

## CHAPTER 12 The Supply Curve of the Industry under Perfect Competition

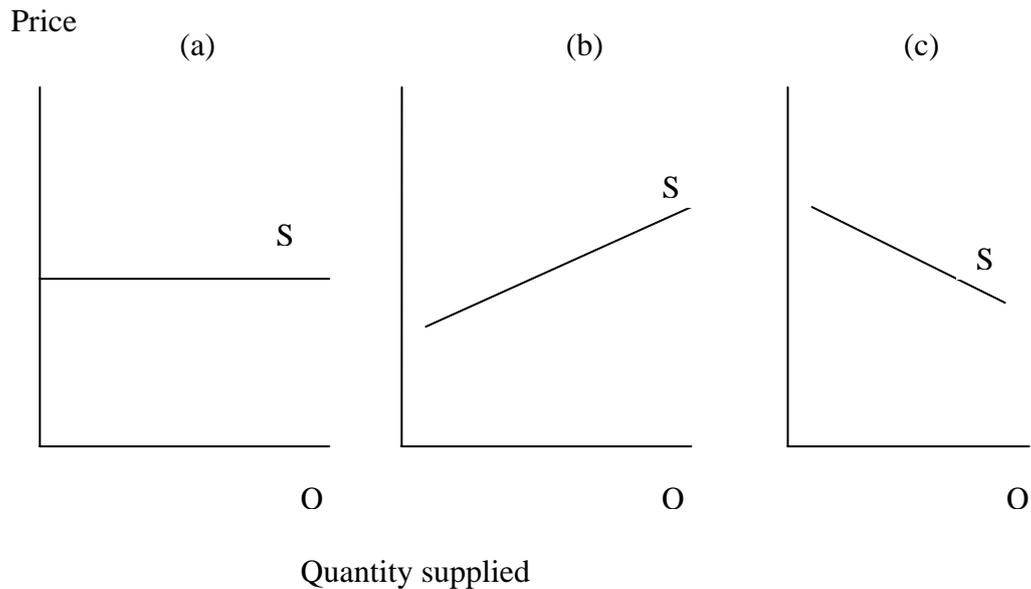
### Study guide

This chapter merely uses the principles established in Chapter 11 to build up the supply curve of the industry. In our theory, the industry consists of the firms producing identical goods. In practice however we usually refer to the industry as the collection of firms producing more or less similar goods as, for instance, in the case of the 'car industry', the 'machine tool industry', the 'electronics industry', etc.

You should have no difficulty over the *short-period supply curve of the industry* – simply add together the outputs of the different firms at different prices. Take Mr Cluck, for instance. How much will he produce at £4000? To find out you simply move horizontally across the price to where it cuts the MC curve, and then read vertically downward for the output - 85 units. Take a higher price, £5000. To find the new output you move up the MC curve to the point where it cuts the new price, and once again read vertically downwards – 94 units. Thus the supply curve of the firm is simply the MC curve, and the short-period supply curve of the industry is the horizontal sum of the firms' MC curves.

The long-period supply curve is a little more complicated. The explanation depends upon highly theoretical assumptions, and you should not worry a great deal if you do not follow it. The stages in the argument are as follows:

1. In the long-period, new firms can enter the industry on identical terms, and so all firms can copy the methods of the most efficient.
2. Competition will force them to do this, and so each firm will eventually produce at the optimum size where  $P = MC = ATC$  at a minimum.
3. Thus the output of each firm is at minimum ATC and, when added, they give an industry supply curve at this price where ATC is at a minimum. That is, the supply curve is horizontal (a).



4. We can relax our assumptions to make them more realistic:

- the prices of factors of production rise as the *industry* expands (provided that this is not offset by external economies);
- entrepreneurs vary in ability

Either assumption will give an upward sloping supply curve (b).

5. If external economies outweigh external diseconomies as the industry expands, there will be a downward sloping supply curve (c).

Be sure you understand the concept of *elasticity of supply*, and the two limiting cases. Unlike demand, it is possible to have an absolutely inelastic supply curve, e.g. the supply of the Mona Lisa picture is fixed whatever the price offered.

Supply also differs from demand in that changes in supply in response to a change in price take time to complete. Thus the elasticity of supply depends on the period of time under consideration.

## CHAPTER 12 Questions

1. Give examples of goods with perfectly (absolutely) inelastic supply.
2. What are the two conditions for long-period equilibrium of an industry?
3. Calculate elasticity of supply if as the price of eggs rises from 12p to 15p, quantity supplied expands from 40,000 to 50,000.
4. Describe the supply curve if elasticity of supply is
  - a. equal to infinity
  - b. equal to zero
5. What is the connection between the carrying of stocks and the elasticity of supply of a good?

6. There is an increase in demand for houses. How is the price of houses likely to be affected when the supply of bricklayers is a) inelastic, b) elastic

7. From the following supply schedule, calculate elasticity of supply:

- a. when price rises from £7 to £8;
- b. when price falls from £7 to £6

Price (£per ton)	6	7	8
Quantity supplied (tons per week)	36	56	108

8. What is the effect of a unit tax on a product with perfectly elastic supply?

9. What is the effect of a unit tax on a product with perfectly inelastic supply?

10. Why do prices of primary products e.g. butter, fluctuate more than the price of manufactured goods e.g. margarine?

### Multiple Choice Questions

11. If the elasticity of supply is 2.5, when the price of a commodity rises by 1%, sellers:

- a) increase supply by 1%;
- b) decrease supply by 2.5%;
- c) increase supply by 2.5 %;
- d) do not change supply;
- e) decrease supply by 1%;

12. To find the market supply curve:

- a) find total firms' costs;
- b) find total firms' fixed costs;
- c) find total firms variable costs;
- d) find total output of all firms at varying prices;
- e) find prices of all firms at varying prices.

13. If supply is inelastic, an increase in demand will:

- a) have no effect on price;
- b) cause a large increase on price;
- c) cause a decrease in price;
- d) have no effect on quantity supplied;
- e) none of the above.

14. The supply curve for a Van Gogh original is:

- a) perfectly elastic;
- b) horizontal;
- c) upward sloping left to right;
- d) inelastic;
- e) perfectly inelastic.

15. If, as an industry expands, there are external economies of scale, the cost curves of the individual firms:

- a) will be lowered;
- b) will be raised;
- c) will stay the same
- d) will be identical;
- e) none of the above.

## **CHAPTER 13 Rewarding the Factors of Production: the Marginal Productivity Theory of Distribution**

### **Study Guide**

Factors of production co-operate together to produce the 'national cake'. But these factors are all owned by somebody. Thus how much of the cake each individual in the country obtains depends upon:

- 1) how much of the factors is owned;
- 2) the reward each factor receives.

Differences in individual persons' incomes, therefore, depend upon both inequalities of ownership and inequalities in earnings. It is the latter which is the subject of this chapter.

Demand and supply analysis provides a first approach to the problem of how much is earned. Take the wages of plasterers, for instance. The demand for plasterers depends upon the price at which houses sell (a derived demand) and the productivity of plasterers. The supply of plasterers depends upon the time factor, immobility etc., but we will simplify by saying that it is the number of plasterers offering their services at different wage-rates.

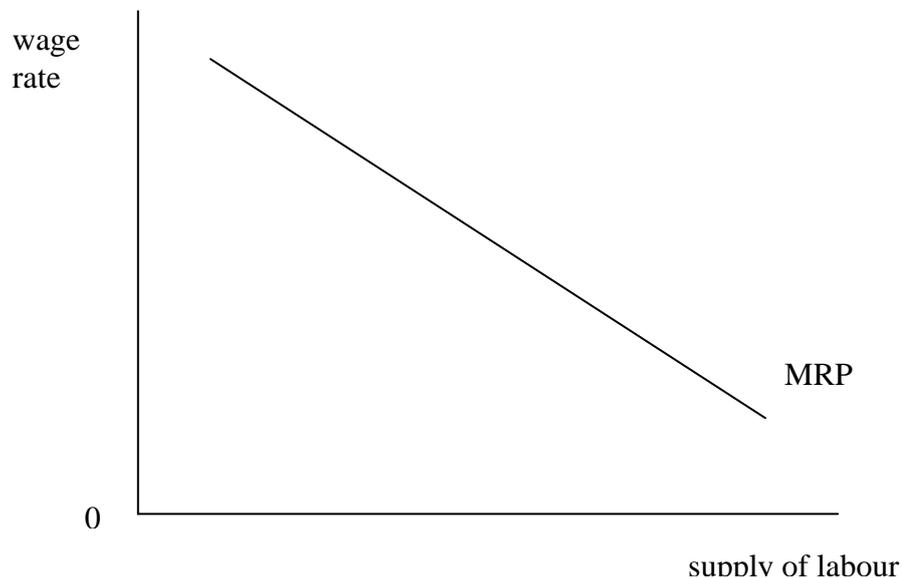
If the conditions of supply and demand are different in different parts of the country, the wages of plasterers will differ from one part of the country to another. If there were perfect geographical mobility, plasterers would move from low-wage districts to high-wage districts, until eventually a common equilibrium wage rate would be established.

In practice, geographical and occupational mobility are not perfect. Thus geographical and occupational differences in wage-rates persist.

Thus the MRP theory really examines only how the reward to a factor service is determined in the aggregate for a particular occupation or industry. In practice, supply curves vary because of immobility and monopoly influences (e.g. trade unions), and the demand curve because of imperfect competition in the product market or because of a dominant buyer of the service.

### CHAPTER 13 Questions

1. What is meant by derived demand?
2. On which two elements does revenue productivity depend?
3. In the diagram below:



If the labour supply referred to in the diagram is television mechanics, what will be the effect of:

- a) a greatly increased demand for secondhand television sets
- b) greater productivity of TV mechanics
- c) higher charges for television repairs
- d) people spend less on televisions
- e) a considerable fall in the price of new television sets

4. The following table shows the relationship between the total production of thermometers each week and the number of workers employed:

Workers employed	Total output of thermometers
1	160
2	460
3	660
4	800
5	900
6	960

Assuming each thermometer sells for £1.60, how many workers will be employed if the wage rate is a) £224 per week; b) £160 per week

5. Which of the following are likely to cause the wages of bricklayers in the U.K. to rise or fall:

- an increase in the demand for houses
- a depression in the building industry in Eire
- the development of a building process using factory-made wall panels
- a decrease in the productivity of bricklayers
- a reduction in the number of bricklayers entering the industry

6. Which of the following are directly demanded by consumers, and which are derived demand?

- a new car bought privately
- a sales representative's car
- a car assembly worker's services
- farm fertiliser
- garden manure

7. What determines the price of a factor of production?

Questions 8-10 relate to the following table:

Number of workers employed	Marginal physical product (50 kg bags potatoes)	Marginal-revenue product (£)
1	2	20
2	14	140
3	38	380
4	26	260
5	15	150
6	13	130

8. How much does a 50kg bag of potatoes cost?

9. If 5 workers are employed, how many bags of potatoes are produced in total?

10. How many workers will be employed if the wage rate is £260?

### Multiple Choice Questions

11. Given conditions of perfect competition in the factor market, a firm wishing to maximise profits will employ a variable factor to the point where:

- a) total physical product is at its maximum;
- b) total revenue product is at its maximum;
- c) marginal physical product is at its maximum;
- d) marginal revenue product equals the cost of each unit of the factor;
- e) marginal revenue is maximised.

12. Which of the following will *not* lead to a shift in the position of a marginal revenue product curve for labour in the construction industry?

- a) an increase in the wage rate;
- b) a decrease in the price of houses;
- c) a change in the technique of construction;
- d) a substantial increase in the cost of mortgages;
- e) greater productivity of construction labour.

13. If a receptionist earns more in London than one in Leeds:

- a) occupational mobility of labour is perfect
- b) occupational mobility of labour is not perfect
- c) geographical mobility of labour is perfect
- d) geographical mobility of labour is not perfect
- e) workers in London deserve higher pay

14. Marginal revenue product equals:

- a) price x quantity
- b) the addition to total revenue of an additional worker
- c) the addition to output of an additional worker
- d) the contribution to revenue of all workers
- e) the contribution to output of all workers

15. Which of the following would *not* increase the productivity of labour:

- a) additional capital being combined with labour;
- b) technical progress;
- c) improved education and training of workers;
- d) a fall in the wage rate;
- e) better working conditions improving the health of workers.

## CHAPTER 14 Market Failure and the Role of the Government

### Study guide

So far we have concentrated on examining how the market economy works under the strict theoretical assumptions of *perfect competition*. The justification for this initial approach is explained in the chapter.

How perfect competition in a market economy achieves efficiency in the allocation of resources is summarised in 14.1. It makes competition an attractive idea in that it: (a) achieves consumer choice and (b) promotes production efficiency through the survival of only the fittest firms.

The remainder of the chapter in effect throws a spanner in the works of this 'laissez-faire' approach. It asks:

- (a) Are the strict assumptions of perfect competition possible in the real world?
- (b) Are there some goods e.g. defence, which cannot be supplied through the market?
- (c) Is the efficient in dealing with the 'spillover' aspects of consumers' and producers' private utility and profit-maximising decisions?
- (d) Is competition always desirable? For example, monopolies may secure large-scale economies in production and be more innovative.

14.2 summarises the possible weaknesses of the strict market economy. You should study carefully these different aspects of 'market failure'. Each is examined in more detail in the chapters which follow. Furthermore, for each weakness we have to ask: can government action make the market economy more workable and, if so, by what measures?

Finally we have to remember that the market economy has to work within the existing distribution of income, but that changing this involves subjective decisions.

### CHAPTER 14 Questions

1. What is the difference between technical efficiency and economic efficiency?
2. From the point of view of economic efficiency, what is the major omission of consumers and producers maximising their own costs and benefits?
3. Why is it that some goods can not be produced in the market?
4. In what ways should government policy be concerned with the production possibilities curve?
5. In taking measures to improve economic efficiency, what other important consideration must the government bear in mind?

6. If the government wishes to reduce the consumption of cigarettes and considers the elasticity of demand to be very low, what policies should it adopt?
7. *Should* the government try to 'correct' consumer preferences in this way?

Questions 8-10 relate to the following information:

On the banks of a river, a number of factories are producing soap under competitive conditions. The demand schedule for soap is shown in the table.....

Price per bar (p)	Quantity demanded (million bars)
10	1
9	2
8	3
7	4
6	5
5	6

The long-run average total cost of producing the soap is 6p a bar. There are no external costs or benefits associated with consumption of the soap. However, its production involves the disposal of chemical impurities into the river which reduce the fertility of fish. The costs imposed on the fishing industry work out at 2p for every bar of soap produced in the factories.

8. What will be the soap industry's actual level of output in the absence of compensation or government intervention?
9. What is the socially optimum level of output?
10. What is the value of the total external costs imposed at the socially optimum level of output?

### Multiple Choice Questions

11. Resources are allocated most efficiently where every good is produced to the point where:
  - a) price equals average cost;
  - b) marginal cost is at its lowest point;
  - c) average cost equals marginal revenue;
  - d) marginal cost is zero;
  - e) marginal cost equals price.

12. When a firm's AC curve is falling:

- a) MC must be falling;
- b) MC must be below AC;
- c) MC must be falling more rapidly than AC;
- d) MC must be above AC;
- e) total cost must be falling.

13. Technical efficiency in production means that:

- a) no increase in output can be obtained by producers substituting one factor for another or reorganising scale of production;
- b) the mix of goods produced provides the greatest possible satisfaction;
- c) no overall gain in satisfaction can be obtained by exchange of goods;
- d) maximum profits are achieved;
- e) there are no spillover effects or externalities.

14. Economic efficiency means that:

- a) no increase in output can be obtained by producers substituting one factor for another or reorganising scale of production;
- b) the mix of goods produced provides the greatest possible satisfaction;
- c) no overall gain in satisfaction can be obtained by exchange of goods;
- d) maximum profits are achieved;
- e) there are no spillover effects or externalities.

15. Exchange efficiency means that:

- a) no increase in output can be obtained by producers substituting one factor for another or reorganising scale of production;
- b) the mix of goods produced provides the greatest possible satisfaction;
- c) no overall gain in satisfaction can be obtained by exchange of goods;
- d) maximum profits are achieved;
- e) there are no spillover effects or externalities.

## **CHAPTER 15 Monopoly**

### **Study guide**

The main difference between *perfect competition* and *imperfect competition* is that with imperfect competition the firm's demand curve slopes downwards. As a result MR is less than price and the MR curve is always below the demand curve.

For monopoly to exist, two conditions must be fulfilled:

- (1) the firm is the sole supplier of a good;
- (2) it can exclude competitors.

The text enlarges on these conditions. They mean that the monopolist is the industry and that his demand curve is the market demand curve for the product.

It is important to note that:

- (1) The monopolist will not produce at an output/price where demand is inelastic. Where demand is inelastic, reducing output will raise price and increase total revenue. At worst, costs will remain the same but they are more likely to fall. Where demand is elastic, reducing output will raise price, but decrease total revenue. The question is: will costs decrease more? If so, reducing output will be profitable.
- (2) The smaller the elasticity of demand, the greater the profits he can make. Whether he seeks to maximise his money profits is another matter; the monopolist is continually looking over his shoulder in case his public image should be damaged or the government takes action.

We must be careful against saying the perfect competition is always preferable to monopoly. The theory that where a monopoly takes over a perfectly competitive industry output will be less and price will be higher is too facile. We have to ask:

- (1) Has there been any lowering of costs?
- (2) Has there been an increase in the willingness to innovate?
- (3) Is a discriminating pricing policy beneficial to the supply in certain circumstances?

The difficulty facing the government in laying down a general policy for monopolies is that they usually have some advantages of large-scale production. Indeed, at times the government has promoted and financed mergers where rationalisation can yield economies of scale. On the other hand output under imperfect competition does tend to be less than under perfect competition, since the MR curve is always to the left of the demand curve and must therefore cut the MC curve at a smaller output.

The government therefore, has to consider each monopoly on its merits and ask whether the advantages outweigh the possible disadvantages. For instance, although it was claimed that a merger of Lloyds, Barclays and Martins Banks would yield economies of scale, the Monopolies Commission reported against it on the grounds that it would lead to less competition.

The section on *discriminating monopoly* is important largely because of its bearing on the pricing and output policies of the public utility industries. Unfortunately, the term suggests antisocial behaviour. But as the text shows, this need not be so. Where a monopolist can charge two prices instead of just one, it may be possible to supply some consumers who would otherwise have

to go without. Indeed only when there is discrimination may any supply at all be possible. Thus if the railways are to break even in their receipts and costs they will probably have to be discriminating, charging 'what traffic will bear'.

Discriminating monopoly is also significant where production takes place under decreasing costs. Here any increase in total output is at a lower average cost. Cars for instance, can be sold abroad at a price which just covers average costs, only normal profits being made. But in the home market average costs have also fallen (through the sales abroad). Thus while the monopolist makes larger profits, home consumers also gain.

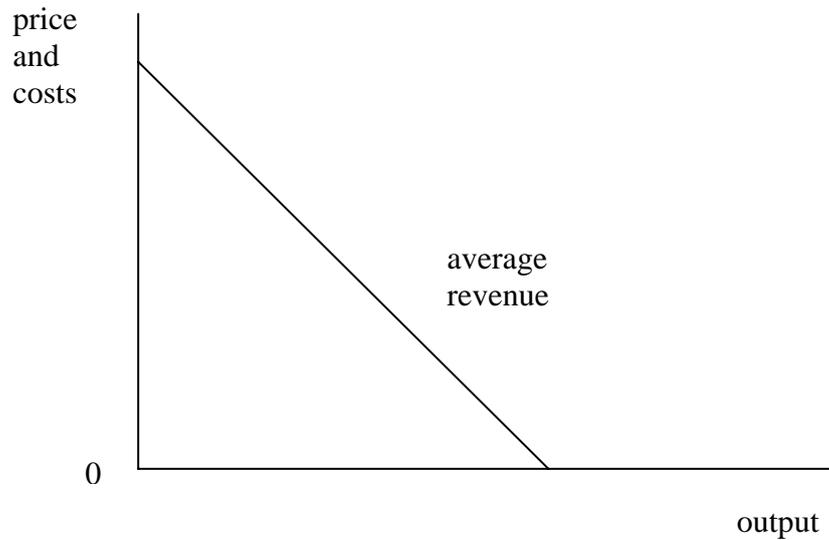
### CHAPTER 15 Questions

1. How could the degree of monopoly power in an industry be measured?
2. How is a monopoly defined in U.K. legislation?
3. Why is the demand curve of a monopolist not perfectly inelastic?
4. The following demand schedule faces a monopolist producer of a particular mineral water. Assume that marginal costs are nil.

Price (pence)	Mineral water demanded (litres)
60	250
50	900
40	1500
30	2000
20	2500
10	3800

- a. At what output are profits maximised?
- b. What is elasticity of demand at this output?

Questions 5-8 relate to the following diagram. It shows a monopolist whose average revenue curve is a straight line. Marginal costs are zero.



5. Show the output at which profits are maximised.
6. What is elasticity of demand at this output?
7. Explain why a monopolist with marginal costs greater than zero will always produce at an output where elasticity of demand is greater than unity.
8. Prove that the marginal revenue curve always bisects the horizontal axis between the y-axis and the average revenue curve where the latter is a straight line.
9. The Post Office introduced a two-tier pricing system for letters in 1968. Is this price discrimination?
10. What three conditions are necessary for discriminating monopoly?

### Multiple Choice Questions

11. Which of the following will restrict competition in an industry?
  - a) barriers to the entry of new firms;
  - b) advertising;
  - c) high prices;
  - d) low prices;
  - e) freedom of entry and exit.

12. Which of the following is true of pure monopoly?
- a) there are no barriers to the entry of new firms;
  - b) there are barriers to the entry of new firms;
  - c) only normal profits are possible;
  - d) there are many buyers and sellers;
  - e) none of the above.
13. 'Patents' are an example of:
- a) subsidies;
  - b) taxes;
  - c) barriers to entry;
  - d) product homogeneity;
  - e) none of the above.
14. Agreements between firms which restrict competition are known as:
- a) restrictive practices;
  - b) bonding;
  - c) bondage;
  - d) competitive advertising;
  - e) non-price competition.
15. In general, increased competition in an industry, will tend to:
- a) increase profits;
  - b) increase prices;
  - c) reduce prices;
  - d) reduce advertising;
  - e) none of the above.

## **CHAPTER 16 Imperfect Competition: other forms**

### **Study guide**

Monopolist competition provides a good example of model-building. The assumptions are the same as for perfect competition *except that* products are not homogeneous.

In the short period, equilibrium is the same as for the monopolist. But in the long period we have to allow for freedom of entry. From this long-period equilibrium we can deduce:

- (1) excess capacity – output is less than where ATC is at a minimum;
- (2) non-price competition – advertising, gimmicks, etc.

Note however, that this long-run equilibrium of the industry is unlikely to occur in practice, being based on assumptions just as theoretical as those of perfect competition.

The most important part of the chapter is the discussion on advertising. Note the two divisions, informative and persuasive. Remember too, that we obtain our newspapers at a lower price than if there was no advertising. This difference can be set against some of the cost of advertising.

### **CHAPTER 16 Questions**

1. Suggest three separate objectives of advertising.
2. Is it possible to have advertising in industries where the product is homogeneous?
3. Why do supernormal profits disappear in the long-run in monopolistic competition?
4. Why is advertising unnecessary in perfect competition?
5. Suggest five ways in which producers or sellers try to 'differentiate' products.
6. What distinguishes the pricing policies of:
  - a. the firm producing in a perfectly competitive market?
  - b. the monopolist?
  - c. the firm in an oligopolistic market?
7. How does the long-run equilibrium of monopolistic competition differ from that of perfect competition?
8. How do petrol firms' pricing policies seem to be representative of oligopoly?
9. Ford motor company spends large sums of money on advertising its products. Why don't farmers spend large sums advertising wheat or eggs?
10. What happens to the demand curve facing producers in monopolistic competition in the long-run?

### **Multiple Choice Questions**

11. If demand is normal ie downward sloping from left to right, then the marginal revenue curve will be:
  - a) equal to the demand curve;
  - b) below the demand curve;
  - c) above the demand curve;
  - d) vertical;
  - e) horizontal.

12. If demand is normal i.e. downward sloping from left to right, total revenue will be maximised when:
- a) price is highest;
  - b) quantity demanded is greatest;
  - c) marginal revenue equals average revenue;
  - d) marginal revenue falls to zero;
  - e) none of the above.
13. The short-run is:
- a) three months;
  - b) one year;
  - c) one hundred metres;
  - d) the period of time over which all factors of production can be varied;
  - e) any period of time during which at least one factor of production is fixed in supply.
14. Which of the following is not a microeconomic policy to control imperfect competition?:
- a) restrictive practices legislation;
  - b) regulatory bodies for large utilities;
  - c) the monopolies and mergers commission;
  - d) anti-cartel laws;
  - e) indirect taxation.
15. Which one of the following conditions applies to monopolistic competition but not to monopoly?
- a) the firm faces a downward sloping demand curve;
  - b) there is free entry to the industry;
  - c) marginal revenue is less than average revenue;
  - d) the firm produces where marginal cost equals marginal revenue;
  - e) supernormal profits can be made in the short-run.

## CHAPTER 17 Externalities and Cost-benefit Analysis

### Study guide

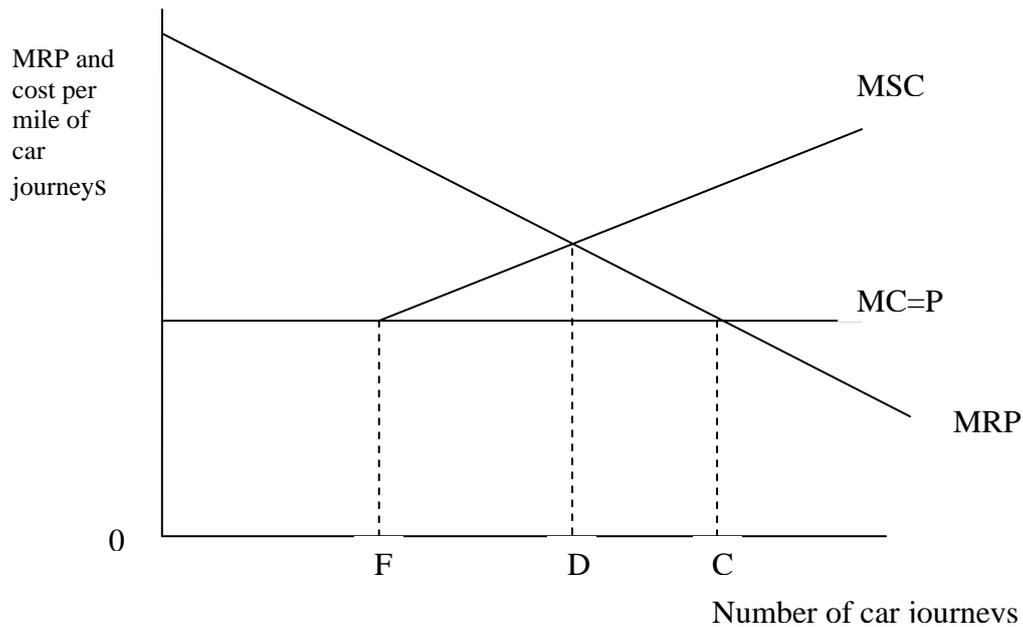
Because of the growing complexity of economic activity, *externalities* can be a major cause of market failure. Since they are especially related to the environment, examples can be derived from your own observations. These should lead to a consideration of the actual action taken to allow for them.

The main objective of a CBA is often to ensure that monetary value is given to different externalities in order to indicate their relevant importance in the entire scheme. Thus while the inherent difficulties may make a high degree of precision unachievable, it can still inject some objectivity in deciding between competing options.

### CHAPTER 17

1. Suggest two external costs of a new motorway.
2. In what ways may a farmer impose an external cost by:
  - a. the application of nitrates to his fields
  - b. straw burning?
3. Before housing can be erected on a Greenfield site, planning permission is required.
  - a. what is the objective of this?
  - b. what is likely to be the effect on the price of building land?
4. Why might it be difficult to make private arrangements to preserve an external benefit?

Questions 5, 6 and 7 refer to the following diagram:



5. In the diagram, why is MSC above MC?
6. a. What is the socially efficient level of car journeys?  
b. What is the market or private cost equilibrium level of car journeys?
7. Why do social costs only diverge from private costs after OF?
8. How can the following reduce the external costs of traffic congestion:
  - a. Use of the price system;
  - b. Subsidy;
  - c. Physical controls;
  - d. Public provision?
9. What is the technique used for incorporating externalities into decision-making by quantifying them in money terms?
10. What is the technique used to find the present value of future costs and benefits?

## Multiple Choice Questions

11. Costs and benefits which are outside the market system are known as:
- a) indivisibilities;
  - b) externalities;
  - c) imperfections;
  - d) public goods;
  - e) merit goods.
12. Traffic congestion can be regarded as a form of market failure because:
- a) transport is a merit good;
  - b) public transport is too expensive;
  - c) it leads to inefficient usage of fuel;
  - d) social costs are higher than private costs;
  - e) private costs are higher than social costs.
13. If industrial pollution of a river affects fishing catches downstream, this is an example of:
- a) a production on consumption externality;
  - b) a production on production externality;
  - c) a consumption on consumption externality;
  - d) a consumption on production externality;
  - e) government intervention.
14. Passive smoking is an example of:
- a) a production on consumption externality;
  - b) a production on production externality;
  - c) a consumption on consumption externality;
  - d) a consumption on production externality;
  - e) government intervention.
15. A 'spillover effect' is also known as:
- a) an externality;
  - b) an external economy;
  - c) an economy of scale;
  - d) excess supply;
  - e) none of the above.

## CHAPTER 18 The Environment: Conservation and Pollution

### Study guide

Because of the accelerating pace of economic development, the problems of the environment are of increasing urgency. Two paramount considerations have to be recognised: (1) the lead in taking action must come from the richer countries; (2) many problems can be overcome only by international agreement.

Present-day pressure for conservation comes mainly from people from richer countries who account for only one-fifth of the world's population. They can afford an air-flight which in a few hours will enable them to see elephants in the wild or the natural beauty of the rainforests. In comparison, many of the other four-fifths of the world's population are living at the subsistence level, and for them conservation could be of little immediate concern. Indeed, elephants may destroy their meagre crops, while timber from the rainforests can be the means by which they can improve their current standard of living.

Here the richer countries have two main responsibilities: (1) to encourage the governments of the poorer countries not to seek short-term gain by destroying their unique and irreplaceable natural resources whose value will increase over time, e.g. through tourism; (2) to cooperate in this conservation by giving aid to raise the poorer countries' living standards.

Pollution problems are now of global concern – global warming, acid rain, diminishing fish stocks, the disposal of nuclear waste, etc. Again many of these problems are the result of industrialisation and technical developments (e.g. transport, oil burning).

### CHAPTER 18 Questions

1. In producing final goods sold to consumers for £200,000, a firm pollutes a stream and the local authority has to spend £10,000 purifying it:
  - a. what monetary value would be included in national income computation?
  - b. what monetary value most closely represents the flow of wealth produced by the firm?
2. The E.C. produces billions of tonnes of waste annually and is running out of landfill space. Suggest the broad policy which should be followed.
3. At present the UK government restricts fertiliser application only in designated 'nitrate sensitive areas':
  - a. why does it impose such restrictions?
  - b. why does it not simply impose a selective sales tax on each tonne of nitrate applied?
  - c. what is the main advantage of such a tax?
4. Why should the government make grants to farmers in environmentally sensitive areas?

5. There are congestion charges on cars entering central London:
- what are the main advantages of such a scheme?
  - what are the main disadvantages?
6. If not corrected, how would pollution produced by a manufacturing firm distort the market?
7. What is the advantage of taxing over physical control of pollution?
8. What is the basic economic reason for over-fishing of ocean fisheries?
9. If there is low price-elasticity of demand and high income-elasticity of demand for the private car, why might this be a problem for transport policy-makers?
10. Why might intervention to preserve a historic building be justified, when the site could be put to more profitable use?

### Multiple Choice Questions

11. A positive externality exists when:
- marginal private benefit exceeds marginal social benefit;
  - marginal social benefit exceeds marginal private benefit;
  - marginal private cost equals marginal social cost;
  - there is over-provision of the good in question;
  - the good in question is a public good.
12. Which of the following is not a policy used to reduce negative externalities?:
- direct control of output or production;
  - imposition of standards;
  - subsidies to production;
  - physical removal;
  - taxation.
13. Cost-benefit analysis is:
- used by the Monopolies Commission in merger decisions;
  - used by banks in lending decisions to individuals;
  - a method of maximising profits;
  - a decision making procedure in private firms;
  - a particularly suitable technique for decision making in the public sector.

14. Which one of the following is not a principle of cost-benefit analysis?:
- a) identification;
  - b) measurement;
  - c) evaluation;
  - d) compensation to losers from the project;
  - e) discounting.
15. Estimating values of costs and benefits which do not have market prices is known as:
- a) cost-benefit analysis;
  - b) evaluation;
  - c) discounting;
  - d) shadow pricing;
  - e) shadow economics.

## **CHAPTER 19 The Provision of Goods and Services by the Public Sector**

### **Study guide**

For thirty years after World War Two a feature of the UK economy was the transfer of the provision of many goods and services from the private sector to the public. But the advantages claimed were not realised. Indeed the losses incurred by many industries, e.g. coal, railway, motor, were a recurrent drain on the public purse.

The achievement of the Thatcher government during the 1980s was in reopening Adam Smith's examination of the State's role in the economy. The conclusion was that only where there was an inherent weakness in the market economy could the State's taking over certain functions be justified. More than that, through the new 'privatisation' approach, functions were transferred from public to private provision.

This chapter concentrates largely on one cause of market failure - the inability of the market to provide indivisible *community* goods where free-riders cannot be excluded. Certain other goods it classifies into *collective* and *merit* goods since analytically there are subtle policy issues involved.

The privatisation philosophy questions whether other government activities could not be more efficiently provided by competition in the market. Because we are still in the learning process, especially as regards upholding customers' interests, you should watch out for developments in the activities of the watchdogs, e.g. OFGAS

## CHAPTER 19 Questions

1. Suggest four reasons why the state has to provide certain goods and services.
2. Why is no charge levied for listening to radio stations?
3. Why is education provided both by the private sector and by the public sector in the UK?
4. Suggest reasons for the government programme of privatisation in the UK since 1979.
5. What is the weakness of not charging for public services?
6. What problems arise in charging for health services?
7. When no charges are made for health care, how does the government control demand in practice?
8. If the use of a good or service is non-rival (use by one extra person does not impose a sacrifice on others because there is no increase in cost of provision), why should it be provided free of charge?
9. What are Public Private Partnerships (PPP)?
10. What is a Private Finance Initiative (PFI)?

## Multiple Choice Questions

11. Understating one's valuation of public goods in order to reduce the tax bill, is an example of:
  - a) the paradox of thrift;
  - b) the prisoner's dilemma;
  - c) the free-rider problem;
  - d) perverse demand;
  - e) disincentive effects.
12. Community goods cause instances of market failure because:
  - a) it is difficult to determine the optimal quantity of a community good;
  - b) there is no effective demand for community goods;
  - c) people will never pay for community goods;
  - d) no method of payment for community goods can be devised;
  - e) none of the above.
13. Housing, in economic terms, can be regarded as:
  - a) a merit good;
  - b) a public good;
  - c) a Giffen good;
  - d) an inferior good;
  - e) a service.

14. Which of the following is *not* a method of financing public provision of goods and services:
- a) government borrowing;
  - b) taxation;
  - c) user charges;
  - d) licence fees;
  - e) market pricing.
15. Privatisation does *not* lead to:
- a) increased government revenue;
  - b) improved efficiency;
  - c) increased government intervention;
  - d) wider share ownership;
  - e) more competition.

## **CHAPTER 20 Labour and Wages**

### **Study guide**

This chapter develops the first approach of Chapter 13 which looked at the demand for a factor service under conditions of perfect competition. The analysis is now applied to labour (particularly as regards the supply) and modifications are made to allow for immobility, imperfect competition, trade union influence and government policy. Note, however, that the basic explanation of the differences in wage-rates which exist between different occupations is still to be found in the marginal productivity theory. A wage-rate is higher in one line than in another because:

- (1) consumers put a greater value on the services of that type of labour.
- (2) the supply of that type of labour is less.

Trade unions and the government may make peripheral adjustments to the broad differences established by market demand and supply.

Note the factors determining the elasticity of demand for a productive service. They are:

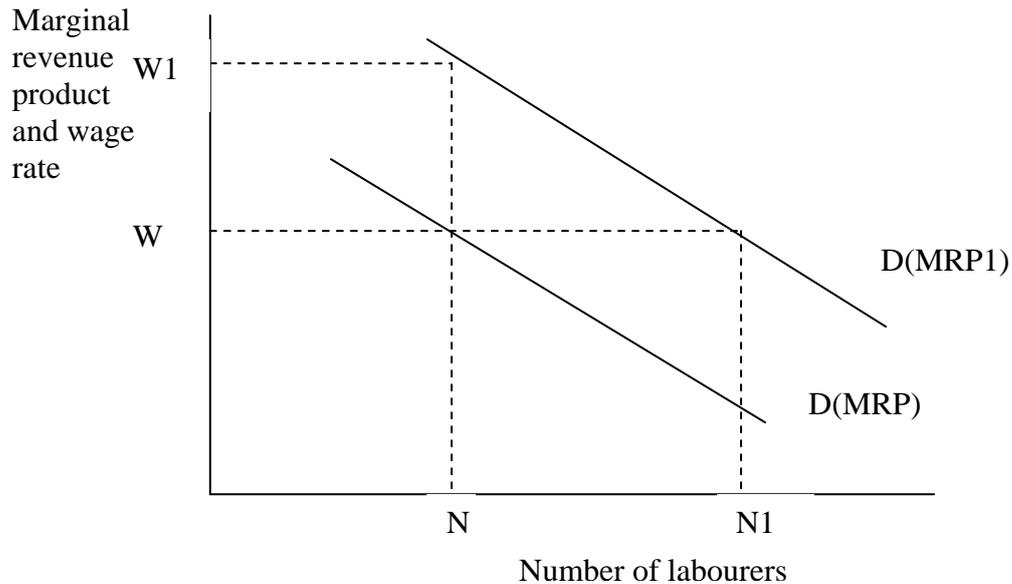
- (1) the ease with which another factor can be substituted for it;
- (2) the elasticity of supply of the alternative factor;
- (3) the cost of the factor as a proportion of total costs;
- (4) the elasticity of demand for the product made by the factor.

If the demand for labour is elastic, the power of a trade union to secure a wage increase is limited by the fact that a rise in wages will lead to a substantial drop in the demand for that type of labour.

In practice, negotiations between trade unions and employers are usually successful, strike action rarely having to be resorted to.

## CHAPTER 20 Questions

1. What is the effect on the demand for UK labour of the following:
  - a. tariff protection
  - b. an advertising campaign for UK goods
  - c. limiting the use of labour-saving equipment
  - d. an increase in the price of labour saving equipment
  
2. What is the effect on the supply of labour to a particular occupation of the following:
  - a. long apprenticeship periods
  - b. immigration restrictions
  - c. high failure rate in professional exams
  - d. high fees to enter an occupation
  
3. Define a. money wages; b. real wages.
  
4. Is the demand for power-station electricians likely to be elastic or inelastic? Indicate four relevant influences.
  
5. Why is the market for labour imperfect?
  
6. Why do skilled workers earn more than unskilled?
  
7. What are the practical difficulties of applying marginal-productivity theory to determination of wage rates?
  
8. Are there any disadvantages of linking wages to the cost of living?
  
9. In what ways does the UK housing market contribute to immobility of labour?
  
10. The diagram shows the effect on the wage rate of a change in marginal-revenue productivity:



If marginal revenue product increases from MRP to MRP1, what are the two possible results?

### Multiple Choice Questions

11. Which one of the following changes, other things being equal, is likely to cause the wage rate of bricklayers to rise?

- a) a decrease in the demand for houses;
- b) a depression in the building industry in Ireland;
- c) a decrease in the productivity of bricklayers;
- d) a decrease in the length of time it takes to train bricklayers;
- e) a reduction in the number of bricklayers entering the industry.

12. A trade union is most likely to be successful in obtaining a wage increase when:

- a) the demand for the product made by the labour is elastic;
- b) the supply of labour-saving equipment is elastic;
- c) labour costs form a very small proportion of total costs;
- d) a large part of the product made by the labour is sold in foreign markets;
- e) there is a lot of unemployment.

13. The demand curve for labour is shown by:

- a) the marginal physical product curve;
- b) the marginal revenue product curve;
- c) the marginal cost curve;
- d) the total cost curve;
- e) average revenue.

14. If a higher wage rate enables a worker to maintain their existing standard of living with fewer hours worked, the supply curve of their labour may be:

- a) backward sloping above a certain wage rate;
- b) perfectly elastic;
- c) perfectly inelastic;
- d) normal;
- e) none of the above.

15. If solicitors receive higher salaries than policemen, it is mainly because:

- a) they work longer hours than policemen;
- b) their work is more important than that of policemen;
- c) there is a higher proportion of policemen than solicitors;
- d) people with solicitor's training are more scarce than policemen;
- e) policemen have better working conditions.

## **CHAPTER 21` Capital and Interest**

### **Study guide**

To the individual, money wealth and titles to wealth (e.g. National Savings, share certificates) are capital, but to the community as a whole they are not. The reason can be seen if we study the National Debt, for this represents no real goods.

*Capital* to the economist usually refers to a factor of production. Thus 'investment' simply means an addition to capital goods, and not investment in the sense of buying shares, putting money on a horse or investing in the pools.

Accumulating capital means laying up a stock of wealth for *future* use. It involves forgoing present consumption. Thus, in considering capital, the *time element* is important. As we shall see (Chapter 30), this time element affects the level of activity of the economy as a whole.

This chapter analyses the rate of interest which has to be paid for liquid funds in particular uses. It is the price of such funds, and therefore depends upon demand and supply. We can build up a 'structure' of interest-rates according to the demand for supply of each particular type of loan.

We need, however, a different explanation of why the *general level* of interest rates is high or low. This is given in Chapter 24.

## CHAPTER 21 Questions

1. A woman prepares the following statement of income:

	£
salary for year	32000
deposit account at bank	500
interest on deposit account for year	33
child benefits for year	377

- a) What is her yearly income?
  - b) What is her capital?
2. Should consumer durable goods be included in natural capital?
3. Which of the following should be included in national capital?
- a. National Savings Certificates
  - b. Treasury Bills
  - c. The M1 motorway
  - d. Westminster Hospital
  - e. The British Museum
  - f. Gold in the vaults of the Bank of England
4. Distinguish between fixed and working (circulating) capital.
5. Distinguish between income and wealth.
6. Are share certificates part of national capital?
7. What is necessary in order to accumulate capital?
8. What is the marginal revenue product of capital?
9. Why does the marginal revenue product (MRP) curve of capital slope downwards to the right?
10. How does the rate of interest affect the demand for capital?

## Multiple Choice Questions

11. The main reason why capital-using methods of production have not been introduced more by underdeveloped countries is:

- a) the greater productivity of capital-using methods is not appreciated;
- b) the introduction of capital-using methods would lead to unemployment;
- c) the government allocates resources in other areas;
- d) underdeveloped countries cannot afford the sacrifice of current consumption necessary;
- e) capital is too expensive.

12. Which of the following would *not* be considered to be part of 'national capital' by an economist?

- a) share certificates;
- b) factories;
- c) motorways;
- d) machinery;
- e) school buildings.

13. The accumulation of capital requires:

- a) a savings account;
- b) great wealth;
- c) a sacrifice of current consumption;
- d) a sacrifice of future consumption;
- e) none of the above.

14. If investment in an economy falls:

- a) current living standards fall;
- b) future living standards fall;
- c) future living standards rise;
- d) economic growth increases;
- e) none of the above.

15. If MRP of capital increases:

- a) the rate of interest must rise;
- b) the rate of interest must fall;
- c) labour is substituted for capital;
- d) investment falls;
- e) investment rises.

## CHAPTER 22 Land and Rent

### Study guide

Land is an indispensable factor of production because space is required to produce. There is no need to distinguish land from any other factor service. It is 'rent' which the economist specially investigates.

'Rent' in economics means 'economic rent'. It is that part of the earnings of a factor service over its opportunity cost and arises because the supply of the factor service is not perfectly elastic - there is a degree of fixity. Opportunity cost is the factor's transfer cost - what has to be paid to keep it in its present use. This must be at least equal to what the factor service could earn in its best alternative use, or otherwise this use would obtain it.

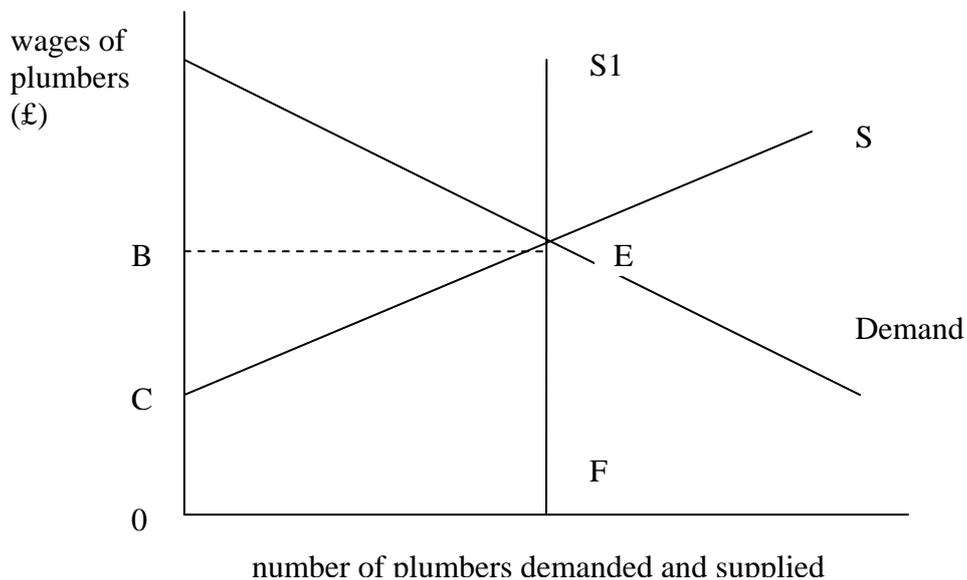
But the 'best alternative use' depends upon how widely the factor is defined. Land as a whole? Land for growing barley? As the definition becomes narrower so the alternatives increase and economic rent decreases. In the long run under perfect competition, a farmer will have to pay rent equal to the most profitable yield of the land to prevent it going to another farmer. This is the 'commercial rent' he pays; it is a cost.

The main application of the concept of rent is in the field of taxation: a lump sum tax can be levied up to the full amount of economic rent without affecting the supply of the factor. This is the theory behind a development tax on *increased* land values. Suppose an acre of land is worth £800 in its best current use, agriculture. Planning permission is obtained to build on it. Now its price rises to £100 800 per acre. The increased value (100 000) is economic rent. Other things being equal a farmer would sell the land at any price above £800. A development tax at 40% would make no difference to the supply of this land to building. The farmer obtains £60 800 (£100 000 - £40 000 tax), and so it is still profitable to sell.

### CHAPTER 22 Questions

1. Is 'the sea' a factor of production? If so, how should it be classified?
2. In what three senses is land not fixed in supply?
3. A three acre plot of land is only suitable for growing potatoes. The yield per acre of potatoes is two tonnes.
  - a. If potatoes sell for £100 per tonne, what is the revenue yield of the land?
  - b. What is the economic rent of the land?
  - c. If the price of potatoes fell to £80 per tonne, what would the economic rent of the land be?
  - d. Oil is discovered on the land, worth £5000; what is the economic rent of the land now?

4. David Beckham can earn £400 per week as a car salesman, whereas he can earn £100,000 per week as a footballer. What part of his earnings is economic rent?
5. Can the supernormal profits of a monopolist be regarded as a form of rent?
6. What is the advantage of levying a tax on a factor whose return is mainly economic rent?
7. What is the practical difficulty of levying a tax on a factor whose return is mainly economic rent?
8. Oil suddenly gushes from a piece of land that was derelict. Draw a diagram to show that a 50% tax on the owner's earnings from that oil will have no effect on the amount supplied.
9. How is it possible to increase office space in city centres if there is no available unoccupied land?
10. In the diagram:



- a) If the supply curve for plumbers is S, what is the economic rent earned by plumbers as a whole?
- b) If the supply curve for plumbers is S1, what would be the economic rent earned by plumbers?

### Multiple Choice Questions

11. The main reason why more rent has to be paid for office space in central London than for similar space outside London is:
  - a) the London offices cost more to build
  - b) the land in London costs more
  - c) London office owners are monopolists
  - d) London office space is more productive than other office space
  - e) transport costs are higher in London

12. The proportion of rent in the total receipts of a factor will be greater:
- a) the less elastic the demand for the product which the factor is used to make;
  - b) the lower is the marginal productivity of labour;
  - c) the less elastic is the supply of the factor;
  - d) the greater are the transfer earnings of the factor;
  - e) the more elastic is the supply of the factor.
13. 'Quasi-rent' refers to the earnings of:
- a) land held on a short lease;
  - b) land in the long period;
  - c) any durable factor in the long period;
  - d) a factor in elastic supply;
  - e) any factor for a period during which supply is fixed.
14. When the supply of a factor is perfectly inelastic:
- a) there is no economic rent;
  - b) economic rent is temporary;
  - c) the whole of the earnings of the factor is economic rent;
  - d) a small part of the earnings of the factor is economic rent;
  - e) none of the above.
15. The size of the economic rent earned by a factor depends on:
- a) elasticity of demand for the factor;
  - b) demand for the factor, how the factor is defined and its elasticity of supply;
  - c) the price of the product only;
  - d) the price of the factor only;
  - e) the price of land.

## **CHAPTER 23 Entrepreneurship and Profit**

### **Study guide**

Risk arises in particular types of production (oil-drilling) and where production takes place in advance of an uncertain demand. 'Entrepreneurship' accepts this risk, and it has to be paid at least its opportunity cost- 'normal profit'. The size of normal profit will vary according to the degree of risk involved and the willingness of people to accept that risk.

This chapter puts the emphasis on *persons* as entrepreneurs – those who take uncertainty-bearing decisions. An alternative approach, however, is to ask *what* is risked by entrepreneurs. The answer is the capital funds invested in fixed equipment, e.g. by buying shares in a company. Such funds can show either a good rate of return (profit) or loss. Any rate of return above the

*normal* rate required to keep funds in that particular industry is supernormal profit to capital invested in fixed factors. Again this normal rate of return will vary according to the risk involved. Thus an oil-exploration company will have to hold out the prospect of a higher rate of return than a company which is merely pumping oil from discovered wells.

It might be argued from the above that there is no need to have entrepreneurship as a separate factor of production. The advantage of doing so is that it stresses the role of uncertainty-bearing which is necessary in any economic system.

### **CHAPTER 23 Questions**

1. What type of risk is it possible to reduce to a cost?
2. What type of risk can be insured against?
3. What type of risk can not be insured against?
4. What is the principal function of an entrepreneur?
5. Will new industries expect a higher rate of profit than established ones?
6. Suggest a reason why profits might be relatively low in: insurance, flour milling and sugar refining.
7. Suggest a reason why profits might be relatively high in: oil exploration, gold mining and ladies fashions.
8. What functions does profit perform in a market economy?
9. Why do supernormal profits endure in monopoly?
10. In what ways can monopoly profits be considered
  - a. to be a bad thing?
  - b. to be a good thing?

### **Multiple Choice Questions**

11. In perfect competition:

- a) there are supernormal profits in the long-run;
- b) there are normal profits in the long-run;
- c) no profits are possible;
- d) high profits are necessary;
- e) none of the above.

12. In monopoly:

- a) there are supernormal profits in the long-run;
- b) there are normal profits in the long-run;
- c) no profits are possible;
- d) high profits are necessary;
- e) none of the above apply.

13. Entrepreneurs:

- a) must make profits;
- b) must make supernormal profits;
- c) must make normal profits;
- d) accept the risks of production;
- e) none of the above apply.

14. The level of normal profit:

- a) differs according to the riskiness of different industries;
- b) is always the same;
- c) can be insured;
- d) is restricted by government legislation;
- e) none of the above apply.

15. Monopoly profits:

- a) are illegal;
- b) can be made in perfect competition;
- c) are economic rent;
- d) are always temporary;
- e) benefit consumers.

## **CHAPTER 24 Money and the Rate of Interest**

### **Study guide**

The main function of money is as a medium of exchange but, because it fulfils this role, it performs other functions.

Money is also a link between the present and the future; it can be used as a store of wealth. In this it is no different to other ways of storing wealth – real goods, shares in companies, loans to the government, etc. But as a *particular* form of storing wealth, it does differ in that (a) it earns no return; (b) it is perfectly liquid. Changes in the desire to be liquid (that is, in the demand for money) or in the supply of liquidity have an impact on aggregate demand and thus on the level of activity or, near full employment, on the price level.

Keynes says that the impact on aggregate demand is through changes in the rate of interest – which affects investment spending and thus affects aggregate demand directly.

### **CHAPTER 24 Questions**

1. What is the major attribute which distinguishes money from all other assets?
2. Define 'liquidity'.

3. What is the percentage rate of interest on a nominal £100 3.5% government bond when the price is:  
a) £50; b) £175; c) £70
4. In the future we may have a 'cashless society'. What does this mean?
5. Will an investor buy a bond which yields £120 a year if the pure rate of interest is expected to rise to 12.5%? Find the capital value of the bond if the rate of interest does rise to 12.5%.
6. a) What is the 'reverse yield gap'?  
b) Why does the 'reverse yield gap' occur?
7. What is the major form of money in the UK?
8. What is 'liquidity preference'?
9. What is meant by 'near money'?
10. Why is the demand for money likely to fall as the rate of interest increases?

### Multiple Choice Questions

11. Which of the following is the most important characteristic of money?

- a) durability;
- b) divisibility;
- c) general acceptability;
- d) homogeneity;
- e) portability.

12. Which of the following is the major advantage of holding money as an asset?

- a) its liquidity;
- b) its value may rise with inflation;
- c) its foreign exchange value may change;
- d) it earns interest;
- e) none of the above.

13. Which of the following is the major disadvantage of holding money as an asset?

- a) it may be stolen;
- b) its foreign exchange value may change;
- c) its value may rise with inflation;
- d) it earns no income;
- e) none of the above.

14. A bond with a nominal value of £100 carries a fixed rate of interest of 8 per cent. If the bond matures in one year's time and has a current market value of £96, what is the market rate of interest?

- a) 12.5%
- b) 12%
- c) 8.3%
- d) 6%
- e) 5%

15. Money held for everyday purchases is:

- a) speculative demand for money;
- b) transactions demand for money;
- c) precautionary demand for money;
- d) interest elastic;
- e) not a liquid asset.