

SUGGESTED ANSWERS TO ODD NUMBERED QUESTIONS: STUDENTS

CHAPTER 1

SUGGESTED ANSWERS

1. *One famous American economist, Milton Friedman, says that the value of an economic model lies in its power to predict, not in the realism of its assumptions. What do you think he means? Is he right?*

Friedman says that, if we want to control inflation, we need a model that explains it. Suppose we develop a theory that says inflation can be controlled by imposing price controls on firms. If it works, it does not matter if we cannot test the assumptions only the predictions.

The main objection to this view is that if our model has no rational theoretical relationship we cannot rely on the relationship to be continued into the future. The model may predict correctly today. It may not do so tomorrow. Hence it can be argued that the assumptions of the model are as important as the predictions.

3. *Suppose that a government in its desire for re-election stimulates economic activity as the end of its term of office approaches. This results in a drop in the unemployment figures and a rise in output. It therefore can claim that the economy is growing. After all, output is now rising. Clearly, the electorate should not miss the opportunity to give the government a chance to continue this good work. But can this growth be sustained?*

(HINT: Where, before the election, was the economy in terms of Figure 1.2?)

If there is unemployment, stimulating the economy can move us up to the curve. The increase in output cannot be sustained unless the curve can be moved outwards. Moving the curve outwards is very different from moving towards the curve.

5. *The data reflect three possible combinations of service goods and manufactured goods that can be produced with a country's resources. If the opportunity cost curve is as in Figure 1.6 (a) will the value of X be 100, more than 100 or less than 100?*

<i>Manufactured goods</i>	0	50	X
<i>Services</i>	100	50	0

Now suppose the opportunity cost curve is bowed outwards. Will the value of X be 100, more than 100 or less than 100?

In the first case, as opportunity cost is constant it will be 100. In the second case, as opportunity cost is increasing it will be less than 100.

7. *We considered the reasons for significant changes in the relative prices of some of the goods and services in Table 1.5. What explanations would you offer for the price changes in some of the other goods and services? Particularly consider (a) beer and (b) the bike whose relative price has fallen less than one might have expected.*

a Beer net of tax has fallen in price relatively but the tax increases on beer have been enormous.

b The bike. It may be surprising that increased technology has not reduced the price more. But the product itself has changed. It is a better product than the bike of thirty years ago.

9. *Examine the data in Table 1.7 which gives some details of East European steel output in the early years of the move towards a market economy. What trends do you discern? What is the likely reason for the trends? What effects might you expect these changes to have on the Western European steel industry?*

There is a pattern of falling steel output and smaller capacity utilisation. This is because reduced demand for military hardware reduces demand for steel – steel is an intermediate industry. An expected effect on Western Europe is that Western European steel exports to this region would fall and imports from Eastern Europe would rise. This is exactly what has happened.

CHAPTER 2

SUGGESTED ANSWERS

1. (a) Using Figure 2.5, what could you expect to happen to a company's share price under the following circumstances:

- i A large rights issue?
- ii A sustained rise in interest rates in the economy?
- iii A large balance of payments deficit for the British economy?

(b) Consider part (a) again. Which companies' share prices will be most affected?

(a)i In Figure 2.5 this is a rightward shift in supply. The rights issue will normally depress the price and we will move along the demand curve. Fewer people will want to hold the shares since they fear the issue will dilute earnings. The company is aware of this and issues the shares under favourable terms trying to gauge the new lower equilibrium price. Two general points. First, it is therefore easier to bring an issue to the market if share prices are rising. Second, it will affect price more if the motive of the issue is to reduce debt than if it's to increase investment which will increase future earnings.

ii In the figure, this is a leftward shift in demand and a resulting fall in price. There are two main reasons. Higher interest rates will mean that other forms of savings look more *attractive* – but also higher interest rates increase company costs, lower profits and therefore dividends.

iii Again demand shifts left and price falls. Government remedial action will probably involve cutting demand in the economy and hence profits. Alternatively, it may mean pressure on sterling, necessitating a rise in interest rates in which case we are in the scenario described in ii.

(b) Clearly, the extent to which company profits fall is affected by two main factors. One is capital costs. Capital intensive industries such as construction are heavily affected. The other is the sensitivity of demand for their products to interest rate changes. Demand for cars is strongly influenced by interest rates. Car companies' and car dealers' shares can be expected to fall significantly. Estate agents are another obvious example.

3. Figure 2.13 shows the market for rented accommodation in a particular university town. (a) What is the equilibrium price of a unit? (b) Suppose the government imposes a 'price ceiling', making it illegal for suppliers to charge more than 50 euros per week. How many units will be supplied? How many will be demanded? (c) What determines who gets the units supplied under the circumstances described in

(a)? (d) What determines who gets the units under the circumstances described in (b)?

(a) 100 euros where supply is equal to demand. (b) 2500 units are supplied and 6000 units are demanded. There is excess demand and some willing buyers will be disappointed. (c) Anyone willing and able to pay the market price gets what they want. (d) Since only 2500 are supplied, 3500 people willing and able to buy will be disappointed. An alternative rationing device will be used such as 'first come first served' or landlords will discriminate on some other grounds, perhaps favouring less scruffy looking students.

5. If a company tries to stimulate sales by lowering price, will it be successful if demand is (a) elastic (b) inelastic?

A distinction must be made between 'sales' and 'sales revenue'. A lower price will increase sales whether demand is elastic or inelastic (unless demand is perfectly inelastic). However sales revenue will only rise following a price cut if (*ceteris paribus*) demand for the product is elastic.

7. a Given the present level of prices, rank the following categories of goods from most to least elastic in demand: housing, pork, strawberries, rail travel. Explain your answer.

b Why is it difficult for companies issuing new shares to estimate the elasticity of demand for those shares?

c Why is it difficult for a company changing the price of its product to estimate its elasticity of demand?

a Pork and strawberries are relatively elastic, mainly because there are close substitutes in each case. On the same basis, housing has a relatively inelastic demand. Rail travel? Commuter lines have an inelastic demand at the peak. Other lines are relatively substitutable with car travel, and so on. Chapter 3 further explores the issue of transport demand.

b This is the identification problem. We need to know two spots on the demand curve and know that nothing else affecting demand has changed. In other words, we are making a *ceteris paribus* assumption. For many products over a short period this may be reasonable. In a market so potentially volatile as shares it certainly is not.

c Again, this is the identification problem. Further difficulties occur if the company changes price to find demand elasticity. It may irritate customers and lose market share. In other words the cost of acquiring the information is high.

9. *The British government offered until recently subsidies to house buyers by granting tax relief on part of the mortgage costs.*

a Use supply and demand curves to show the effect of this policy on the market for housing.

b How might the government's subsidy of house purchases make the task of raising equity finance more difficult?

a D moves to the right. Less directly, if purchasing a house is seen as part of savings, then households may save less in other forms of savings such as equities.

b There is no tax on the imputed rental value of one's own house. Neither is there a capital gains tax on housing if one makes a profit on buying and selling the house one lives in. There is also a subsidy on its purchase through mortgage interest tax relief. On the other hand, company profits are taxed and distributed profits taxed again as income to the shareholders. It can be argued that private savings are thus deflected into housing and away from investment in industry and that tax relief on mortgage interest is therefore a market distortion which should be eliminated. A move away from such a distortion appears to be government policy now, in that tax relief on mortgage interest is much less than it once was.

CHAPTER 3

SUGGESTED ANSWERS

1. *If the French government were to raise the toll charged on its motorways would the value of the consumed road space be higher or lower than before? (HINT: What two different ideas did we say that we had for 'value'?)*

Value in exchange would be higher if demand for motorways is price inelastic. Quantity demanded falls but revenue rises. However, value in use would be lower since some marginal consumers would no longer use the motorway.

3. *Can you think of other instances where queues are used as a rationing device rather than price? Why, in the instances you have thought of, do you think pricing is rejected as a solution? Is this the correct decision?*

The most obvious examples are college canteens at lunchtimes (see Question 4), and the health care system. Another common reason for preferring queues is the argument about the distribution of income. If the distribution of income is unfair, the poor may be excluded from consumption. This is an issue examined in a later chapter. The other most common example is travel during peak hours, the subject of this chapter.

5. *Consider Table 3.5. Which goods would appear to be those with the highest income elasticity of demand? Which have the lowest? Are there any which appear to be inferior goods? What does the table tell you about the price elasticity of demand for all of these goods?*

Dishwashers and a second car or van seem to be the most sensitive to the level of income. Colour TVs and washing machines appear to be relatively income inelastic. Black and white TVs appear to be an inferior good. The table tells us nothing at all about the price elasticity of demand since it gives no information about quantity demanded at different prices.

7. *Why will all of the costs of purchasing area licences not fall on private commuters? (HINT: What happens to businesses if the effect is to reduce the supply of labour to those in the centre?)*

As the cost of commuting to the centre rises, there is a reduced willingness to supply labour there. Thus wage rates will tend to rise. Thus business will bear part of the cost.

9. *What advantages and disadvantages are there in removing all of the consumer surplus under the COE scheme?*

The main point to grasp is that to do so by charging whatever price is bid (that is, price discrimination), has no efficiency objections since it does not affect equilibrium quantity demanded. It simply redistributes income further from licence bidders to the government.

CHAPTER 4

SUGGESTED ANSWERS

1. Consider Figure 4.10. What is implied about the nature of a consumer's preferences for the goods described in each of (a), (b) and (c)?

(a) Perfect substitutes as the marginal rate of substitution is constant whatever level of consumption of each good. (b) These are complements. An increase in the consumption of one good does not increase utility unless accompanied by an increase in the consumption of the other. (c) Y is a good that gives the consumer no utility.

3. In the United States many people pay insurance to cover unforeseen medical care needs. To what extent can one argue that it is virtually the same in Britain with the NHS? Is not the only difference the fact that the insurance payment in Britain is compulsory?

People on the lowest incomes do not pay insurance but may receive benefits in Britain. Hence, it is a method of redistributing income. How efficient the method is was questioned in the chapter. In the USA cover is related to the amount paid in premiums. This is not true in the NHS.

5. On the definitions of merit good used in the text, would you rate the following as merit goods? Vaccinations against tropical diseases for those travelling overseas? Education? Fluoride? Cornflakes?

All of these can be seen as merit goods. The essential point is that the merit good argument is an essentially paternalistic one. Someone else can assess your welfare better than you can. In essence the argument could embrace any good to some degree. What goods are merit goods cannot be clearly defined.

7. Should people be made to wear seat belts in cars? (HINT: Who pays if they do not and they have an accident?) Do compulsory MOT certificates raise the same issue?

Seat belts and MOTs raise different issues. MOTs raise an externality issue. If your car is unsafe it may cause me to have an accident. If you fail to wear a seat belt and have an accident there is no externality. You do not impose costs on others. At least you would not do so if you had to pay for the resulting health care. Since this is free with an NHS system, compulsory seat belt wearing can be justified on a 'second best' basis.

9. *In a Gallup opinion poll survey, 77 per cent of those interviewed agreed with the statement that 'everyone should have all the health care they need no matter how much it costs.' Comment.*

You should be able to see that this is simply not possible or rational. If there are scarce resources, they have an opportunity cost. At some level of consumption the opportunity cost of the added resources devoted to health care must outweigh the benefits.

CHAPTER 5

SUGGESTED ANSWERS

1. *The size of the regional problem was examined in the text by considering regional unemployment figures and output per head. What other indications of regional welfare might be used? What problems arise with using your suggested variables?*

Unemployment figures suffer from the drawback that it does not summarise welfare very well. During a recession there is high unemployment, but those in a job often do very well.

Alternatively, regional income per head figures can be used, but it says nothing about the distribution of income. All the other problems of GDP per head figures at national level apply too to this measure.

Figures of, for example, number of cars per head or size of school classes are interesting if they all point in the same direction but they are not good summary measures of regional welfare.

3. *The European economy since 1945 has gone through periods of relatively rapid growth followed by periods of slowdown. What would you expect would happen to regional disparities during these 'trade cycles'? Why?*

Regional disparities have tended to increase during recessions with unemployment rising more in the more depressed regions. In the most recent recession, however, the opposite happened. Many say that the explanation is that manufacturing output tends to fall more than service output in a recession and manufacturing activity is concentrated in the regions of high unemployment. During the early 1990s the recession in the UK hit service industries in the South East. However, it was manufacturing that contracted into the early years of the new century. This issue is examined more closely in Chapter 20.

5. *The UK government once attempted to influence regional location by insisting that all firms undertaking large development schemes in heavily populated areas obtain an Industrial Development Certificate from the government. It could then refuse a certificate in the hope that the firm would expand in the areas of high unemployment. The scheme was abandoned in 1982. What do you think were its main advantages and disadvantages?*

The great advantage was flexibility. When demand was high and firms were keen to expand, Industrial Development Certificate (IDC) refusal would probably lead to a

switch to the regions. If demand was low one could use the IDC weapon less for fear of losing investment activity altogether.

The main disadvantage was that government might get things wrong, depressing overall investment by causing some firms to drop expansion plans altogether or locate abroad instead.

7. *At the end of the eighteenth century Thomas Malthus argued that the vast majority of people would always be desperately poor. As the population increased and land resources remained constant, the marginal product of labour would continue to fall. So incomes would fall as the population rose. Was he right?*

Population has continued to grow and the vast majority of people are still very poor. However, increases in technical progress and the development of human capital has raised average incomes despite population growth. Concern now is as much about population structure as about its size. The average age of the world's population is increasing raising concerns about the dependency ratio.

9. *How would transport improvements within Europe affect regional location?*

In two main ways. It makes it cheaper for firms to locate in areas where wage rates are low, since they can now easily and cheaply transport finished products to their main markets. It also enables them to produce output where they are and undercut local firms by transporting finished goods to the regions.

CHAPTER 6

SUGGESTED ANSWERS

1. *Right-wing political parties are committed to the operation of free markets. Why, then, do you think that they tend actively to seek to support small firms?*

There are a number of possible answers but certainly the following are worth considering.

a Industrial policy is built around a belief in competition. Small firms tend to mean more competition in the market place.

b There is some evidence that larger firms do not necessarily mean lower cost firms but rather firms with greater market power.

c A market philosophy means firms springing up in response to changes in consumer demand. There is an argument for encouraging new firms on an 'infant industry' basis. They need protection until they have 'grown up' and can fend for themselves.

d Political considerations. Political and financial support comes partly from small businesses. They therefore need to be seen to have policies that will look after this sector.

3. *Evidence suggests that for much of the post-war period in Britain the share of output of the largest 100 manufacturing enterprises was increasing but that the share of output of the largest 100 manufacturing plants was not. What does this suggest:*

a *about the significance of economies of scale?*

b *about the climate in which small firms operate?*

Firms merge and often claim that the purpose of the merger is to gain scale economies.

a If this is true, it cannot be the obvious ones of plant economies, labour specialisation, automation and so on. It must be economies of co-ordination and financial economies, which one would have thought to be exhausted at relatively low output levels.

b It could be argued that the main motive of mergers is therefore market dominance which makes life for small firms that much more difficult.

5. *When economists wish to illustrate the workings of the perfectly competitive system and the place of small firms in an industry, agriculture is the most commonly chosen example. How closely does this industry relate to the perfectly competitive model? Why is it an industry in which government intervention is massive in most countries?*

The industry is probably as near as one can get in practice to many small firms producing an identical product – one farmer's parsnips are much like another's. Major motives for intervention are to bring about certainty of supply, even though the costs of producing the certainty may be high; a combination of rapid technical progress pushing the supply curve right and inelastic demand which makes for falling revenues. If there is a problem of labour immobility, then farm incomes will fall. One might also mention that farmers in many countries have a powerful political lobbying machine.

7. *In the UK the building societies have provided very effective competition for the banks in providing banking services for private customers. Could they do the same for small businesses?*

So far, the building societies have not tried to move very far into this market, perhaps because costs are too high to justify it. There is nothing to prevent them in terms of the law, as there was fifteen years ago.

9. *One claimed diseconomy of large-scale production is disaffection of the workforce. What do you understand by this? How could you measure it?*

The larger the organisation the more likely a worker will be to lose his sense of loyalty to the business. One way in which this could be examined is to see if absentee rates or days lost through strikes increase with firm size or, perhaps, with plant size. The evidence suggests that they do. However, large firms claim that they are able to afford specialised personnel departments, and so on, which can greatly reduce this problem.

CHAPTER 7

SUGGESTED ANSWERS

1. *Firms in a perfectly competitive industry have a constant marginal cost of 20 euros. There are external costs in production amounting to 5 euros per unit. What is the market price? What is the socially efficient price? If the industry structure changes so that there are fewer firms colluding on price, will the market price tend to rise, fall or stay the same?*

In the absence of government intervention price will reflect private costs and given perfect competition price will reflect marginal costs so market price will be 20 euros. The socially efficient price will be 25 euros so that all costs, private and external, are covered. Collusion raises price above the competitive level so it will tend to rise.

3. *How would an import tax help the European oil industry? Is such a policy desirable?*

The higher price of imported oil reduces imports by reducing demand and increasing home supply. The extent of the effects depends on elasticities of demand and supply for home produced oil. Other effects include (i) reduced consumer surplus (ii) revenue to the European Union and (iii) revenue for the oil industry in Europe.

5. *Why is the marginal revenue curve faced by a perfect competitor so different from that which is faced by a firm with monopoly power?*

The key is to remember that in perfect competition the firm can increase output without reducing price. A firm with monopoly power, on the other hand, faces a downward sloping demand curve. To sell more it must lower the price not just for the extra unit produced but for all units.

7. *Consider Figure 7.16. Calculate (a) the profit-maximising level of output, (b) the profit-maximising price, (c) total costs of production, (d) total revenue and (e) profit or loss in excess of normal. Is this a short- or long- run situation?*

(a) Since MC will be equal to MR, output is 100. (b) will be 38, the most for which it can sell 100 units. (c) 5000 euros, since each of the 100 units costs on average 50 euros. (d) 100 units at 38 euros per unit gives 3800 euros. (e) there is a loss of 1200 euros. This is a short run situation. In the long run a loss maker would leave the industry.

9. *'OPEC producers have so much power they can set prices at whatever level they like.' Do you agree?*

They have considerable power over prices but cannot charge what they like. They must find a price and output combination that is on their joint demand curve. Their power is limited, among other factors, by substitute oil from non-OPEC suppliers, and also alternative substitute fuels. They will also be concerned that if their price is set very high it may cause a recession in the world and then demand would fall. Furthermore, the higher the price the more likely that members will cheat

CHAPTER 8

SUGGESTED ANSWERS

1. *Another oligopolistic market is the market for cigarettes. In Chapter 7, Question 6, we saw that profit maximisers operate on the elastic section of the demand curve. However, it would appear that cigarette manufacturers are on the inelastic section of their demand curve. Consider what happens to cigarette prices when the Chancellor increases tobacco duty in the Budget. Usually prices rise by the full extent of the tax. Hence at the current price demand is inelastic. Can this be profit-maximising behaviour?*

It would appear that each cigarette manufacturer is indeed on a part of the demand curve for cigarettes where demand is inelastic. Demand is inelastic because there are no close substitutes. Demand for any one brand of cigarettes, however, is much more price-elastic since other brands represent close substitutes. Hence, companies will only profit if all increase prices together through some kind of cartel agreement. This is illegal and difficult to achieve with the possibility of imports, and so on. In other words, cartels not only need conformity by all cartel members, but high entry barriers to new firms also.

3. *Construct a pay-off matrix similar to Figure 8.2. In doing so, assume (a) that the variable which the duopolists are considering is high or low volumes of advertising and (b) that advertising is much more effective in shifting demand between brands than in increasing demand for the product.*

		B's strategy	
		high volume of advertising	low volume of advertising
A's strategy	high volume of advertising	A. small profit	A. very large profit
	low volume of advertising	B. small profit A. loss	B. loss A. large profit
		B. very large profit	B. large profit

Given the assumptions of the question, high advertising by one company and low advertising by the other will switch demand significantly. High advertising by both will reduce profits, since, by assumption, demand will shift little but costs will be relatively substantial. Such a scenario is one possible explanation of large volumes of advertising in oligopolistic structures.

5. *How much government intervention in the airline industry is appropriate to ensure adequate safety standards?*

Section 3(c) outlined the main possible approaches. The pure market option has something to commend it if consumer knowledge is perfect. Of the others, safety standards in the context of a market approach seem attractive. One illustration of the second approach is found in the early days of the Restrictive Trade Practices Act. The insulin manufacturers successfully defended a restrictive practice in the industry arguing that price competition might unduly affect safety standards in a market where consumer knowledge was limited. The court could have ruled that price competition should prevail, but that the law should oblige all manufacturers to adhere to a given standard.

7. *The small low-cost airlines have increased market share in recent years. What factors will determine their future success?*

They may well continue to expand their output. They may also increase market share especially as some of the larger airlines may become bankrupt. But the limits to this expansion include the following possibilities. 1) Governments may find ways to continue bailing out national flag carriers. 2) Environmental factors suggest that short haul flights are proportionately the most damaging. If taxes to internalise this externality are introduced it would hit the low-cost airlines who are largely short haul carriers. 3) As the low-cost carriers expand they may find that smaller regional airports are not large enough. But the larger airports they would then have to use are much more expensive. That is, as they expand, marginal costs will rise.

9. *Which of the following industries would you classify as oligopolistically and which monopolistically competitive? (a) washing powder, (b) butchers, (c) aircraft, (d) pharmaceutical drugs and (e) chemists.*

(b) and (e) are closest to being monopolistically competitive despite their being some entry barriers especially in chemists where qualifications take a long time to acquire. The others are all dominated by a few large producers even where there are some small firms in the industry.

CHAPTER 9

SUGGESTED ANSWERS

1. Consider Figure 9.10. What level of output corresponds to the following business goals? (a) Maximise profits. (b) Maximise sales subject to covering costs. (c) Minimise costs per unit. (d) Maximise sales revenue. (e) Produce a socially efficient level of output.

(a) is (1), (b) is (6), (c) is (4), (d) is (3) and (e) is (5)

3. A profit maximising firm has a constant average cost and a downward sloping demand curve but it does not know exactly where the demand curve is. How will it react to the following? (a) Its average cost curve shifts up. (b) Demand falls.

(a) Reduce output and raise price. (b) Reduce output. If the shift of D is parallel there will be no change in price.

5. In the sales revenue maximisation model we saw that firms make a higher output at a lower price than if management were seeking to maximise profits. Since the socially optimal price/output decision is a greater output at a lower price does it follow that sales revenue maximisers come nearer to social optimum pricing than profit maximisers?

Not necessarily. Social optimum is where $MC = AR$. Sales revenue maximisation is where $MR = 0$. This is a larger level of output than $MC = MR$ but might produce a far larger output than is socially optimal.

7. How can Galbraith sustain the view that people do not really want some of the things they buy? If there is a demand, must this not be because people gain utility from the goods they purchase?

This is a good point at which to raise some issues about advertising. Galbraith believes advertising manipulates people's preferences such that they purchase things for which they have no use. Again, there is no easy way of empirically testing the hypothesis but students need to appreciate that the market system can only be assumed to maximise welfare if tastes are independent of advertising rather than determined by producers.

9. How easily can firms in oligopolistic markets increase demand for their products?

The question is designed to make you think about the nature of the competition process. Some models assume that management can always achieve increases in sales with sufficient advertising and thus increase sales revenue or growth. Alternatively, it can be argued that if oligopolists are in a fiercely competitive market where rivals are determined to hold on to their market share, this may well be an invalid claim. In other words your answer must depend upon the model you are working with.

CHAPTER 10

SUGGESTED ANSWERS

1. *Distinguish carefully between non-rival and non-excludable.*

These two concepts are quite distinct. Non-rival is the characteristic of some goods that the consumption of it by one individual does not reduce the availability of it for others to consume. Non-excludable is the characteristic of some goods whereby providers cannot exclude people from consuming it once it is provided. An uncrowded beach is non-rival as my sitting on it does not reduce the possibility of you sitting on it too. But it is excludable in that if I own it I can fence it and prevent you enjoying it unless you pay me for the privilege.

3. *Does the level of profit not matter when discussing allocative efficiency?*

See Question 1 above. The feature of perfect competition which is important for efficiency is that we get $MC = D$ and normal profit in long run equilibrium. It is not guaranteed in other market structures. Profit above normal is an income to somebody (shareholders?) but represents a redistribution of income. Although at $MC = D$ in monopoly the marginal consumer only covers opportunity cost, consumers as a group may pay more than that. That is, $MC = D$ is consistent with abnormal profit.

5. *Public goods provide a strong argument for state ownership of assets. Would you categorise the following as public goods?*

- a *Art galleries.*
- b *Police services.*
- c *The weather forecast on TV.*

	Excludable	Non-depletion
Art galleries	Yes	No, unless they get crowded
Police services	Some, but not all	Yes
Weather forecast	No	Yes

Pure public goods are all those with equal consumption by all. None of the above give this. Indeed, only national defence is a pure public good.

7. *Can a market system ever produce public goods?*

Yes, if marginal cost is less than marginal private benefit. For example, suppose a lighthouse costs £0.5 million per annum to run and one company is losing £1 million

of shipping per annum, it pays the company to build a lighthouse. A more likely scenario, however, is that each of say 10 companies is losing £0.25 million of shipping. Total benefit exceeds total cost but the lighthouse is not built since cost exceeds the benefit to any one firm. However, they may be able to collude. In dealing with oligopoly we showed that collusion has social costs. Here it may bring benefits.

9. *The market demand for a private good is simply the horizontal sum of the individual demand curves for that good. Why is this not a legitimate procedure for finding the market demand curve of a public good?*

When we find the market equilibrium output of a good, which in a competitive market is where supply is equal to demand, that equilibrium quantity is allocated between consumers on the basis of their individual willingness to pay (demand curves). For a public good, all consumers consume whatever is produced. Hence we find the optimum output of a public good by asking what is the collective valuation placed on each possible level of output. That is, we find the *vertical* sum of the individual demand curves.

CHAPTER 11

SUGGESTED ANSWERS

1. *Suppose the labour market in the building trade is competitive. How do you think the demand and supply of labour, and the wage rate will change under the following circumstances? (a) A sharp and unexpected rise in interest rates. (b) A relaxation of planning laws on residential housing. (c) A lowering of the age of retirement in the industry.*

Using basic supply and demand analysis we can expect: (a) a fall in D for labour and so a fall in wage rates. (b) a rise in labour demand and so an increase in wage rates. (c) a reduction in labour supply, that is a leftward shift of the supply curve for labour, and therefore an increase in wage rates.

3. *Doctors are paid more than gardeners. Now suppose that there is perfect mobility of labour. Would this situation continue? Why or why not?*

Wage differentials would be reduced by a process similar to arbitrage that we met in Chapter 5. Gardeners would train to be doctors reducing the supply of gardeners and raising their wages. The increase in the supply of doctors would depress their wages. So it is immobility of labour that is an important source of wage differential. There are others, notably non-pecuniary benefits. People work in some jobs out of satisfaction of the job itself. They make up in lower wages in non-wage benefits.

5. *Suppose that an employer takes on an extra employee. Why might the marginal cost of doing so be greater than the wage the employer must pay the extra employee?*

There are at least three reasons. First, the employer has all the added costs of National Insurance etc. Second, there may be a need for additional non-labour expenditure. Another office worker requires another desk and computer, for example. Third, in non-perfect labour markets the finding of an additional employee will require paying a higher wage rate than the one currently in the market. The employer may then have to raise the wage rate to all employees to obtain the services of the additional employee. The marginal cost is greater than the wage rate (average cost of labour)

7. *A union in a particular industry is considering making a wage demand of a 20 per cent rise for all. It fears that if it is successful some employees may be laid off. The estimate is that the demand for this kind of labour has an elasticity of -1 . How many employees will be made redundant if the claim is accepted in full? What will happen to the employer's wage bill?*

The answer is that if the union obtains its original demands 20 per cent of the labour force will be made redundant if demand elasticity is -1. However, the wage bill will not change. Price times quantity is constant. Obviously, fewer employees mean less output from the firm.

9. *The wages received by employees are made up of transfer earnings and economic rent. Find out what these terms mean from the glossary. Suppose the labour supply is totally inelastic. How much of the wages received is transfer earnings and how much is economic rent?*

There is a zero opportunity cost to the employees under these circumstances so all wages are transfer earnings.

CHAPTER 12

SUGGESTED ANSWERS

1. *Distinguish between (a) national and domestic product, (b) gross and net national product, (c) factor cost and market prices.*

The answers are as follows: (a) Domestic is what is produced within the borders of the economy, national includes net flows of property income from abroad. (b) Gross is before any allowance for wear and tear on capital, so net is gross minus depreciation. (c) Factor cost represents the value of the factors of production used to produce the output and market prices represents the prices paid in the market. The two would be the same without government subsidies and indirect taxes. National product at market prices less indirect taxes plus subsidies equals factor cost.

3. *A government imposes a tax on a competitive industry which is polluting the environment. This changes its price output decision as shown in Figure 12.7. According to the national expenditure tables what is the value of the output (a) before the tax (b) after the tax?*

(a) P_1Q_1 (b) P_2Q_2 if measured on a market prices basis. It is P_0Q_2 if measured on a factor cost basis, the tax per unit being represented by P_0P_2 .

5. *You are provided with the following information about an economy this year: government current expenditure 200, exports 400, imports 300, GDFI 250, consumers' expenditure 500, net investment 100, net property income 100. Find the level of GDP, GNP, NNP and NDP.*

GDP is 1050, GNP is 1150, NNP is 1000 and NDP is 900.

7. *Reread section 12.4. Suppose an environmental tax was placed on the river polluter. Which measure of valuation of green capital stock depletion would be greater?*

If an optimal tax can be found, then the marginal cost to the firm equals the marginal cost to society. This means that pollution only takes place until the cost of clearing up the damage is equal to the cost of not creating it. In other words, given the optimal tax, the two measures become identical.

9. *What problems do you see in using national income data to compare the welfare of citizens of the UK with those of Sweden?*

There are many problems of using national income data as a measure of welfare but the main additional ones when comparing countries are differences in soil and terrain etc. Sweden must spend more keeping warm in winter. Also differences in currencies which may not reflect price levels in the two countries. An explanation of PPP is given in chapter twenty.

CHAPTER 13

SUGGESTED ANSWERS

1. *According to Figure 13.3, what is the level of autonomous demand in the economy? What is the level of induced demand if Y is £600 billion? What is the multiplier?*

$C = 300 + 0.4Y$, so autonomous consumption = 300. If $Y = 600$, then $C = 300 + 0.4(600) = 300 + 240 = 540$. Induced consumption = $0.4(600) = 240$.

The multiplier $k = \frac{1}{S} = \frac{1}{0.6} = 1.66$.

3. *Suppose there is substantial unemployment in the economy which government plans to reduce by increasing aggregate demand. What do you believe to be the relative benefits of raising aggregate demand via changes in consumption, investment government spending, exports and imports?*

Policy change Stimulate consumption via tax decreases	Main advantages May have long-run advantages of stimulating incentives (consider in a later chapter). May be dissipated on import spending (this will be true of any measure to expand demand)	Main disadvantages Worsens distribution of income. The poorest pay no income taxes anyway. Difficult to predict extent of spending increase.
Stimulate consumption via increased state benefits	High propensity to consume so high multiplier effect	Difficult to reverse during a boom
Stimulate private investment	Investment expenditure may have beneficial long run effects of stimulating economic growth	Difficult if companies want a more certain outlook. Short-term incentives may have little effect.
Increased government spending	Immediate and relatively certain. The increased spending is known.	How to fund the deficit? Difficult to reverse.
Increased exports	May help the trade balance as well as unemployment	May break international agreements as shown in the chapter on oil

Decreased imports via, say, tariff increase	May improve the trade balance	May break international agreements. Invites retaliation. Worsens economic welfare by increasing the price of imported goods.
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Students may point out that any increase in G or reduction in T can have long-term consequences for the budget arithmetic. The UK PSBR will take years to eliminate.

5. *Suppose the government were to redistribute income towards equality raising direct taxes on higher income groups to pay for increased benefits for lower income groups. What is such a policy likely to do to:*

- a *the planned expenditure function?*
- b *the level of unemployment?*

a Raise aggregate demand. Higher income groups have a higher propensity to save than lower income groups. Switching income will raise aggregate demand at little cost to the exchequer. Note, however, that such a policy is difficult to reverse in a boom and may have incentive effects on output, a question examined in Chapter 16.

b If AD, when there is unemployment it will, through the multiplier, reduce U. If not, it will create inflation. The text says little about the idea that AD at YFE will create inflation, since this is the subject of Chapter 15. There is also the possibility that higher benefits will lead to higher voluntary unemployment. This is a subject examined in Chapter 16.

7. *How can my decision to save more result in my saving less?*

It can't. However, if society *as a whole* decides to save more, this can lead to a fall in total demand in the economy. The fall in demand leads to a fall in output and therefore incomes. If incomes are lower, savings might very well be less. This is the paradox of thrift explained in the chapter.

9. *Which of the following are injections and which withdrawals for the UK economy?*
(a) *A UK student goes on a ski holiday to Sweden.* (b) *A UK defence company sells a fighter plane to Israel.* (c) *A purchase of an anthrax vaccine from the USA by the UK government.* (d) *The UK government purchases a new hospital from a UK builder.*

(a) is an import and therefore a withdrawal. (b) is an export and so is an injection. (c) is an import and therefore a withdrawal and (d) is an investment and therefore an injection.

CHAPTER 14

SUGGESTED ANSWERS

1. *Why is it that only the purchase of a new house constitutes investment? After all, even if a house is five years old, it will still produce a flow of benefits over a long period.*

Investment must be an addition to the capital stock. A five-year-old house will indeed produce a flow of goods and services over a number of years but the purchase has not added to the ownership of part of the existing stock.

3. *The project given in Question 2 has a rather different cash flow profile from the one given in the text. Which do you think would be more typical and why?*

The cash flow profile of the above project is probably more typical. It takes a while for a project to establish and for the initial teething problems to be sorted out so cash flow increases in the first year or two. As the machinery ages, its productivity declines.

5. *What are the main differences for an economy if a government stimulus is in the form of tax cuts rather than increasing government capital spending?*

There are three things to think through. First, people will save some of the extra income if taxes are cut so this will lead to a smaller fiscal stimulus than increased government spending of whatever kind. Second, one could argue that lower taxes persuade people to work harder. So tax cuts will have a positive effect on national income apart from any multiplier effect. This is discussed further in Chapter 16. Third, although increased government capital spending has a multiplier effect, the rate of return is important in determining whether it is an efficient form of investment. Investment has an opportunity cost.

7. *Why might the following be seen as examples of investment rather than consumption spending? (a) Subsidising eye tests, (b) hiring more schoolteachers, (c) paying firms to take on trade apprenticeships.*

(a) picks up conditions such as glaucoma at a stage where it is treatable. So spending now to save on future consumption of health care is investment. The cost now can be compared with the discounted value of resources saved in future. (b) this is an investment in human capital raising the productivity of the future workforce. (c) is also an investment in human capital, although one could debate whether it is an efficient investment.

9. *Does increased investment lead to increased national output or does increased national output lead to increased investment?*

Both are true. The increased investment raises output through the multiplier. The increased income raises investment through the accelerator effect.

CHAPTER 15

SUGGESTED ANSWERS

1. *If the market demand curve for some goods shifts to the right, equilibrium price rises. This is evidence of inflation in the economy. Do you agree with this statement? Why or why not?*

Disagree. The shift of a market demand curve for an individual good (as opposed to an aggregate demand curve) alters the price of the good relative to other goods and services. This process will take place in an economy with no inflation. Relative prices still change when the overall price level is constant.

3. *How significant will changes in cigarette prices be for the value of the price index over the next ten years?*

Cigarette expenditure determines the weight used to calculate that part of the price index. If taxes on cigarettes continue to rise in real terms then quantity demanded falls. But if demand remains inelastic, expenditure will rise and changes in cigarette prices become more significant. However, if demand shifts left over time because of concerns about health, expenditure could fall.

5. *Why might the way the RPI is calculated overstate price inflation during a period of recession in the economy? (HINT: Compare the ONS selection of goods which form the price index and the selection of a typical shopper looking for the best value goods.)*

During a recession firms engage in price cutting exercises. There are more 'bargain offers' to be had if one switches from one brand of a good to another. The RPI will not pick this up since it is calculated on the basis of many specific prices of specific goods. The collector of the information on which the RPI is constructed will not take account of the lower prices 'on offer' of other brands/substitutes.

7. *What arguments would Keynesian economists give for rejecting the view that labour markets clear quickly? Are these arguments convincing?*

Suppose that AD falls and unemployment appears. The classical view is that the excess supply of labour pushes wage rates down until Y_{FE} appears again. Keynesian believe such an adjustment will be slow. Why? You can make up your own mind how convincing these arguments are.

- a Real wages may not fall if trade unions can prevent them. (NOTE: this implies they would rather have unemployment than a lower wage rate. It is possible they may be more willing to see real wages fall than money wages.)
- b Prices of goods and services may not decline if goods markets are imperfect. One might get the student to consider the full-cost pricing model of Chapter 9. Notice that when demand falls price does not fall.
- c Falls in real wages may themselves reduce aggregate spending. One might point out that what is true for one good in a micro-market may not be true for all goods and services at the macro level.

9. *To what extent is a low inflation rate the sign of a healthy economy?*

Low inflation rates have the benefits described in the text. It avoids the costs of inflation. However, the marginal benefit of lowering inflation from an already modest level may be small and the costs may be higher. These were explained in the text as those costs associated with deflation. The Japanese economy has, arguably been a good example of the problems of a deflationary economy.

CHAPTER 16

SUGGESTED ANSWERS

1. Consider Table 16.9. It represents two societies with the same average income but with different distributions. Which one is the fairer society?

The vast majority of students choose the second society. The difference between highest and lowest is that Barry has two and a half times what Bill earns. However, Bill is 25 per cent better off in society one! There is no right answer to this question but you need to think whether it is more important to focus on the distribution of income or the plight of the poor. They are two connected questions but they are not the same.

3. The UK Conservative administration of the 1980s believed that governments should in all circumstances balance the budget. So in the early 1980s with high unemployment the government chose not to stimulate aggregate demand by tax cuts, but to reduce its deficit by raising taxes. The British governments of the last twenty years said they believed in a balanced budget in the medium term. What changes in policy does this imply? What do you think might have altered their position from previous administrations?

It was Geoffrey Howe who, as Chancellor, raised taxes in the middle of a recession. This was because, although he believed the supply side argument about direct taxes and incentives, the first rule of classical economics is that $G = T$. He judged it not possible to cut G sufficiently to eliminate the PSBR.

Most of the government at the present time is saying that while $G = T$ is necessary in the long term, one must expect some deficit in a recession. The PSBR will fall to zero as the economy grows. This is much more akin to Keynesianism.

5. Suppose you were a poor student buying £30 worth of petrol for your old car. The person at the other pump is a wealthy man putting £30 worth of petrol into his Porsche. The petrol tax must be proportional because you are both paying the same tax. Do you agree?

Disagree. It is not the absolute amount of money paid in tax that is important here but the proportion of income being paid. The petrol tax is regressive since it represents a higher proportion of the student's income.

7. What is the best way of determining whether a citizen of the EU is poor?

There is no right way to do it but your answer should recognise that there are two different approaches. One is absolute. We can determine what we think is sufficient

income to live ‘decently’ with all the problems implied in determining what that means in practice. Alternatively, we can decide on some arbitrary proportion of average income as a benchmark. Here the benchmark is arbitrary and we have a further problem. Because it is a relative definition the poor person could be quite well off in a high income society.

9. *‘An uneven distribution of income is the sign of a healthy economy.’ What do you think the author of this statement means?*

This is a quotation which reflects a view sympathetic to the market system. People should receive an income which reflects the value of the output they and their resources produce. This is what gives incentives to efficient production and the efficient use of scarce resources. Of course, the view is open to challenge!

CHAPTER 17

SUGGESTED ANSWERS

1. *Define allocative efficiency. Carefully distinguish between allocative and productive efficiency.*

Productive efficiency concerns only the relationship between inputs and outputs. If the output is produced with the lowest possible cost, we have productive efficiency. Allocative efficiency introduces consumer preference. If the output is produced in the optimal amounts for meeting society's wishes as expressed by the demand curve, then we have allocative efficiency. For a fuller treatment see Heather, K., *The Economics of Industries and Firms*, Pearson Education, 2002, chapter 1.

3. *Refer back to Figure 17.5. Suppose a privatised firm has to operate under a price ceiling of P_4 . How much output would it make and what price would it charge?*

A price ceiling makes the effective demand curve the same as the price ceiling from $0 - Q_4$. Beyond Q_4 the price ceiling is irrelevant. Since demand is perfectly elastic from $P_4 - Z$, $MR = AR$. At Z , MR falls to meet the old MR curve. If students find this tricky they can refer back to Chapter 7, where the same idea is shown in the context of oligopoly pricing. It can then be seen that $LRMC = MR$ at Q_4 output and P_4 Price. The firm would be willing to produce since normal profit, opportunity cost, is covered.

5. *To what extent can governments solve their debt problems by public sector asset sales?*

The following points should be thought through when considering your answer. First distinguish a public sector borrowing requirement, which may be large or small in any year, from the public debt. This is the accumulation of past borrowing requirements. In most economies this is vastly greater than the value of state assets. Second, asset sales do not eliminate the problem. They alter the timing. They produce income now at the cost of reducing future income. The stronger arguments relate to efficiency rather than government debt.

7. *An alternative to price controls as a means to improving efficiency would be to change a firm's cost structure by taxes and subsidies. How would a firm's costs be affected by (a) a per unit tax, (b) a lump sum tax, (c) a per unit subsidy and (d) a lump sum subsidy?*

(a) shifts the marginal and average cost curves downwards, (b) shifts average costs downwards but not marginal cost. It costs the firm no more to increase output by one unit, (c) shifts the marginal and average cost curves upwards, (d) shifts average costs upwards but not marginal cost. It costs the firm no less to decrease output by one unit.

9. *What problems would occur if a government privatised all education?*

There would clearly be political problems but economically in the short run there are benefits in terms of increased government revenue. In the longer term there is no loss of income stream as it is provided free at the point of use. However, there is a huge reduction in government expenditure. If we see education as a merit good, however, the cost is in terms of underprovision of education in a market system and problems for lower income groups since the policy will shift the distribution of income towards higher income groups.

CHAPTER 18

SUGGESTED ANSWERS

1. *In Erehwon the national output is 100 million pounds. The velocity of circulation is 2. What is the size of the money supply? When the money supply increases by 5 per cent, what will happen to the price level?*

Since $MV = PT$ the money supply, M , must be 50. If the monetarists are correct and real output remains unchanged, then if M increases by 5 per cent, P , the price level will rise by 5 per cent also. If real GDP rises, then P will rise by less than 5 per cent.

3. *If the money supply is fixed, what would monetarists expect to happen to the price level over time?*

It should fall. Consider again that $MV = PT$. If the productive capacity of the economy is growing, then real GDP, that is T , will be rising over time. For the price level to remain constant M would need to be increasing at the same rate as the long run growth of T .

5. *Suppose an economy has a money market as described in Figure 18.5 and therefore an equilibrium interest rate of r_1 . In terms of the diagram what would the following be most likely to bring about and therefore what would happen to interest rates? (a) a fall in national income, (b) a decision by the banking sector to reduce the volume of loans made, (c) a rise in the price level, (d) a reduction in government debt.*

(a) D shifts left lowering interest rates.

(b) S shifts left raising interest rates.

(c) D shifts right raising interest rates.

(d) shifts right lowering interest rates.

7. *In a particular economy all the banks maintain 10 per cent of deposits as cash. One of the banks receives a new deposit of £200. If net withdrawals from the banking system are zero, what will the final increase in deposits be? Now rework your answer, assuming that 20 per cent of deposits are retained as cash. Work out a general formula showing the relationship of cash to deposits.*

The formula is $D = 1/r \times C$ where D = deposits created and C = cash. In the first example $D = 2000$ and in the second instance it is 1000. The higher the required reserve ratio the less able the banking system is to create money.

9. *How, according to Keynesian economists, might an increase in the money supply lead to an increase in GDP? Will this be a real or money increase?*

The main links in the chain are these. An increase in M lowers interest rates. This stimulates aggregate demand and raises output. If there is considerable unemployment it will be real GDP that rises. At near full employment it will be partly a real increase. At full employment Y there will be no real increase.

CHAPTER 19

SUGGESTED ANSWERS

1. *Distinguish between productivity improvements and increased output levels.*

These are quite different. Productivity refers to the relationship between inputs and output. So if labour productivity improves, for example, there is more output per unit of labour. Productivity improvements may not increase output in the short term. There may simply be an increase in unemployment. Similarly, increased output may not mean that productivity has improved. It may mean that unemployment has fallen.

3. *What are the effects of large-scale Japanese investment in the UK on (a) manufacturing industry and (b) the balance of payments account? Should such inward investment be encouraged?*

a Again it depends on one's view of markets but there are real advantages. The UK has lower labour costs compared with the rest of the European Union. The result is increased employment. Also, if foreign competitors have higher productivity, this can be spread to Britain through their investment here. This appears to have happened in the car industry, for example.

b In the short run it helps the balance of payments account. They are buying our assets. In the longer term part of the income generated returns to Japan in increased property income from abroad, but some stays. It can clearly improve the trade balance if Japanese cars are manufactured in Britain to be sold in the whole of the European Union.

As for the last part of the question free market economics says (a) it's a good thing if the foreigner wants to invest but (b) not if it is misallocated investment via government subsidies. Much Japanese inward investment has been in areas of high unemployment with government subsidies. You can look at the question in the light of the issues raised in earlier chapters on regional unemployment.

5. *Which of the following would make beneficial trade between two countries impossible? (a) One has a serious balance of payments problem. (b) One country's government subsidises its manufacturing sector. (c) One country has an absolute advantage in the production of all output. (d) Both countries operate a fixed exchange rate. (e) Opportunity cost ratios are different in the two countries. (f) Relative prices before trade are different in the two countries.*

None of these things make trade between the two countries impossible. Indeed (e) and (f) are necessary conditions for trade to take place.

7. *Figure 19.7 shows the opportunity cost curves of two nations. Say whether each of the following statements is true or false: (a) Country Q has a comparative advantage in cloth. (b) Country P has a comparative advantage in wine. (c) Country Q has an absolute advantage in cloth. (d) These countries can trade profitably with each other. (e) There is nothing in the diagram to suggest that either country will have a balance of payments problem if they engage in trade.*

All the statements are true.

9. *An economy has a marginal propensity to save of 0.1, a marginal propensity to tax of 0.1 and a marginal propensity to import of 0.2. Suppose now that exports increase by 20 million euros. What happens to (a) national income and (b) the trade balance?*

(a) The multiplier is $1/0.4$, which in this case gives $1/0.4$ or 2.5. Thus an increase in exports of 20 increases national income by 50. (b) If national income rises by 50 and the marginal propensity to import is 0.2, then imports rise by 10. Exports rise by 20 so there is a 10 million euros improvement in the trade balance.

CHAPTER 20

SUGGESTED ANSWERS

1. *A country is suffering from a balance of payments deficit. The external value of its currency then falls. Would the government prefer that export demand was elastic, inelastic or unitary? Would the government prefer that import demand was elastic, inelastic or unitary?*

A fall in the external value of the currency lowers export prices. So it is best if export demand is elastic. Then a price fall raises export revenue. Import prices are raised so it is best if import demand is elastic. Then import expenditure falls as home consumers switch to domestically produced goods.

3. *Consider Figure 20.13, which shows the market for euros in sterling terms. Which of the following would tend to shift the demand curve to the right? (a) A decrease in UK incomes, (b) an increase in EU interest rates, (c) an increase in the European price level, (d) an increase in the UK price level.*

(a) would shift demand left, (b) would shift demand right, (c) would shift demand left, and (d) would shift demand right.

5. *How impressive do you find the argument that joining the euro would eliminate the balance of payments constraint on UK economic policy?*

The key is whether you believe that labour markets are flexible. If they are not, a balance of payments deficit would create a fall in aggregate demand and there would be unemployment as a result. However, if the classical school is right, markets take care of the problem through adjustments in wage rates.

7. *An economy operates with a fixed exchange rate. Why would a balance of payments deficit tend to put downward pressure on its domestic price level?*

If one sees inflation as a monetary phenomenon, then a balance of payments deficit with a fixed exchange rate reduces the domestic money supply. A fall in the money supply, all other things being equal, reduces the price level.

9. *For countries within the EU much of their trade is with other European partners. Much the same thing can be said of other trading blocs. To what extent is this a good thing?*

The Law of Comparative Advantage that we met in Chapter 19 shows the advantages of free trade. However, some of the trade within trading blocs is trade diversion. This problem of trade diversion is made worse if traders focus on trade within a free trade bloc because a single currency makes it easier for them.