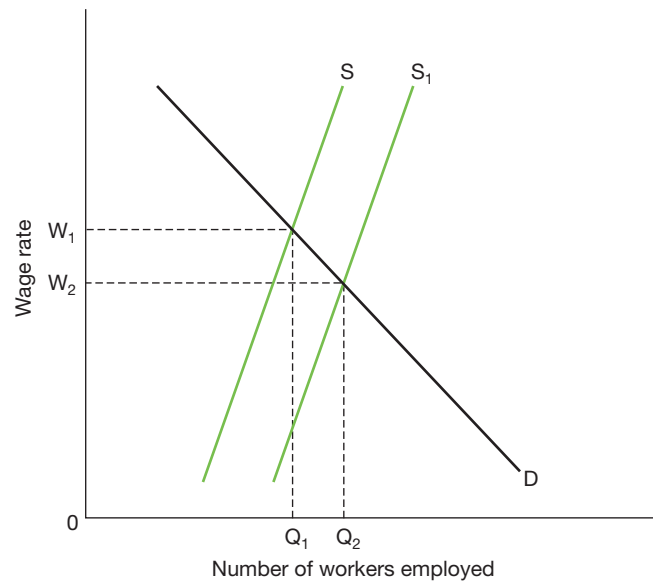
Migrant workers are sometimes referred to as 'economic migrants'. This is because the whole point about migrating is to earn a better income and probably remit some money back to families in their home country. Invariably, these workers have to do unskilled work that local native workers are unwilling to undertake.

An increase in migrant labour will increase the supply of labour in an economy such as Singapore. This is shown on the diagram below.



#### TIP

Although the question does not require any knowledge about Singapore, this opening paragraph gives a relevant context to the rest of the answer.



**Figure A8.3** An increase in supply of migrant workers

The market supply curve for labour shifts to the right; the labour supply increases from  $Q_1$  to  $Q_2$  but there is a corresponding fall in the wage rate from  $W_1$  to  $W_2$ . The reduced wage rate applies not only to migrant workers but also to those who are already in the labour market.

- b** The use of migrant labour in any economy is a controversial issue. As deduced in part (a), a common criticism is that migrant workers are not just taking jobs but they are also lowering wages as a result of there being more competition in the labour market.

On the other hand, economies like Singapore are facing a labour shortage largely brought about through a falling fertility rate. If the economy is to continue to grow, it is clear that a relevant supply-side policy is to increase migration to fill the skills gap. The domestic population could be re-trained but this is a longer-term policy. Providing help for migrant labour to move to Singapore is a much quicker means of dealing with a labour shortage.

It is true that when an economy like Singapore is doing well, there is going to be a need for more migrant workers to be employed in construction, hotels, restaurants and other low skill jobs. If there is an economic downturn in the global economy, as in 2008 for example, this will have an impact on Singapore and other open economies leading to a response to reduce the number of migrant workers employed. Such workers are invariably the first to lose their jobs.

If an economy is subject to external shocks, then cutting back on migrant labour is a protective mechanism to try to sustain employment amongst the native population. Whether this is justified is not easy to assess. One possible way might be to undertake some form of cost-benefit study and to use this as a guide to decision-making.

The benefits generated by migrant labour for an economy such as Singapore should not be under-estimated. These workers add value and contribute to on-going economic growth and a balance of trade surplus. In some respects, the economy might grind to a halt without their input.

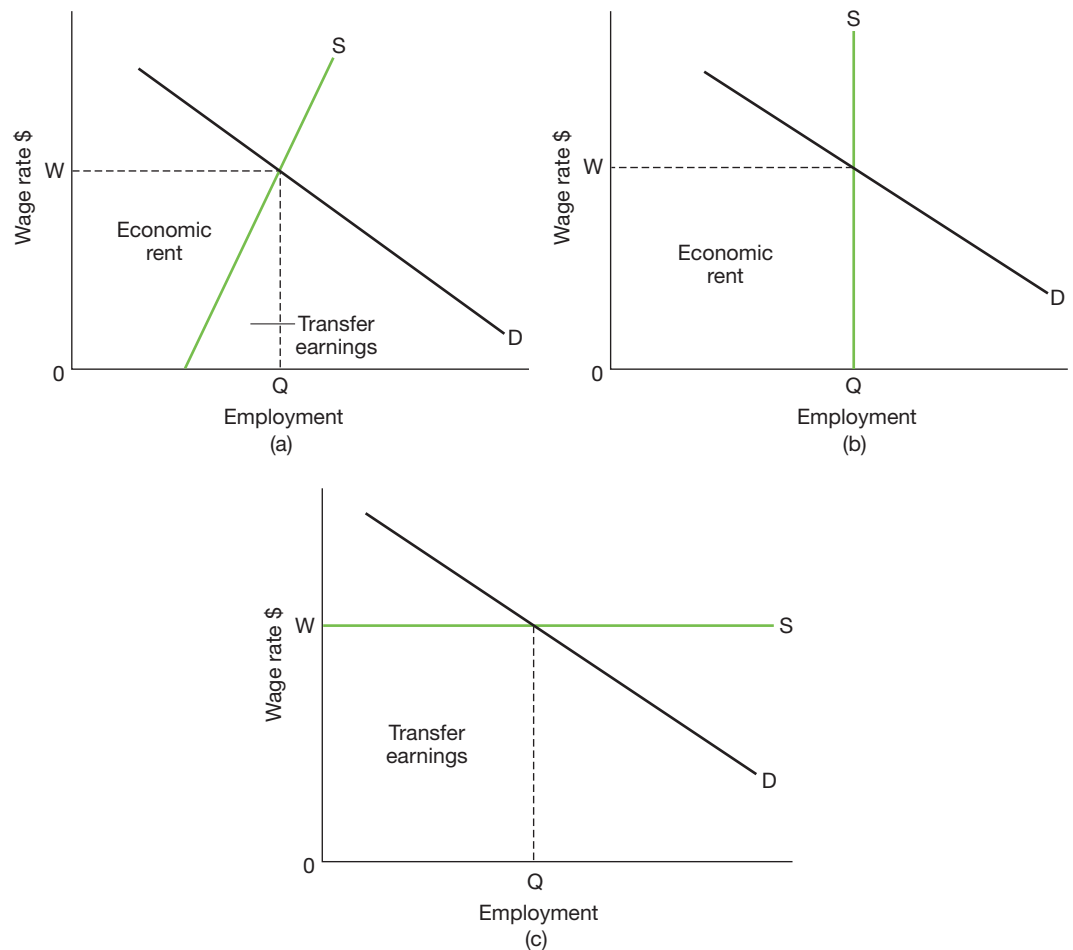
Reducing demand for all types of migrant labour would be short sighted. What might be better would be to be more selective in issuing work permits for migrant workers and to target only those workers who have those skills and experience needed to fill the skills gap. Alongside such a policy, the government could be more aggressive in cutting down on unemployment and welfare benefits and by introducing compulsory skills retraining for its own people who are out of work.

- 2 In some respects, wage rate differentials are inevitable. It is an undisputed fact that some people get paid more than others. For example, a clerk in the college office will be paid less than an Economics teacher; the CEO of a large distribution company will be paid more than the warehouse manager.

There are various reasons for these differentials including age, sex, education, work experience and so on. The marginal revenue product is a relevant demand side factor. Educational qualifications and experience are likely to mean that a CEO's value to the company in terms of MRP is worth more than the warehouse manager who may only have worked in a warehouse since leaving school.

There are also supply considerations. The supply of office clerks and warehouse managers is likely to be more extensive than Economics teachers and particularly CEOs, who will be in short supply. Teachers and CEOs might be able to be employed as office clerks and even warehouse managers; the reverse is not true.

Economic theory seeks to explain wage rate differentials in terms of transfer earnings and economic rent. Transfer earnings are defined as the minimum payment that is needed to keep labour in its current use. It is the opportunity cost of employing that person. Economic rent is different and is the payment to labour over and above the minimum required to keep labour in its current use.



**Figure A8.4** Transfer earnings and economic rent

The diagrams above show how each can be represented. Diagram (a) indicates that transfer earnings are represented by the area under the labour supply curve. The equilibrium wage is  $W$  – some workers are prepared to work for a rate below this and will join the labour market until  $Q$  workers are employed. For these workers, any wage they receive above what they are willing to accept is economic rent.

Diagrams (b) and (c) show two extreme positions. In (b), the supply of labour is completely inelastic, meaning that all wages will consist entirely of economic rent. In contrast, with a completely elastic supply curve as in diagram (c), the wages paid are all transfer earnings.

These concepts can now be used to explain why there are wage rate differentials. Taking the case of Premier League footballers or movie stars, their labour supply is completely inelastic, as shown in diagram (b). They have unique talent and their earnings consist entirely of economic rent. So, if an employer wishes to hire such a person, the going rate has to be paid. In contrast, as shown in diagram (c), unskilled workers have an elastic supply, with their earnings consisting entirely of transfer earnings.

So, to conclude, economic theory does to a large extent explain through MRP and the elasticity of supply of labour why there are wage differentials. It only provides a partial explanation which needs to be qualified by other considerations which are indicative of each worker being a unique person in the market.

The wage is not the only reason why someone may take a job. The so-called 'net benefit' should also be considered – this refers to the conditions of employment, including any fringe benefits. For example, a worker who is happy in work and where there is secure employment may be less likely to seek a wage increase compared to someone doing a dangerous job with little job security. Workers may be geographically immobile for all sorts of reasons and prepared to accept a wage rate below what they might have expected to receive elsewhere in the market.

Demand and supply factors therefore are a helpful starting point in explaining wage differentials – there are other factors that need to be taken into account to provide a fuller interpretation.

- 3 a** The global demand for air transport continues to increase, particularly in the emerging economies in the Asia–Pacific region. A recent report (October 2016) from IATA predicts a 3.7% per annum increase in the volume of air passengers over the next 20 years. It forecasts that China will replace the USA as the world's largest aviation market and that by 2026, India will displace the UK for third place. Growth therefore is largely being driven by increased demand from developing economies, China and India, in particular. Both of these markets are experiencing deregulation in their domestic passenger markets and there is ever-increasing competition between new low cost carriers and more established airlines.

All of this is happening at a time of increasing concerns over the effects of climate change. Whilst climate change affects all economies, its impact is particularly serious in Asia and Africa where air transport is growing at the fastest rate.

The main way in which air transport impacts upon climate change is through the increase in CO<sub>2</sub> emissions. Given the height at which airlines fly, this is very serious since emissions are not blocked by the first layer of cloud in the atmosphere. On the ground, poor air quality is experienced by millions of residents who live close to airports or below flight paths. This is an example of negative externality in so far as there are costs being inflicted on these third parties. These costs include an increasing incidence of respiratory diseases, especially amongst children.

A second way in which air transport contributes to climate change is in the way passengers travel to airports. Many travel by car – the emissions from these vehicles add to those generated as a result of increased demand. A third way is through the use of resources that are needed in order to manufacture aircraft. The extraction of metal ores, the production of plastics and the physical construction of aircraft are all activities that release greenhouse gas emissions into the atmosphere. In turn, these inflict costs on areas where the production occurs.

- b** Government failure is a relatively new concept in economics. It occurs when the government intervenes in a market to correct market failure but in so doing, this intervention creates further inefficiencies and a loss of economic welfare. The result is that the social costs of the government's intervention exceed the resulting social benefits.

**TIP**

The very relevant material in the first paragraph is good – it enhances the context of the answer.

The social costs involved include the effects referred to in part a plus other negative externalities such as noise disturbance for residents living close to an airport, the costs of increased traffic congestion and a range of negative impacts that are difficult to quantify. The social benefits accrue to the air passengers through the pleasure they derive from travelling for leisure and business reasons. These should not be under-rated. The other social benefits are the employment that is created at airports and in the production of aircraft. There are also wider economic effects for the regional and national economies.

The deregulation of air transport markets must also be considered. This has occurred in the USA, much of Africa, India and China, and provided new business opportunities as markets are opened up to competition. Without deregulation, it is highly unlikely that the growth that has been experienced and forecast would have taken place.

In these circumstances, it is clear that governments have conflicting objectives. On the one hand, they have signed up to the protocol to reduce greenhouse gases yet, on the other hand, the policy of deregulation of markets has led to an increase in emissions. It would seem therefore to be a classic case of government failure.

- 4 a** Governments in many economies pursue policies that seek to make the distribution of income and wealth more equitable. Their success has been mixed. Some of the largest discrepancies in the distribution of income and wealth are to be found in developing economies where a small percentage of the population earn a very large share of total income and own a massive proportion of the wealth as measured through assets of property and accumulated financial resources. These differences are also evidenced in developed economies such as the UK, although they are not as great. In the UK, there has been little or no change in the distribution of income over the past generation. The distribution of wealth is much more extreme.

Equity is not the same as equality. Equity quite simply is about fairness in the distribution of income and wealth. Equality is about trying to ensure that everyone has an equal share.

Two types of equity are recognised. Horizontal equity is where there should be the same treatment for everyone with the same, identical circumstances. An example of this is in the labour market where all applicants for a job should be treated in the same way regardless of sex, age or ethnicity. Another example is the case of welfare benefits whereby all individuals with the same needs and circumstances should receive the same payments.

Vertical equity is different. It recognises that there should be a different treatment for individuals on account of their different characteristics in order to promote greater equity. A good example is the case of income tax, which should be fairly charged for all based on their level of income. Higher earners should pay more than those on low earnings. A second example is in education and health where the government provides the same access to services for all eligible members of the population, irrespective of differences in income or wealth as a means of promoting greater equity.

Efficiency is concerned with how limited resources are used in the best possible way. Opportunity cost is involved. The main point is that in striving for efficiency, a government has to be careful that it is not favouring one group of people over another group. An example again is in healthcare where it is invariably necessary to increase efficiency. However, this should be achieved by not disadvantaging one group in the population over another, for example, rural residents as against those people living in cities.

- b** There are various policies that governments pursue to reduce inequalities in the distribution of income and wealth. The tax system is particularly important. An equitable tax regime is one that is progressive – this means that those who are better off, in terms of income and wealth, are taxed more heavily than people on low incomes and with few assets.

To be progressive, income tax should tax high income earners at a higher marginal rate than those on lower incomes. In the UK, the top rate of income tax is 45%, in India it is 30% and in Malaysia 28%. There is usually an income threshold below which no income tax has to be paid and lower rates that apply as income increases. With wealth, there is an inheritance tax

in some countries whereby people who inherit assets above a certain value have to pay a percentage tax to the government.

A system of taxation may well be equitable but it does not follow that it is efficient. Tax evasion is a major problem in all economies. The extent of evasion depends on how efficient the authorities are in collecting what is legally owed. In some countries, it has been estimated to be as much as the sum that is actually collected in tax. Corruption may also be a problem.

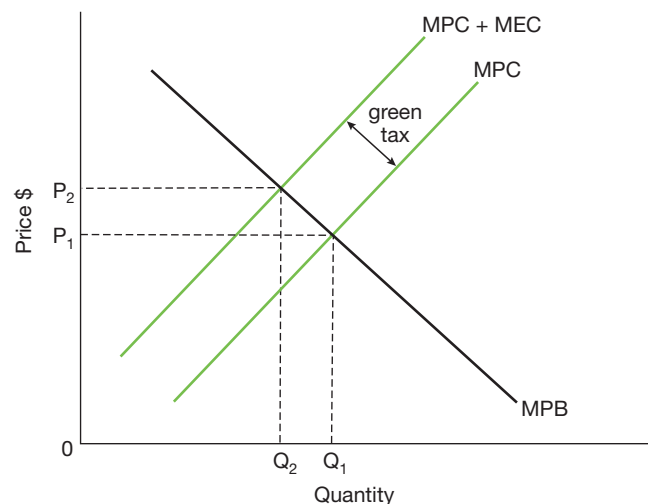
A second way in which governments redistribute income and wealth is by providing benefits, particularly to those people and families on low incomes. A good example is income support payments which are provided where a family's income is below a particular threshold. Such a system though may not be efficient. This is because the payment of means-tested benefits may create a disincentive to work. A poverty trap occurs when a person or family are worse off when working than when on benefits. Such payments are more prevalent in developed rather than in developing economies.

A third way of reducing inequalities in income and wealth is through the government funding important services that are free at the point of use. Education and health are two obvious examples. Education can help those in low income families enhance their job prospects and earnings potential. Healthcare provision is by no means free in many countries, the USA being a prime example, and where low income families are unable to afford many types of treatment. Direct funding may not always be efficient. It involves opportunity cost considerations and there is also the issue that some people receive services free of charge when they are in a position that they can afford to pay for them.

- 5** Market failure, as the term indicates, occurs when the market mechanism does not allocate resources in the most efficient way. There are many examples where this happens. Abuse of the natural environment in the production and consumption of goods is an ever-increasing problem in all economies. A second cause of market failure is in market such as a monopoly where there is an absence of competition. A third example is in the provision of public goods, merit goods and demerit goods. In all cases, fiscal measures are used to some degree to correct market failure.

Negative externalities arise in the production of many goods. These occur when the marginal social cost of producing, for example, chemicals exceeds the marginal private cost, resulting in market failure. The negative externalities result in costs to third parties such as residents who live close to the factory. Negative externalities can also occur in the consumption of goods. The recent scandal about diesel emissions from Volkswagen-produced vehicles is a good example. A more mundane one is where someone discards a spent battery in the street. Both actions can lead to third party costs.

The diagram below shows how fiscal policy can react to the problem of production externalities.



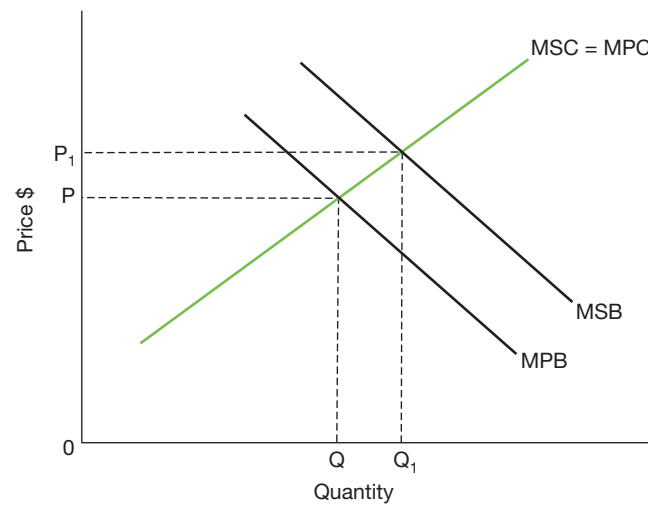
**Figure A8.5** Impact of an indirect green tax



The initial equilibrium position where  $MPB = MPC$  does not take into account the full costs of production where there are external costs arising from negative externalities. This is over-production of  $(Q_1 - Q_2)$  and the price paid should be higher at  $P_2$ . A fiscal measure that could be used to correct this market failure is an indirect green tax that, if fully efficient, would shift  $MPC$  upwards to the new equilibrium of  $P_2Q_2$ .

This is fine in theory. In practice, however, it is far from easy to apply for many reasons, not least how to determine what the charge should be. A more direct way would be to use regulations to curb emissions or to specify the production equipment that is to be used by the polluting firm.

The case of merit goods is different. These are goods that are under-produced if left entirely to the market mechanism. This is invariably due to information failure on the part of consumers. Merit goods such as education provide positive externalities to those who consume them – the marginal social benefit is greater than the marginal private benefit. This is shown in the diagram below.



**Figure 8.6** Merit goods case

If only private costs and benefits are considered, the equilibrium position is  $PQ$ . Here, there is under-consumption. It is argued that society is better off when there is greater consumption of  $(Q_1 - Q)$  even though the price that has to be paid is greater than the initial price. In such a situation, government spending is the fiscal approach taken to provide the additional merit goods that are required. In the case of education, the policy may well have to be reinforced with regulations that state say the minimum age before a child is able to leave full time education.

The above are just two of many situations where there is market failure. As in these and in most other cases, fiscal measures can be used to redress the market failure, even if this is only partially. It is the norm that other means such as regulations and pollution permits have to be used alongside taxation and government spending to correct the market failure.

**TIP**  
 This is a wide-ranging question given an examination time constraint. It is better to give quality analysis and evaluation rather than a more wide-ranging description.

### Multiple choice questions

- 1 Correct option: B

The question requires transfer earnings to be measured. This is represented by the area under the supply curve. Therefore, option B is correct.

- 2 Correct option: C

Option C is a fiscal measure. All other options are regulations.

3 Correct option: B

An income distribution that is equal will have a Gini coefficient of 0. So, the larger the coefficient, the more unequal the distribution. option B is therefore correct. Option A is wrong since the value for Brazil is greater than for China. No past information is provided so option C is not proven, as indeed is option D.

4 Correct option: C

Option C is the correct definition. The remaining options are therefore not correct.

5 Correct option: A

The burden of the tax will fall on both producers and consumers so options C and D are wrong. The gap between MPC and MSC is only partially filled by the green tax so option B is not correct. Option A is correct.

## Chapter 9

### Answers to exercises

1 i

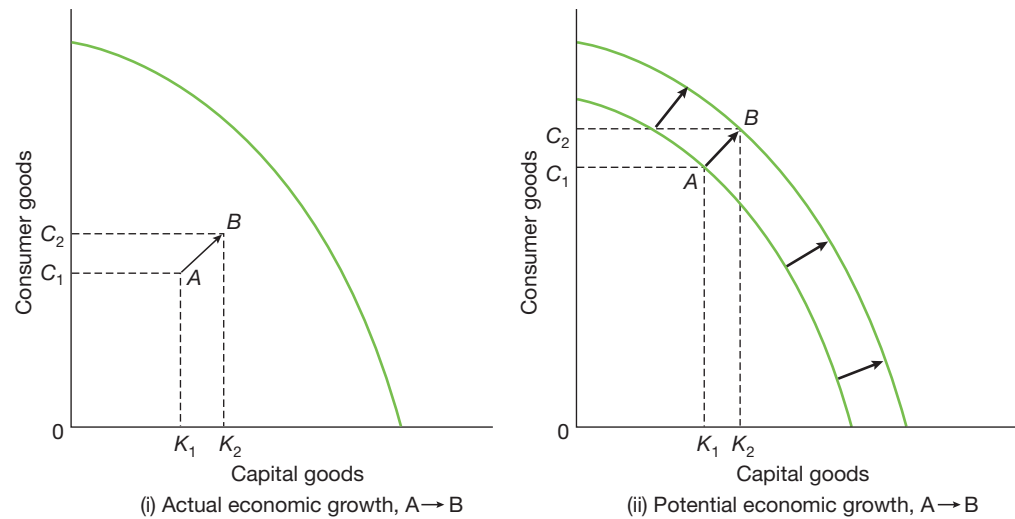


Figure A9.1

- ii a Actual economic growth
  - b Potential economic growth
  - c Potential economic growth
  - d Neither – just a reallocation of productive resources
  - e Potential economic growth
  - f Actual economic growth.
- 2 a The levels of growth are very similar  
 China’s annual GDP growth is falling  
 India’s annual GDP growth has been increasing marginally  
 India’s annual GDP growth has fluctuated more.

- b** Various possibilities including:
- China's exports are less price competitive
  - China has a higher savings ratio
  - India is investing heavily in new infrastructure
  - India has a growing quality workforce.
- 3 i** GDP per head measures the total output divided by the size of the population. It is a monetary measure in current prices.
- The purchasing power parity measure takes into account price levels in different countries by using exchange rates based on what currency is needed to buy a given basket of goods and services.
- ii** India's GDP per head is only about 28% of that of China; in PPP terms, it is around 42%. This is a clear indication that the prices of goods in India are relatively less than those in China. So, people in India can buy more of what they need with \$1 compared to people in China. The data could also be influenced by variations in the dependency ratios between China and India.
- 4** GDP per head in \$US is the usual way in which international living standards are measured. From the data, it would seem that for the 'average Malay', living standards have improved from 2014 to 2015 resulting in more goods and services available per head of population. This may not be so if:
- there has been an increase in direct or indirect taxes
  - there has been a reduction in direct provision of services such as childcare or local health provision
  - a reduction in the quality of life through poorer air quality.
- 5 a** Structural unemployment
- b** Cyclical unemployment
- c** Frictional unemployment
- d** Frictional unemployment
- e** Cyclical unemployment
- f** Frictional unemployment (also called seasonal unemployment).
- 6 a** – Both have rising unemployment rates over the whole period
- Pakistan's unemployment rate has in general been higher than that of Indonesia
  - Pakistan's unemployment rate has fluctuated more than that of Indonesia.
- b i** Both countries experienced increasing unemployment rates.
- ii** The unemployment rate of Pakistan continued to increase during this period; the unemployment rate in Indonesia continued to fall.
- 7 a** Y
- b** This means that C, consumer spending will increase. AD will shift outwards to AD<sub>1</sub>, with a new equilibrium level of income, Y<sub>1</sub>.
- c** A fall in government spending reduces AD which shift downwards to AD<sub>2</sub>, with a new equilibrium level of income at Y<sub>2</sub>.

- 8 a i The money supply shifts to the right to  $M_1$ ; the rate of interest falls to  $r_1$ .

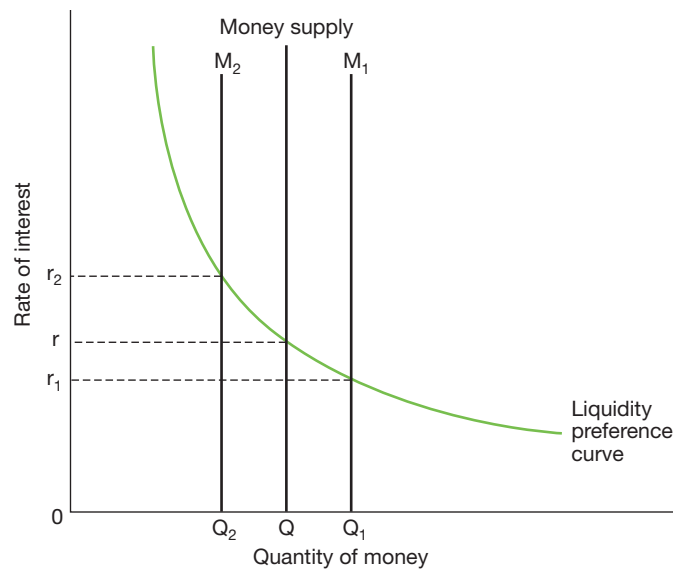


Figure A9.2

- ii The money supply shifts to the left to  $M_2$ ; the rate of interest increases to  $r_2$ .

- b Increase in money supply: required when an economy needs a boost at times of deflation or rising unemployment. The fall in interest rates should encourage consumers to borrow more, particularly for 'big ticket' items and encourage businesses to borrow more to fund new investment. This is an increase in aggregate demand.

Decrease in money supply: required when an economy needs to reduce aggregate demand to combat increasing inflation. The increase in interest rates should encourage consumers to save more and borrow less. Businesses will find borrowing more expensive and will be likely to postpone certain projects as the return on their investment will have reduced.

- 9 a The leakages from the circular flow of income are:

- Savings (S)
- Taxation (T)
- Imports (I)

The higher size of the multiplier for China is indicative that the marginal propensity to withdraw is less than for the UK (approx. 0.38 for China and 0.76 for the UK).

- b An injection of US\$100m would result in a final increase in national income of US \$260m in China and US\$130m in the UK. The overall impact on national income for the Chinese economy of spending the same sum of money on a new nuclear power station as in the UK is therefore much greater.

- 10 a Quantitative easing (QE) has increasingly been used by central banks following the 2008 financial crisis. This is because very low interest rates have failed to stimulate aggregate demand. In short, the central bank buys back bonds from banks in exchange for money in order to increase bank lending and consumer and business borrowing in order to trigger a rise in aggregate demand. QE is also likely to have an effect through reducing interest rates even further, so encouraging borrowing.

- b QE may not always achieve its objectives because:

- banks may not be willing to lend more money to consumers and businesses as they may feel that the risks involved are too great
- consumers and businesses may be unwilling to commit to borrowing more money since the economic outlook is not strong. Business confidence is low and expected to be uncertain for some time.

This has certainly been the case in the UK and Japan where QE has not given the economic boost that had been predicated.

- 11 a** Various reasons can be put forward:
- many developing economies have borrowed heavily to fund their own development, either from banks or from governments. These loans are subject to the vagaries of rising interest rates and an appreciation of the \$US. (This is the usual currency that is used for this purpose)
  - most developing economies have seen their terms of trade deteriorate and the price of essential imports increase. This has invariably resulted in a balance of trade deficit that over time, can only be funded by additional borrowing from foreign banks and governments
  - funding past loans by borrowing more money in order to be able to pay the interest on loans taken out earlier.

- b** This is a controversial topic. It has been strongly put forward that developed economies could wipe out the debt of some of the poorest countries as a type of goodwill gesture. This has been put forward by the UN from time to time as it would help countries meet its Millennium Development Goals.

It is also argued that with trade, more could be done to assist many developing countries. A good example would be if developed economies withdrew the subsidies paid to agriculture and reduced tariffs and other barriers to trade on most agricultural goods and processed food products.

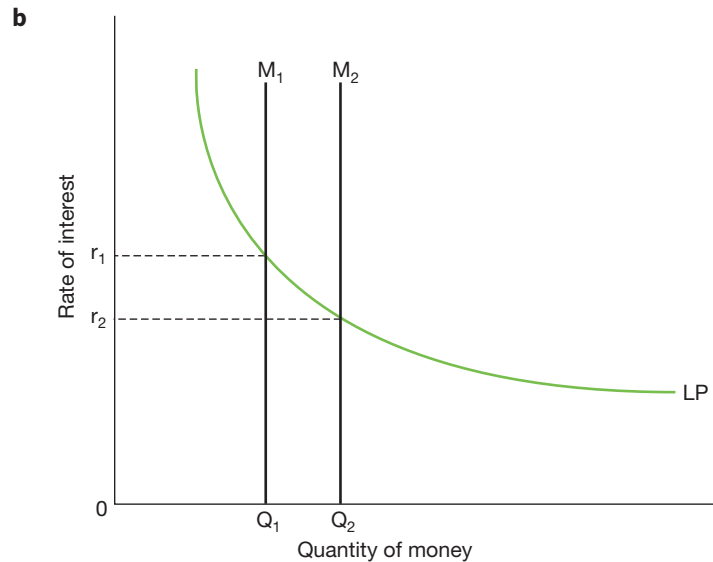
Another possibility is for direct financial aid to be given to those developing countries most in need of struggling to repay debts on earlier loans.

## Answers to exam-style questions

### Data response question

- 1 a** Life expectancy at birth  
Dependency ratio
- b** The cost of bringing up children is likely to mean that some families decide to limit the number of children or have no children at all. Opportunity cost should also be considered.  
Women in developed economies are getting married later in life. This can reduce their chances of having children.  
There are more single person households, which is likely to mean less children.
- c** A high fertility rate inevitably means that an economy's population is growing at a faster rate than can be sustained by its resources. This is likely to lead to higher unemployment in the future, lower wages and a need to increase government spending on education and health.
- d** There are two main ways that the economies are continuing to grow. The first is by increasing the quality of the existing workforce through supply-side policies geared say to raising IT skills and educational achievement. The second is through a policy that encourages migrant workers, especially those with advanced skills or skills that are in short supply.
- e** The fertility rate for China is alarming since it means that the country's population will decline in the future. As an emerging economy with higher aspirations, this is not good news. It can be argued that this is the obvious outcome of its controversial 'one child' policy – families will be used to having less children. It also raises issues about future growth potential and the economy's ability to meet the growing needs of an ageing population. It should be appreciated that as Chinese families become more affluent, they are having less children in line with that experienced in developed economies like Germany and Italy.

- 2 a** Quantitative easing is where the central bank of a country buys back government bonds from private sector banks in order to increase the money supply. The expectation is that with this increased liquidity, banks will lend more money to customers so increasing the level of economic activity. It has been applied in the Japanese economy for this reason and also because low interest rates have failed to stimulate aggregate demand.



**Figure A9.3** A fall in the rate of interest

The diagram shows the demand curve for money, the liquidity preference schedule. As the rate of interest falls from  $r_1$  to  $r_2$ , the demand for money from consumers and firms increases from  $Q_1$  to  $Q_2$ . This increase should stimulate the economy.

- c** The liquidity trap is where the liquidity preference schedule becomes horizontal. This means that interest rates cannot be reduced further to stimulate economic activity. The evidence from Japan is that interest rates have moved from being 'barely positive' to 'negative' indicating that the economy is in the liquidity trap.
- d** The last two paragraphs state that the Japanese government is to pursue an expansionary fiscal policy by injecting ¥28 trillion into the economy. This should directly increase aggregate demand and prompt further spending through the multiplier process. The so-called 'helicopter money' is more direct and should also increase aggregate demand.

Whether this will stimulate growth is uncertain, given that previous monetary measures have failed to do so. The outlook is hardly optimistic but it is clear that the Japanese government is desperate to do something different.

### Essay questions

- 1** There are many economic indicators that can be used to assess the quality of life in my country. These indicators measure living standards and other economic factors that make up the overall quality of experience of an individual or of a family.

An obvious starting point is GDP per head or, more specifically, real GDP per head. This information is readily available and reflects the quantity of goods and services that are typically consumed by individuals in a country. Increases over time indicate that living standards have improved. This data has some limitations since it does not consider how GDP is distributed nor does it take into account the subsistence and informal economies, both of which are significant in my country.

A second indicator is life expectancy at birth. This measures how long men and women can be expected to live. Over the years, this measure has shown an increase, indicative of a better quality of life. A third indicator is concerned with education. It is how many years schooling each person has received on average. There are very large differences between developed and developing economies.

These three indicators (more specifically GNI per head at PPP and not real GDP per head) have been combined by the UNDP to form what is known as the HDI or Human Development Index. This is a good overall measure of the quality of life since it reflects not only what goods and services are consumed but whether individuals are leading a long and healthy life and whether they are being educated.

There are many other economic indicators that could be used. With regard to health, the number of doctors per thousand population is a good indicator of the quality of provision; the higher the better. For housing, statistics are available on the proportion of houses or apartments with running water. Crime rates would also be useful since they affect the overall quality of life.

The structure of the economy in terms of the breakdown of employment between sectors would also help. It is implied that if an economy has a large proportion of its labour force in agriculture and other primary activities, then the quality of life is likely to be less than in an economy that has a lower proportion in this sector. Economies with a large proportion of service sector employment are usually those with a good quality of life.

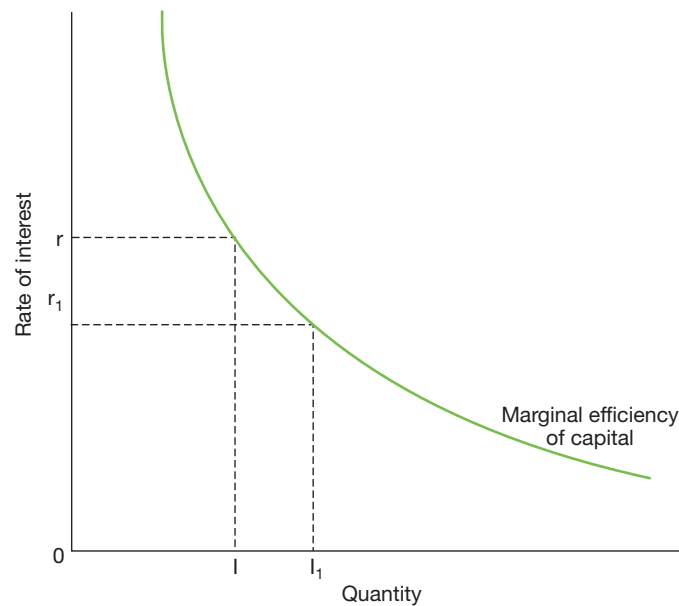
There are also compound indicators as well as HDI. One such is the Measure of Economic Welfare, which adjusts GDP data by considering factors such as leisure time that can affect the quality of life.

In producing this report, it would be helpful to go back over time and see how the values of the various indicators have changed and therefore, how the quality of life has changed.

To conclude, there are many examples of economic indicators that could be used to produce a report on the quality of life. Just which are the best is likely to be a function of the stage of development of the economy.

- 2 a** Investment is the term used in economics to refer to an increase in the capital stock in an economy. This includes anything such as industrial machinery, buildings, office blocks, infrastructure such as roads, water supplies and so on. Investment is made by the private sector and the public sector although the basis on which changes in the rate of interest influence investment tend to be considered from the perspective of the private sector.

The rate of interest is the price for borrowing money or the reward that is given to savers. It affects the level of investment in two main ways, the first of which is when businesses borrow money from the banks in order to fund new investment. In general, a fall in the interest rate will increase the level of investment and a rise in interest rates will lead to a fall in investment. These changes are a consequence of a change in the profitability of new investment for a firm. The diagram below shows this.



**Figure A9.4** The marginal efficiency of capital

The marginal efficiency of capital curve represents the returns that can accrue from investment at various rates of interest. If interest rates fall, more projects become profitable leading to an increase in investment. If interest rates increase then projects are likely to become less attractive and the level of investment falls. On the diagram, as interest rate falls from  $r$  to  $r_1$ , the level of investment increases from  $I$  to  $I_1$ .

Investment can also be financed from the retained profits of firms. These profits are kept within a business to fund future investment plans. Where interest rates are low, there is a big incentive for a firm to run down its retained profits and to invest them in new capital stock. When interest rates are high it becomes more attractive for firms to keep money in financial institutions like banks rather than use their funds for investment.

- b** The link between an increase in investment and an increase in national income can be explained by the multiplier effect. It is so called since the increase in investment generates further spending as the injection of investment works its way around the economy. A simple example can be used to explain this process.

Suppose a textile firm invests \$10m in new machinery. It purchases this machinery from a specialist manufacturer who has to pay its workers and suppliers for the resources used in the production process. In turn, the workers spend this money in supermarkets and leisure activities.

The process continues in a series of further rounds until smaller and smaller amounts are added. The initial injection of investment will be subject at all stages to what are called leakages. If some of the income received is saved, then this takes money out of the system. Expenditure on imports has the same effect as does when taxation is charged on consumer purchases. Both are recognised leakages.

The value of the multiplier can be calculated by the formula:

$$k = \frac{\text{Change in national income}}{\text{Change in injection}}$$

So, if the textile firm's investment of \$10m on new machinery generates an increase in national income of \$30m, the multiplier is equal to 3.

An increase in national income also brings about an increase in investment. This is known as induced investment and the process is known as the accelerator process. The basis of this process is that investment depends upon the rate of change in national income so that



a change in GDP will cause an accelerated change in investment. When GDP increases, then induced investment increases. Equally, in a recession, firms will not always need to replace their capital equipment.

The formula below can be used to express this relationship:

$$I_0 = a(Y_0 - Y_1)$$

Where

- $I$  is investment in time period  $O$
- $Y_0 - Y_1$  is the change in real income between two points in time
- $a$  is the capital-output ratio (the amount of capital needed to produce a given quantity of goods).

If the capital-output ratio is 3, an increase in the national income of \$1bn will lead to an increase in investment of \$3bn. The accelerator relationship tends to be volatile in the sense that new investment is not required each year because, as in this case, 3 units of capital is needed to produce 1 unit of goods. New capital investment therefore is not required every time output increases.

To conclude, both statements are true. Some investment is autonomous of income changes whilst other investment occurs as a result of changes in income.

- 3** For the last few years of last century and for most of the twenty-first century, the Chinese economy has experienced unprecedented economic growth. For some years, it has reached as high as 12% or 15%; more recently, growth has slowed and is expected to continue at around 6 to 8% per annum for the foreseeable future.

Growth has brought substantial benefits for the Chinese economy, the main one being an increase in material living standards. As a result, the population can enjoy a greater level of consumption of goods and services, including imported products. Cities like Shanghai are generally affluent; its leafy boulevards and shopping malls are full of expensive clothes, jewellery and designer goods. Many people live in new apartment blocks and the children of many Chinese families have access to quality education, both at home and overseas. The rise in aggregate demand has led to the creation of more jobs both in manufacturing and in the growing service sector of the economy.

The slowdown in the growth rate is by no means a catastrophe but it has and will bring about several problems. First, for residents, the growth in living standards will be cut back. Although incomes will continue to increase, this will be below what has previously been the norm. A slowing down of real income growth is likely to mean that the government does not have as much tax revenue available for distribution. This will mean fewer resources will be available to build more new airports and high speed rail links, both of which are visible signs of the government's commitment to China as an emerging market economy. There will also be fewer resources to benefit the millions of very poor people, especially those living in poor, remote rural communities.

The economic climate will have taken a knock. Business confidence will be less positive and this is likely to affect the level of foreign direct investment flowing into the country. A particular worrying issue, is to know what to do about the mounting debts of the government and private industry. Much of China's growth has been funded by loans from banks – debt is now over 100% of GDP. A downturn in growth could raise questions over the ability to pay back these loans.

There will be an impact on China's trading partners. The slowdown in consumer incomes will reduce the demand for imported goods. This will have a direct impact on those economies such as the UK, Germany and USA that supply producer and consumer goods. Their own rates of growth will also be affected. In turn, when aggregate demand falls, there is a knock-on effect in demand for imports from China. So the cycle continues.

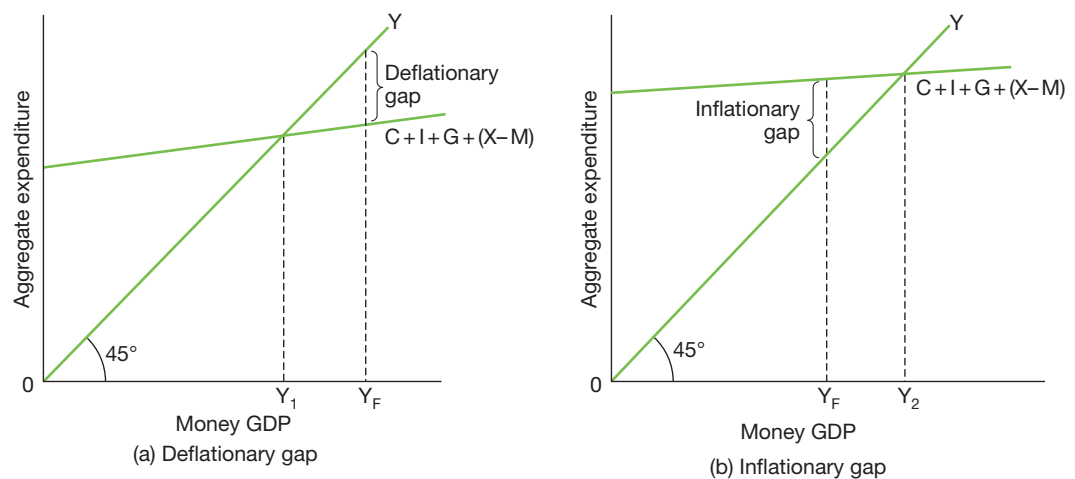
China has a strong surplus on its balance of trade. There is a view that in part this is due to an undervalued currency. The slowdown in growth is unlikely to see the yuan appreciate – quite

the reverse. A depreciation will make Chinese exports even more competitive which is not good news for its trading partners.

As can be seen, the reduction in China's rate of economic growth will have an impact both on the Chinese economy and its trading partners. The effect is likely to be relatively more of an issue for China's domestic economy although the spill-over effects on trading partners cannot be ignored.

- 4 a** The level of income in an economy is determined where aggregate expenditure equals output. If aggregate expenditure is greater than output, then it follows that more will be produced until they are once again equal. Alternatively, if output is greater than aggregate expenditure, less will be produced. This self-regulating process does not guarantee full employment as Keynesian economists have pointed out.

A deflationary gap occurs where the equilibrium level of GDP is below the full employment level. This is shown in figure a below.



**Figure A9.5** Deflationary and inflationary gaps

A deflationary gap means that the economy's resources are not fully used. With a boost, aggregate demand will increase and create more jobs so taking up unemployed resources.

An inflationary gap occurs if aggregate expenditure in the economy exceeds the full employment level or potential output level. This is shown above in part b of the diagram. The level of demand is above that of potential output and this leads to inflationary pressures and rising prices.

- b** Deflationary and inflationary gaps are different because of their differing relationships between aggregate demand and the potential output or full employment level of the economy. This was explained in part (a). They therefore require contrasting policies when government economic policy is seeking corrective action. They are not different in the sense that both types of gap can be tackled using fiscal policies as proposed by J.M. Keynes.

A fiscal policy is one that uses government spending and taxation to manage aggregate demand in the economy. This is done in order to allow the government to achieve its macroeconomic aims. In the case of a deflationary gap, the aim is to use fiscal policies to reach the full employment level of output. With an inflationary gap, the objective is also to reach full employment but with the added effect of reducing the level of inflation.

A deflationary gap can be dealt with by means of an expansionary fiscal policy which is designed to increase aggregate demand. This invariably means operating with a budget deficit. The loosening process can be achieved through an increase in government spending, a reduction in taxation or a combination of each. In deciding which specific policy to apply, governments need to be mindful of the time it takes for a policy change to work and its impact on the community as well as its effectiveness in closing the deflationary gap.

Take the case of government spending. If there is an increase in this, it can be on current spending or capital spending. The former might see a rise in welfare benefits to lower income families. These are likely to be quick to implement and will have an immediate impact in increasing aggregate demand. New capital spending on a road scheme will take much longer to have an impact. Alternatively, if the government decides to reduce taxation, it has to decide whether this should be for direct or indirect taxes or for consumers or business.

Fiscal policies work in reverse to the above when dealing with an inflationary gap. Here, fiscal policy will need to be contractionary, with a budget surplus. The criteria of timeliness and impact are similarly relevant, perhaps more so to avoid inflationary pressures increasing.

For an inflationary gap, the government can cut some forms of its own spending. It could for example decide to delay or scrap high profile capital spending on defence or a new power station. Alternatively, it could reduce its spending on education and health or welfare payments. This raises another problem, that of how the spending cuts will be received by the population. In cases that directly affect people, the spending cuts will hardly be very popular. With taxation increases, these would reduce aggregate demand but depending on the specific nature, some tax increases do not go down well with the population. An increase in the GST rate, for example, affects everybody and is also inflationary. Arguably not the best policy to use when closing an inflationary gap.

To conclude, inflationary and deflationary gaps are different. This is clear. In both cases, fiscal measures are used to correct them although the types of measures used do vary.

- 5 a** In my country, India, unemployment is an issue even though the official government rate is 5%. This is an understatement. Many people are under-employed and do menial tasks for little pay. There are various main causes of unemployment.

The first cause of unemployment is seasonality. In tourist areas like Goa and close to the main attractions, there are times in the year when tourist numbers are low so seasonal workers become unemployed. There is a similar situation in agriculture – at harvest time, for example, farmers take on more workers than during the growing season. Fishermen also suffer from seasonal unemployment when it is the typhoon season.

A second cause of unemployment is due to structural change in the economy. India is an emerging economy and there has been rapid industrialisation. This has invariably resulted in new jobs but at the same time, workers in traditional industries have become unemployed. Others have been replaced by machines which tend to be more efficient.

Like all economies, India experiences unemployment when there is a downturn in the global economy. This is called cyclical unemployment. The recession from 2009 to 2012 left its mark. Some factories had to close or cut back on workers as demand for their products fell. There was a fall in tourist growth due to international visitors experiencing a fall in their own disposable incomes. So, India's employment is susceptible to the ups and downs in the global economy.

A final cause of unemployment in India is due to the bureaucratic delays there can be when workers are changing jobs. This can mean that they are unemployed for short periods of time. This is referred to as frictional unemployment. This form of unemployment can also refer to workers who are in casual work and who may be uncertain from one day to the next whether they will have a job.

So, these are the four main causes of unemployment in India.

- b** A supply-side policy is one that is designed to increase aggregate supply in an economy. There are many supply-side policies that can improve the efficiency of the labour market, hopefully helping those who are unemployed get a job.

An appropriate supply-side policy to reduce unemployment is that of education and training. Given the growth of new manufacturing industries, this creates a need for a trained workforce. So, in some cases, unemployed people may be offered the opportunity to train for a new type of job. The Indian government as well as Indian families have invested heavily

in quality education especially technical and vocational education. This supply-side policy over time will shift the aggregate supply curve to the right.

Another form of supply-side policy concerns welfare payments. Unemployed workers who are officially unemployed receive some limited payments in the form of welfare benefits whilst they are out of work. A reduction in such payments may give an incentive to those who are unemployed to get a job.

Unemployment may be indirectly reduced through a fall in the corporate tax rate. This may encourage firms to invest more as they will be able to keep rather more of the profits they earn. The investment by firms should increase the level of employment over time.

So, supply-side policies can reduce unemployment in India but they take time to make an impact. The government needs to use other policies such as fiscal policies alongside supply-side policies. This is because of their causes: certain types of unemployment cannot be reduced by supply-side policies alone. Seasonal unemployment is a case in point. Also, there will always be frictional unemployment. Supply-side policies may though help to reduced structural unemployment through developing opportunities for unemployed workers to be re-trained.

- 6 a** Sustainable development is that which ensures that the needs of the present generation can be met without compromising living standards and the quality of life of future generations. The origins of this approach came from the Brandt Report and the first political agreement to limit CO<sub>2</sub> emissions, the Kyoto Protocol.

Achieving sustainable development is almost impossible. It is more realistic to achieve a more sustainable form of development. To get to this point means that governments have to balance a range of objectives in order to obtain more sustainable outcomes.

Managing the natural environment in a responsible way is vital, especially for non-renewable resources. It is important that the benefits are sustainable and not short term. Resources must also be used more efficiently. Supply-side policies that promote better quality education and training are very important ways in which the resources of an economy can be put to better use. Finally, sustainable development has a social dimension by seeking that the benefits of growth are distributed in as equal a way as possible.

- b** Central to pursuing a sustainable development policy is the need to reduce CO<sub>2</sub> emissions. Very recently, the USA and China both signed up to do this at the 2015 meeting of the Intergovernmental Committee on Climate Change. The reality of reducing these emissions is that it will be difficult, not least that in my country a lot of electric power still comes from coal-fired power stations, there has been a massive increase in air travel and the number of vehicles on the road continues to rise. However, there is a clear will to do this – people living in our big cities really have a need for clean unpolluted air. This is not the case at present.

Economics may be able to assist in reducing CO<sub>2</sub> emissions. There could, for example, be a tax imposed on air passengers with the revenue from it being used to promote environmental improvements. Regulations could be made to limit the amount of electricity generated from coal-fired power stations. In the case of car use, the indirect taxes imposed on fuel and vehicle purchases could be increased in an attempt to cut back on use. This would not be well received.

The dumping of waste is a major problem. Litter and all sorts of other waste – including human waste – are dumped by the roadside. Rivers are also polluted as individuals and firms discharge all sorts of waste, even toxic waste as this is the cheapest way of getting rid of it. The control of this type of environmental problem would help to make economic development more sustainable. Again, it will be difficult. There is a need for more information to be provided on the environmental costs, more resources need to be allocated for the control of waste dumping and stronger regulations and higher fines put in place as a deterrent.



**TIP**

With this type of question, it is necessary to focus your answer on 'your country'.

Although there is a much greater awareness of recycling, a lot more could be done. As with waste, more information needs to be available, recycling sites set up and increased monies paid where glass, plastic, batteries, bottles, metals, drinks cans and paper are recycled. If successful, it will lead to less of a need for landfill, particularly near our major cities.

It is not easy in my country, an emerging economy, for economic development to become more sustainable. The resources are not available for a start and there is the tremendous issue of trying to alter the mindset of people for whom it has been the norm to not act in the most sustainable way. Improving education and some economic approaches are essential if we are to move forward.

- 7** The interest rate has two functions. First, it is the price that individuals and businesses have to pay when they borrow money from banks. Second, it is the reward that savers receive when they deposit money in banks. In practice, there are many interest rates offered by commercial lenders and banks. The official rate is the only rate that is set by the central bank of a country. The range of other rates though very much depend on this official rate.

The three official rates given are all negative. This is not good news for savers. In short, it means that if they deposit money with a bank, they will have to actually pay the bank to keep the money on their behalf, assuming the commercial rate of interest reflects the official rate in this respect. So, for someone who has a deposit of \$1,000 in a Swiss account, this person will lose \$7.5 a year through just leaving it there.

The rate of interest for borrowing money will be positive, despite the negative official rate. This rate is likely to be 4–6% yet it will be lower than if the official rate were positive.

Negative interest rates are extreme and have been thought necessary where economies are struggling to get out of recession and have tried other policies with little or no success.

For those with savings, the negative interest rate is designed to encourage them to spend, especially on ‘big ticket’ items. When this occurs, aggregate demand increases and so does employment. In this way, it is hoped that the economy can move out of recession. Borrowers have every incentive to do so whether it be to finance consumption, or in the case of firms, to finance new equipment, machinery and technology. Aggregate demand and employment increase.

Negative interest rates are in some respects an admission that other methods have failed. It would seem for instance that a fiscal stimulus has not increased aggregate demand as expected. Quantitative easing may also have been tried but failed through banks not lending sufficient funds. This is why negative official interest rates are a clear sign of an economy in desperate shape.

## Multiple choice questions

- 1** Correct option: D

All three options will enable a developing economy to grow. To boost ‘long-run’ growth, option D will add to the quality and quantity of resources. The other options are short term.

- 2** Correct option: C

At the initial income, consumption is  $\$2,000 + 0.8 \times 1,000 = \$2,800$

If Y increases by \$500, then  $0.8Y$  is \$400, meaning that  $\$2,800 + 400$  is the new level of consumption, \$3,200.

- 3** Correct option: A

This is because the \$50m spent on roads goes directly to those contractors who build them. This will then lead to the usual multiplier effects. Options B and D are conceivably true; option C is unknown.

- 4** Correct option: A

If the supply of money is reduced, MS will shift to the left resulting in a rise in the rate of interest. Option A is therefore correct.

5 Correct option: A

Option A is entirely consistent with Keynesian economics. Option C is feasible but is monetarism. Option B is against Keynes' views. Option D was not really something Keynes was too concerned about.

## Chapter 10

### Exercises

1 A typical answer for Pakistan in late 2016 is below:

Macroeconomic aim	Current position	Is this aim achievable?
Low inflation	4.2% annual rate	Seems to be achievable
Low unemployment	5.9% annual rate	A little high
Balance of payments current account equilibrium	-237,429 PKRm (year to Oct 2016)	In disequilibrium Cause for concern
Stable exchange rate	105 PKR = \$1	Stable since August 2015
Sustainable economic growth	4.2% annual rate (2014/15)	Seems to be achievable

Source: [www.tradingeconomics.com](http://www.tradingeconomics.com)

2 A typical answer is:

Macroeconomic problem	What to do about it	Conflicts with other aims
Inflation is too high	Increase rate of interest Reduce government spending/increase taxation	Low unemployment Current account equilibrium
Unemployment is too high	Reduce rate of interest Increase government spending/reduce taxation	Low inflation Current account equilibrium
Current account in persistent deficit	Devalue the currency Increase import tariffs and quotas Reduce aggregate demand	Low unemployment Low inflation
Fluctuating exchange rate	Use central banks funds as required	
Low rate of economic growth	Develop appropriate supply-side policies	

3 a The following are possible effects of hyperinflation

- the local currency becomes worthless
- black market is extensive, for example, re-sale of goods bought in shops
- deep recession
- extensive printing of new money
- \$US dollar is increasingly used for transactions

- collapse of external trade
- government unable to persist with social funding such as medicines
- barter transactions grow
- default on external debts
- reserves of foreign currency and gold have fallen in order to pay for essential imports
- growing crime and social unrest and disorder.

**b** Reducing imports is one strategy that is being applied by the Venezuelan government. The aim is to reduce the outflow of foreign currency reserves and gold. The position is so critical that radical change, economic as well as political, would seem to be the only way forward. A rise in global oil prices would particularly help the external position; the domestic economy is in such a mess that it is really very difficult to see what can realistically be done.

**4 a** The effects on the BRICS economies are variable.

India/China – on-going increase in the goods and services available for citizens. Should raise living standards. More tax revenue to fund government spending (although collecting tax is a big problem in India). Improved social benefits for low income families, especially in India and poorer parts of China. Increase in employment. Business confidence remains strong and positive.

South Africa – as above but scaled down.

Brazil/Russia – falling living standards. Less tax revenue to fund government spending. Problem of increased corruption. Rising unemployment. Weakening business confidence is likely to deter foreign investors and could lead to capital flight.

**b** The key is for the continued increase in the quantity and quality of resources to increase potential output and long-run aggregate supply. For example, with respect to the factors of production:

Land – exploitation of raw materials and improvements to agricultural production and productivity.

Labour – continue to improve higher education and training of technologists; re-train workers for new jobs in manufacturing.

Capital – sustained investment to improve the quality of infrastructure (transport, power and water supply especially).

Enterprise – provide a business climate with less regulations and where there is every encouragement for entrepreneurs to thrive.

## Answers to exam-style questions

### Data response question

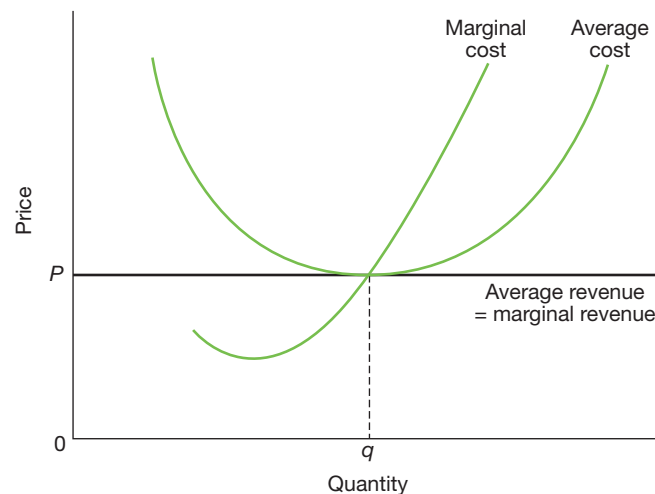
- a** China's real annual GDP growth increased steadily from 2000 to 2007 when it peaked at 14%; it fell to below 10% in 2008 and was broadly on a downward trend to 2013. The rate of growth was about the same at the beginning and end of this period.
- b** Reduced growth in the Chinese economy will mean that aggregate demand is not increasing at as fast a rate as before. This means that the amount of goods and services enjoyed by China's people, although increasing, will not be increasing at as fast a rate as in the past. In turn, investment growth is likely to be slowing down and the government will be experiencing slower growth in tax revenue. The demand for imports of consumer goods will also be slowing down. This will have an impact on those countries that supply luxury items, cars especially. There is also likely to be less demand for imports of producer goods and raw materials such as copper, iron ore and petroleum.

- c** It seems that much of China's growth has been derived from investment that has been funded by borrowing. This can be dangerous although most of the debt is owed by state businesses to state-owned banks. The new approach is to base growth on domestic consumption – this will mean consumers will have to be encouraged to save less and spend more. As the consumption is domestic, it will mean that more of the spending can be retained in the Chinese economy.
- d** The argument that economic growth is the best way of reducing China's pollution problem is based on the assumption that, through growth, more resources can be made available to improve the quality of the environment. There is, for example, a clear need to reduce the number of coal-fired power stations and to carry out more research on how to make those power stations that remain less polluting. Such a policy will inevitably take time – more conventional approaches such as pollution permits, tighter regulations and even a pollution tax could also be used.

## Essay questions

- 1** An economy is working efficiently when its scarce resources are being used to produce maximum output. In this situation, economic efficiency, consisting of productive and allocative efficiency, occurs. In principle, this could occur in a free market economy.

Productive efficiency occurs when a firm is producing at the lowest possible cost – this involves using the least possible resources. This is shown on the diagram below.



**Figure A10.1** Productive efficiency in a perfectly competitive market

The key to achieving productive efficiency is competition. This is the hallmark of a free economy and can only be achieved where all markets are perfectly competitive. The reality is that such a situation does not exist and never has, prompting Adam Smith's point about the need for government involvement. Such involvement occurs, for example, in markets where there are monopolies and oligopolies that are inefficient and produce at a point that is not the lowest average cost of production. Government regulations are required in order to protect consumer exploitation which can occur through high prices and lower quality products.

Allocative efficiency occurs where price is equal to the marginal cost of production. When this occurs, the right amount of scarce resources is being used to produce the right products. Consumers are happy since their level of satisfaction is being maximised. A competitive market, once again, is the only one that can lead to allocative efficiency. On the above diagram, price equals marginal cost where the price is  $p$  and the quantity of output is  $q$ . Taking the case of monopoly, the price charged is greater than marginal cost, resulting in abnormal profits being earned. Price is also greater than marginal cost in monopolistic competition in both the short- and long-run periods; in the long run, short-run abnormal profits have been competed away as new firms enter the market.



Another example of market failure is in the case where there are negative externalities in a market. Resources are not being allocated efficiently since the price charged in the free market is lower and the output produced is higher than the optimum. In such a situation, the government seeks to correct market failure through regulations, pollution permits, indirect taxes and property rights. This intervention is necessary because of the failings of the free market.

As economies have developed and grown, there has been an ever-growing need for government involvement to overcome the inherent weaknesses of the free market system. Without such intervention, the use of valuable resources would be far less efficient than what it is as a consequence of intervention.

- 2** The depreciation of the UK pound against the US dollar and the euro was both sudden and significant. These currencies, more so the dollar, are extensively used in world trade. The pound also depreciated by a similar percentage against other currencies like the Indian rupee and the Thai baht and those of trading partners outside the EU. The UK government should be concerned about the depreciation but equally, it should recognise the boost it has given to certain parts of the economy.

A fall or depreciation of the exchange rate will make exports cheaper and imports more expensive in terms of the domestic currency. The dollar/sterling exchange rate was \$1.41 = £1 just before the referendum. Three months later it had fallen to about \$1.20 = £1.

An example will be useful. Suppose a person in India wishes to buy four Land Rover vehicles for £300,000. Before the referendum, this would cost \$423,000. After the referendum, the cost is estimated at \$360,000. This is a substantial saving and should boost UK export sales, particularly of goods that are price elastic. The depreciation also increases the competitiveness of the UK compared to Euro zone members and other EU members whose currency is linked to the Euro.

On the other hand, the price of imports will rise. Some products will increase in price shortly after the referendum. For others, there may be a time lag.

The rising cost of imported goods and mineral resources is inflationary and a cause of cost-push inflation. This can be very serious and if unchecked, could affect the viability of a country's exports of good. Again, the effects of the depreciation will depend on the price elasticity of demand. If imported goods are price inelastic, the increase in price will then be passed on to domestic consumers. This is especially true of essential resources and food imports. If these imported resources are used to produce exports, their prices will invariably have to increase, hence reducing the benefits of the depreciation.

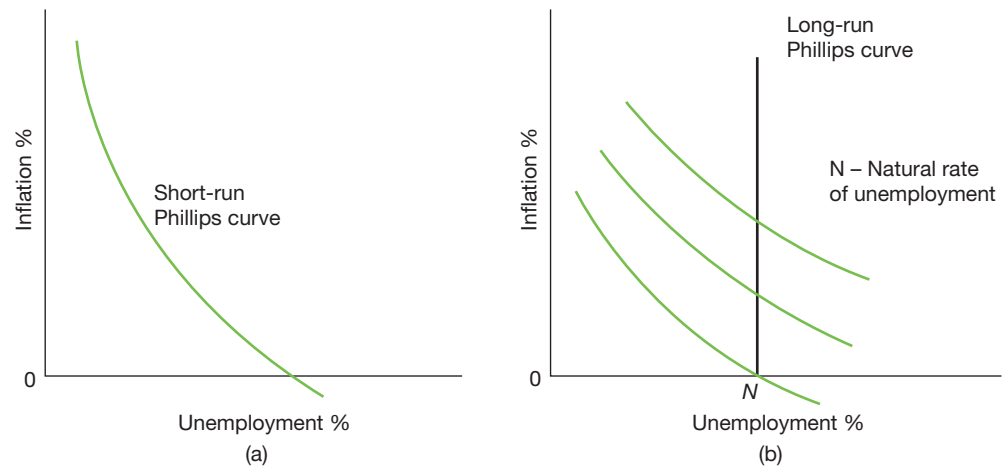
The depreciation of the UK pound will also affect services and tourism. It is good news for tourists visiting the UK – they are getting more pounds for their own currency. It is not good news for UK tourists visiting the euro area or the USA. Relative prices will have increased markedly due to the depreciation of the pound.

The overall effect of the depreciation is not easy to assess. If there is a rise in net exports, aggregate demand will increase. Higher output will reduce unemployment, although there may be increased inflationary pressure. Much will depend on the price elasticities of demand for exports and imports, consistent with the Marshall–Lerner condition. If the combined elasticities are greater than 1 then the depreciation will have been successful.

Finally, the J-curve effect should be considered. This explains why the short-term effects of the depreciation will most likely mean a deteriorating current account position. Over time, the UK economy can expect to grow and prosper if the J-curve holds true.

- 3** Government macroeconomic policy has various aims irrespective of whether we are dealing with a developed or developing economy. Foremost for most economies is to maintain a low and stable level of inflation. In some countries, this is monitored by means of an inflation target. A second objective is to maintain a low level of unemployment. Just what is meant by this varies from one economy to another. The point is that unemployed labourer represents a resource that could be better used to increase output; a reduced labour force means that potential output is lower. Other aims of macroeconomic policy concern the balance of payments and the exchange rate.

Referring back to unemployment and inflation, the problem that governments face is one of conflicting aims. As economic theory shows, it is not possible for low inflation and low unemployment to exist simultaneously. In other words, there is a type of inverse relationship between them. This is represented by the so-called Phillips curve and this is shown in the diagram below.



**Figure A10.2** Phillips curves

Diagram a shows the short run Phillips curve. As can be seen, high rates of unemployment are correlated with low rates of change in money wages – at times the change in money wages could even be negative. Low rates of unemployment are associated with high rates of change in money wages. It follows that the higher the rate of change in money wages, the higher the rate of inflation since this is caused by cost-push pressures. There is therefore an inverse relationship between inflation and unemployment meaning that low inflation and low unemployment are conflicting aims of macroeconomic policy.

This short-run interpretation has been modified by monetarists to take into account the long-run period. What they argue is that long-run policies to increase aggregate demand will have no particular effect on reducing unemployment. The only thing that will occur is that the inflation rate will rise. Diagram b above shows what is sometimes called the expectations – augmented or long-run Phillips curve. It is shown by the vertical line on this diagram, the position of which depends on the natural rate of unemployment. This is the proportion of the labour force who choose to be voluntarily unemployed when the economy is in equilibrium. The diagram indicates that any attempt by the government to reduce unemployment, say by increasing aggregate demand, will only be successful in the short run. In the long run, unemployment will not fall below the natural rate of unemployment.

So, although governments may want to have a macroeconomic policy that aims for low inflation and low unemployment the reality is that this is not achievable.

- 4 a** Government macroeconomic failure occurs when a government intervenes in a market, but this intervention leads to a loss of economic welfare rather than the intended gain. To some extent, this is a consequence arising from the uncertain impact of some types of macroeconomic policies.

Suppose there is a problem of unemployment in the economy. An obvious macroeconomic policy is to pursue policies designed to stimulate aggregate demand such as an increase in government spending or say, a cut in corporate taxes. In planning these policies, the government tries to be aware of the output gap and the scale of injections that are needed. The consequences could be different, with the stimulus being too much, and hence increased inflation, or too little, in which case the problem of unemployment remains.

Another cause of government failure is the problem of time lags – this is because many macroeconomic policies take time to become effective. For example, an increase in GST can be quickly implemented whereas an increase in the income tax threshold or tax rate

takes much longer to have an effect on aggregate demand. So, time lags can mean that the problem under review might change from one extreme to another.

The problem is that there is considerable uncertainty involved when governments take macroeconomic decisions. They rarely have all of the information they need to take decisions; the information may also be unreliable. Even if they have good information, an external shock such as a natural disaster or financial crisis in say the USA, will have a profound impact that has not been planned for or accounted for in the decision-making process.

- b** It is very clear that paying the higher living wage will increase the cost of any business that employs low skilled and casual labour. This is especially the case in retailing, hotels and catering, cleaning and some types of manufacturing. In these activities, labour costs form a high percentage of total costs so it seems reasonable to expect employers to recoup their additional costs through higher prices. This increase is likely to add to the annual rate of inflation.

Government failure occurs since a measure like the living wage was designed to help low income workers. It may well do this but only at the cost of higher prices in some types of business and a step up in the annual rate of inflation.

A second aspect of government failure is that implementing the living wage may well cause an increase in unemployment amongst those workers who receive the living wage. Many will be in businesses where profit margins are low and where the market is fiercely competitive. In such cases, employers are likely to demand that those still in work and receiving the living wage, will have to be more productive if they wish to retain their jobs.

The decision to pay the living wage to all who are eligible is commendable. It is also politically expedient. The downside, and this is where government failure is present, is that it is by no means clear how employers will react. The success of a living wage is very dependent on this.

### Multiple choice questions

- 1** Correct option: C

Options A, B and D will all provide some net gain for poor families. Option C is irrelevant in this respect.

- 2** Correct option: B

The Phillips curve shows the inverse relationship between the change in the inflation rate and change in unemployment. By taking the changes in both variables, only option B is where a fall in the unemployment rate is accompanied by an increase in the inflation rate.

- 3** Correct option: B

A fall or depreciation in the exchange rate leads to an increase in the price of imports, hence a fall in the internal value of a currency. Option B is the only correct one.

- 4** Correct option: D

At points A and B, workers will increase their work effort; this will be maximised at point C. At point D, the increase in the tax rate is accompanied by a fall in tax revenue which is indicative of less work effort.

- 5** Correct option: B

Option B implies an information gap, making it the correct response as there is a likelihood of increased inflation. Option A will still reduce unemployment. Option C is a simple positive statement and D is not relevant as B has been identified as the correct response.