Microeconomics

2 Markets, demand and supply 29
3 Markets in action 55
4 The supply decision 85
5 Market structures 115
6 Wages and the distribution of income 159
7 Market failures and government policy 191
2.1 Demand 30
The relationship between demand and price 30
The demand curve 30
Other determinants of demand 32
Movements along and shifts in the demand curve 33

2.2 Supply 35
Supply and price 35
The supply curve 36
Other determinants of supply 36
Movements along and shifts in the supply curve 38

2.3 The determination of price 39
Equilibrium price and output 39
Movement to a new equilibrium 41

2.4 The free-market economy 47
Advantages of a free-market economy 47
Problems with a free-market economy 47
The mixed economy 48
Chapter 2

In this section of the book we focus on microeconomics. Despite being ‘small economics’ – in other words, the economics of the individual parts of the economy, rather than the economy as a whole – it is still concerned with many of the big issues of today.

We will study why the pattern of production and consumption changes over time; why some people are rich and others poor; why our lives seem to be dominated by market forces beyond our control. We will look at the world of big business at one extreme and highly competitive markets at the other. We will look at many of the seemingly intractable problems we face: from the growing problem of pollution, to our limited power as consumers, to the widening inequality of incomes in society.

We will look at how markets work. We will examine what determines how much of any product gets produced and sold, and why some goods rise in price, whereas others fall. In the process we will be looking at one of the most important theories in the whole of economics: the theory of supply and demand.

After studying this chapter, you should be able to answer the following questions:

- How do markets operate?
- What determines the amount that consumers buy of a product?
- What determines how much producers supply of a product?
- How are market prices determined and when are they likely to rise or fall?
- How do markets respond to changes in demand or supply?
- What are the major strengths and weaknesses of a free-market economy?
How much will people buy of any item?

The relationship between demand and price

The headlines announce, ‘Major crop failures in Brazil and East Africa: coffee prices soar’. Shortly afterwards you find that coffee prices have doubled in the shops. What do you do? Presumably you will cut back on the amount of coffee you drink. Perhaps you will reduce it from, say, six cups per day to two. Perhaps you will give up drinking coffee altogether.

This is simply an illustration of the general relationship between price and consumption: when the price of a good rises, the quantity demanded will fall. This relationship is known as the law of demand. There are two reasons for this law:

- People will feel poorer. They will not be able to afford to buy so much of the good with their money. The purchasing power of their income (their real income)\(^1\) has fallen. This is called the income effect of a price rise.
- The good will now be dearer relative to other goods. People will thus switch to alternative or ‘substitute’ goods. This is called the substitution effect of a price rise.

Similarly, when the price of a good falls, the quantity demanded will rise. People can afford to buy more (the income effect), and they will switch away from consuming alternative goods (the substitution effect).

Therefore, returning to our example of the increase in the price of coffee, we will not be able to afford to buy as much as before, and we will probably drink more tea, cocoa, fruit juices or even water instead.

A word of warning: be careful about the meaning of the words quantity demanded. They refer to the amount consumers are willing and able to purchase at a given price over a given period of time. They do not refer to what people would simply like to consume. You might like to own a luxury yacht, but your demand for luxury yachts will almost certainly be zero at the current price.

The demand curve

Consider the hypothetical data in Table 2.1. The table shows how many kilos of potatoes per month would be purchased at various prices.

Columns (2) and (3) show the demand schedules for two individuals, Tracey and Darren. Column (4), by contrast, shows the total market demand schedule. This is the total demand by all consumers. To obtain the market demand schedule for potatoes, we simply add up the quantities demanded at each price by all consumers: i.e. Tracey, Darren and everyone else who demands potatoes. Notice that we are talking about demand over a period of time (not at a point in time). Thus we would talk about daily demand, or weekly demand, or annual demand or whatever.

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\(^1\) ‘Real income’ is income measured in terms of its purchasing power: i.e. after taking price changes into account. Thus if prices doubled and your money income stayed the same, your real income would have halved. In other words, you would only be able to buy half as much as before with your income.
The demand schedule can be represented graphically as a demand curve. Figure 2.1 shows the market demand curve for potatoes corresponding to the schedule in Table 2.1. The price of potatoes is plotted on the vertical axis. The quantity demanded is plotted on the horizontal axis.

Point E shows that at a price of 100p per kilo, 100 000 tonnes of potatoes are demanded each month. When the price falls to 80p we move down the curve to point D. This shows that the quantity demanded has now risen to 200 000 tonnes per month. Similarly, if the price falls to 60p we move down the curve again to point C: 350 000 tonnes are now demanded. The five points on the graph (A–E) correspond to the figures in columns (1) and (4) of Table 2.1. The graph also enables us to read off the likely quantities demanded at prices other than those in the table.

A demand curve could also be drawn for an individual consumer. Like market demand curves, individuals’ demand curves generally slope downwards from left to right: the lower the price of a product, the more is a person likely to buy.

Two points should be noted at this stage:

- In textbooks, demand curves (and other curves too) are only occasionally used to plot specific data. More frequently they are used to illustrate general theoretical

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### Table 2.1

<table>
<thead>
<tr>
<th>Price (pence per kilo)</th>
<th>Tracey’s demand (kilos)</th>
<th>Darren’s demand (kilos)</th>
<th>Total market demand (tonnes: 000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 20</td>
<td>28</td>
<td>16</td>
<td>700</td>
</tr>
<tr>
<td>B 40</td>
<td>15</td>
<td>11</td>
<td>500</td>
</tr>
<tr>
<td>C 60</td>
<td>5</td>
<td>9</td>
<td>350</td>
</tr>
<tr>
<td>D 80</td>
<td>1</td>
<td>7</td>
<td>200</td>
</tr>
<tr>
<td>E 100</td>
<td>0</td>
<td>6</td>
<td>100</td>
</tr>
</tbody>
</table>

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### Figure 2.1

2.1 Demand curve

- A graph showing the relationship between the price of a good and the quantity of the good demanded over a given time period. Price is measured on the vertical axis; quantity demanded is measured on the horizontal axis. A demand curve can be for an individual consumer or group of consumers, or more usually for the whole market.

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TC 3

p11
arguments. In such cases, the axes will simply be price and quantity, with the units unspecified.

- The term demand ‘curve’ is used even when the graph is a straight line! In fact, when using demand curves to illustrate arguments we frequently draw them as straight lines – it’s easier.

### Other determinants of demand

Price is not the only factor that determines how much of a good people will buy. Demand is also affected by the following:

**Tastes.** The more desirable people find the good, the more they will demand. Tastes are affected by advertising, by fashion, by observing other consumers, by considerations of health and by the experiences from consuming the good on previous occasions.

The number and price of substitute goods (i.e. competitive goods). The higher the price of substitute goods, the higher will be the demand for this good as people switch from the substitutes. For example, the demand for coffee will depend on the price of tea. If tea goes up in price, the demand for coffee will rise.

The number and price of complementary goods. Complementary goods are those that are consumed together: cars and petrol, shoes and polish, fish and chips. The higher the price of complementary goods, the fewer of them will be bought and hence the less will be the demand for this good. For example, the demand for electricity will depend on the price of electrical goods. If the price of electrical goods goes up, so that fewer are bought, the demand for electricity will fall.

**Income.** As people’s incomes rise, their demand for most goods will rise. Such goods are called normal goods. There are exceptions to this general rule, however. As people get richer, they spend less on inferior goods such as cheap margarine, and switch to better-quality goods.

**Distribution of income.** If national income were redistributed from the poor to the rich, the demand for luxury goods would rise. At the same time, as the poor got poorer they might have to turn to buying inferior goods, whose demand would thus rise too.

**Expectations of future price changes.** If people think that prices are going to rise in the future, they are likely to buy more now before the price does go up.

To illustrate these six determinants, let us look at the demand for butter:

- Tastes: if it is heavily advertised, demand is likely to rise. If, on the other hand, there is a cholesterol scare, people may demand less for health reasons.
- Substitutes: if the price of margarine goes up, the demand for butter is likely to rise as people switch from one to the other.
- Complements: if the price of bread goes up, people will buy less bread and hence less butter to spread on it.
- Income: if people’s incomes rise, they may well turn to consuming butter rather than margarine, or feel that they can afford to spread butter more thickly on their bread.
- Income distribution: if income is redistributed away from the poor, they may have to give up consuming butter and buy cheaper margarine instead, or simply buy less butter and use it more sparingly.
Expectations: if it is announced in the news that butter prices are expected to rise in the near future, people are likely to buy more now and stock up their freezers while current prices last.

Movements along and shifts in the demand curve

A demand curve is constructed on the assumption that ‘other things remain equal’ (sometimes known by the Latin term *ceteris paribus*). In other words, it is assumed that none of the determinants of demand, other than price, changes. The effect of a change in price is then simply illustrated by a movement along the demand curve: for example, from point B to point D in Figure 2.1 when the price of potatoes rises from 40p to 80p per kilo.

What happens, then, when one of these other determinants does change? The answer is that we have to construct a whole new demand curve: the curve shifts. If a change in one of the other determinants causes demand to rise – say, income rises – the whole curve will shift to the right. This shows that at each price, more will be demanded than before. Thus in Figure 2.2 at a price of $P$, a quantity of $Q_0$ was originally demanded. But now, after the increase in demand, $Q_1$ is demanded. (Note that $D_1$ is not necessarily parallel to $D_0$.)

If a change in a determinant other than price causes demand to fall, the whole curve will shift to the left.

To distinguish between shifts in and movements along demand curves, it is usual to distinguish between a change in *demand* and a change in the *quantity demanded*. A shift in demand is referred to as a *change in demand*, whereas a movement along the demand curve as a result of a change in price is referred to as a *change in the quantity demanded*.

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2 We make this assumption to keep the analysis simple at the outset. We can then drop the assumption by changing things one at a time and seeing what happens.
**Chapter 2 • Markets, demand and supply**

**BOX 2.1 GETTING SATISFACTION**

**Characteristics, utility and the demand curve**

When you buy something, it’s normally because you want it. You want it because you expect to get pleasure, satisfaction or some other sort of benefit from it. This applies to everything from cups of coffee, to train journeys, to music downloads, to jeans, to insurance. Economists use the term ‘utility’ to refer to the benefit we get from consumption.

Kelvin Lancaster* popularised the idea that individuals derive their utility from the characteristics or attributes of goods and services. So, for instance, the utility we derive from that morning cup of tea or coffee may come from outputs such as ‘the quenching of thirst’ and ‘flavour’. It may be that each morning we decide to consume our drink in our favourite coffee shop. Then, in fact, the utility is influenced not only by the characteristics of the tea or coffee itself but from the characteristics of the environment in which we are consuming our drink.

Clearly, the nature and amount of utility that people get varies from one product to another, and from one person to another. But there is a simple rule that applies to virtually all people and all products.

As you consume more of a product, and thus become more satisfied, so your desire for additional units of it will decline. Economists call this rule the **principle of diminishing marginal utility**.

For example, the second cup of tea in the morning gives you less additional satisfaction than the first cup. The third cup gives less still. We call the additional utility you get from consuming an extra unit of a product the **marginal utility (MU)**. So the rule says that the marginal utility will fall as we consume more of a product over a given period of time.

There is a problem, however, with the concept of marginal utility. How can it be measured? After all, we cannot get inside each other’s heads to find out just how much pleasure we are getting from consuming a product! One way round the problem is to measure marginal utility in money terms: in other words, the amount that a person would be prepared to pay for one more unit of a product. Thus if you were prepared to pay 50p for an extra packet of crisps per week, then we would say that your marginal utility from consuming it is 50p. As long as you are prepared to pay more or the same as the actual price, you will buy an extra packet. If you are not prepared to pay that price, you will not.

We can now see how this relates to a downward-sloping demand curve. As the price of a good falls, it will be worth buying extra units. You will buy more because the price will now be below the amount you are prepared to pay: i.e. price is less than your marginal utility. But as you buy more, your marginal utility from consuming each extra unit will get less and less. How many extra units do you buy? You will stop when the marginal utility has fallen to the new lower price of the good: when \( MU = P \).

Marginal utility analysis is explored further in Web Appendix 2.1. An alternative approach to analysing demand, known as ‘indifference analysis’, is explored in Web Appendix 2.2.

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**Definitions**

<table>
<thead>
<tr>
<th>Principle of diminishing marginal utility</th>
<th>Marginal utility (MU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>As more units of a good are consumed, additional units will provide less additional satisfaction than previous units.</td>
<td>The extra satisfaction gained from consuming one extra unit of a good within a given time period.</td>
</tr>
</tbody>
</table>

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Recap

1. When the price of a good rises, the quantity demanded per period of time will fall. This is known as the ‘law of demand’. It applies both to individuals’ demand and to the whole market demand.

2. The law of demand is explained by the income and substitution effects of a price change.

3. The relationship between price and quantity demanded per period of time can be shown in a table (or ‘schedule’) or as a graph. On the graph, price is plotted on the vertical axis and quantity demanded per period of time on the horizontal axis. The resulting demand curve is downward sloping (negatively sloped).

4. Other determinants of demand include tastes, the number and price of substitute goods, the number and price of complementary goods, income, the distribution of income and expectations of future price changes.

5. If price changes, the effect is shown by a movement along the demand curve. We call this effect ‘a change in the quantity demanded’.

6. If any other determinant of demand changes, the whole curve will shift. We call this effect ‘a change in demand’. A rightward shift represents an increase in demand; a leftward shift represents a decrease in demand.

How much of any item will firms want to produce?

Supply and price

Imagine you are a farmer deciding what to do with your land. Part of your land is in a fertile valley. Part is on a hillside where the soil is poor. Perhaps, then, you will consider growing vegetables in the valley and keeping sheep on the hillside.

Your decision will largely depend on the price that various vegetables will fetch in the market and likewise the price you can expect to get from sheep and wool. As far as the valley is concerned, you will plant the vegetables that give the best return. If, for example, the price of potatoes is high, you will probably use a lot of the valley for growing potatoes. If the price gets higher, you may well use the whole of the valley, perhaps being prepared to run the risk of potato disease. If the price is very high indeed, you may even consider growing potatoes on the hillside, even though the yield per hectare is much lower there. In other words, the higher the price of a particular crop, the more you are likely to grow in preference to other crops.

This illustrates the general relationship between supply and price: when the price of a good rises, the quantity supplied will also rise. There are three reasons for this:

- As firms supply more, they are likely to find that beyond a certain level of output costs rise more and more rapidly. Only if price rises will it be worth producing more and incurring these higher costs.

In the case of the farm we have just considered, once potatoes have to be grown on the hillside, the costs of producing them will increase. Also, if the land has to be used more intensively, say by the use of more and more fertilisers, again the costs of producing extra potatoes are likely to rise quite rapidly. It is the same for manufacturers. Beyond a certain level of output, costs are likely to rise rapidly as workers have to be paid overtime and as machines approach capacity working. If higher output involves higher costs of production, producers will need to get a higher price if they are to be persuaded to produce extra output.
The higher the price of the good, the more profitable it becomes to produce. Firms will thus be encouraged to produce more of it by switching from the production of less profitable goods.

Given time, if the price of a good remains high, new producers will be encouraged to set up in production. Total market supply thus rises.

The first two determinants affect supply in the short run. The third affects supply in the long run. We distinguish between short-run and long-run supply in Chapter 3 (page 70).

The supply curve

The amount that producers would like to supply at various prices can be shown in a supply schedule. Table 2.2 shows a monthly supply schedule for potatoes, both for an individual farmer (farmer X) and for all farmers together (the whole market).

The supply schedule can be represented graphically as a supply curve. A supply curve may be an individual firm’s supply curve or a market curve (i.e. that of the whole industry).

Figure 2.3 shows the market supply curve of potatoes. As with demand curves, price is plotted on the vertical axis and quantity on the horizontal axis. Each of the points a–e corresponds to a figure in Table 2.2. For example, a price rise from 60p per kilo to 80p per kilo will cause a movement along the supply curve from point c to point d: total market supply will rise from 350 000 tonnes per month to 530 000 tonnes per month.

Not all supply curves will be upward-sloping (positively sloped). Sometimes they will be vertical, or horizontal, or even downward-sloping. This will depend largely on the time period over which firms’ response to price changes is considered. This question is examined in Chapter 3 in the section on the elasticity of supply (Section 3.3) and in more detail in Chapters 4 and 5.

Other determinants of supply

Like demand, supply is not simply determined by price. The other determinants of supply are as follows:

The costs of production. The higher the costs of production, the less profit will be made at any price. As costs rise, firms will cut back on production, probably switching to alternative products whose costs have not risen so much.

The main reasons for a change in costs are:

- Change in input prices: costs of production will rise if wages, raw material prices, rents, interest rates or any other input prices rise.
Change in technology: technological advances can fundamentally alter the costs of production. Consider, for example, how the microchip revolution has changed production methods and information handling in virtually every industry in the world.

Organisational changes: various cost savings can be made in many firms by reorganising production.

Government policy: costs will be lowered by government subsidies and raised by various taxes.

The profitability of alternative products (substitutes in supply). If some alternative product (a substitute in supply) becomes more profitable to supply than before, producers are likely to switch from the first good to this alternative. Supply of the first good falls. Other goods are likely to become more profitable if their prices rise or their costs of production fall. For example, if the price of carrots goes up, or the cost of producing carrots comes down, farmers may decide to produce more carrots. The supply of potatoes is therefore likely to fall.

The profitability of goods in joint supply. Sometimes when one good is produced, another good is also produced at the same time. These are said to be goods in joint supply. An example is the refining of crude oil to produce petrol. Other grade fuels will be produced as well, such as diesel and paraffin. If more petrol is produced, due to a rise in demand, then the supply of these other fuels will rise too.

Nature, ‘random shocks’ and other unpredictable events. In this category we would include the weather and diseases affecting farm output, wars affecting the supply of imported raw materials, the breakdown of machinery, industrial disputes, earthquakes, floods and fire, and so on.

The aims of producers. A profit-maximising firm will supply a different quantity from a firm that has a different aim, such as maximising sales. For most of the time we shall assume that firms are profit maximisers.
Expectations of future price changes. If price is expected to rise, producers may temporarily reduce the amount they sell. Instead they are likely to build up their stocks and release them on to the market only when the price does rise. At the same time they may plan to produce more, by installing new machines, or taking on more labour, so that they can be ready to supply more when the price has risen.

**The number of suppliers.** If new firms enter the market, supply is likely to rise.

**Movements along and shifts in the supply curve**

The principle here is the same as with demand curves. The effect of a change in price is illustrated by a movement along the supply curve: for example, from point \( d \) to point \( e \) in Figure 2.3 when price rises from 80p to 100p. Quantity supplied rises from 530,000 to 700,000 tonnes per month.

If any other determinant of supply changes, the whole supply curve will shift. A rightward shift illustrates an increase in supply. A leftward shift illustrates a decrease in supply. Thus in Figure 2.4, if the original curve is \( S_0 \), the curve \( S_1 \) represents an increase in supply (more is supplied at each price), whereas the curve \( S_2 \) represents a decrease in supply (less is supplied at each price).

A movement along a supply curve is often referred to as a **change in the quantity supplied**, whereas a shift in the supply curve is simply referred to as a **change in supply**.

**Definitions**

<table>
<thead>
<tr>
<th>Change in the quantity supplied</th>
<th>Change in supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>The term used for a movement along the supply curve to a new point. It occurs when there is a change in price.</td>
<td>The term used for a shift in the supply curve. It occurs when a determinant other than price changes.</td>
</tr>
</tbody>
</table>
Recap

1. When the price of a good rises, the quantity supplied per period of time will usually also rise. This applies both to individual producers’ supply and to the whole market supply.

2. There are two reasons in the short run why a higher price encourages producers to supply more: (a) they are now willing to incur higher costs per unit associated with producing more; (b) they will switch to producing this product instead of now less profitable ones. In the long run there is a third reason: new producers will be attracted into the market.

3. The relationship between price and quantity supplied per period of time can be shown in a table (or schedule) or as a graph. As with a demand curve, price is plotted on the vertical axis and quantity per period of time on the horizontal axis. The resulting supply curve is upward-sloping (positively sloped).

4. Other determinants of supply include the costs of production, the profitability of alternative products, the profitability of goods in joint supply, random shocks and expectations of future price changes.

5. If price changes, the effect is shown by a movement along the supply curve. We call this effect ‘a change in the quantity supplied’.

6. If any determinant other than price changes, the effect is shown by a shift in the whole supply curve. We call this effect ‘a change in supply’. A rightward shift represents an increase in supply; a leftward shift represents a decrease in supply.

THE DETERMINATION OF PRICE

How much of any item will actually be bought and sold and at what price?

Equilibrium price and output

We can now combine our analysis of demand and supply. This will show how the actual price of a product and the actual quantity bought and sold are determined in a free and competitive market.

Let us return to the example of the market demand and market supply of potatoes, and use the data from Tables 2.1 and 2.2. These figures are given again in Table 2.3.

What will be the price and output that actually prevail? If the price started at 20p per kilo, demand would exceed supply by 600 000 tonnes ($A - a$). Consumers would be unable to obtain all they wanted and would thus be willing to pay a higher price. Producers, unable or unwilling to supply enough to meet the demand, will be only too happy to accept a higher price. The effect of the shortage, then, will be to drive up the price. The same would happen at a price of 40p per kilo. There would still be a shortage; price would still rise. But as the price rises, the quantity demanded falls and the quantity supplied rises. The shortage is progressively eliminated.

<table>
<thead>
<tr>
<th>Price of potatoes (pence per kilo)</th>
<th>Total market demand (tonnes: 000s)</th>
<th>Total market supply (tonnes: 000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>700 (A)</td>
<td>100 (a)</td>
</tr>
<tr>
<td>40</td>
<td>500 (B)</td>
<td>200 (b)</td>
</tr>
<tr>
<td>60</td>
<td>350 (C)</td>
<td>350 (c)</td>
</tr>
<tr>
<td>80</td>
<td>200 (D)</td>
<td>530 (d)</td>
</tr>
<tr>
<td>100</td>
<td>100 (E)</td>
<td>700 (e)</td>
</tr>
</tbody>
</table>
What would happen if the price started at a much higher level: say at 100p per kilogram? In this case supply would exceed demand by 600,000 tonnes ($e - E$). The effect of this surplus would be to drive the price down as farmers competed against each other to sell their excess supplies. The same would happen at a price of 80p per kilo. There would still be a surplus; price would still fall.

In fact, only one price is sustainable. This is the price where demand equals supply: namely 60p per kilogram, where both demand and supply are 350,000 tonnes. When supply matches demand the market is said to clear. There is no shortage and no surplus.

As we saw on page 21, the price, where demand equals supply, is called the equilibrium price. In Table 2.3, if the price starts at other than 60p per kilo, there will be a tendency for it to move towards 60p. The equilibrium price is the only price at which producers’ and consumers’ wishes are mutually reconciled: where the producers’ plans to supply exactly match the consumers’ plans to buy.

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**Definition**

**Market clearing**

A market clears when supply matches demand, leaving no shortage or surplus.

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**KEY IDEA**

Equilibrium is the point where conflicting interests are balanced. Only at this point is the amount that demanders are willing to purchase the same as the amount that suppliers are willing to supply. It is a point which will be automatically reached in a free market through the operation of the price mechanism. This is another of our threshold concepts. For details, visit MyEconLab.

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**Demand and supply curves**

The determination of equilibrium price and output can be shown using demand and supply curves. Equilibrium is where the two curves intersect.

Figure 2.5 shows the demand and supply curves of potatoes corresponding to the data in Table 2.3. Equilibrium price is $P_e$ (60p) and equilibrium quantity is $Q_e$ (350,000 tonnes).
At any price above 60p, there would be a surplus. Thus at 80p there is a surplus of 330 000 tonnes \((d - D)\). More is supplied than consumers are willing and able to purchase at that price. Thus a price of 80p fails to clear the market. Price will fall to the equilibrium price of 60p. As it does so, there will be a movement along the demand curve from point \(D\) to point \(C\), and a movement along the supply curve from point \(d\) to point \(c\).

At any price below 60p, there would be a shortage. Thus at 40p there is a shortage of 300 000 tonnes \((B - b)\). Price will rise to 60p. This will cause a movement along the supply curve from point \(b\) to point \(c\) and along the demand curve from point \(B\) to point \(C\).

Point \(Cc\) is the equilibrium: where demand equals supply.

**Movement to a new equilibrium**

The equilibrium price will remain unchanged only so long as the demand and supply curves remain unchanged. If either of the curves shifts, a new equilibrium will be formed.

**A change in demand**

If one of the determinants of demand changes (other than price), the whole demand curve will shift. This will lead to a movement along the supply curve to the new intersection point.

For example, in Figure 2.6, if a rise in consumer incomes led to the demand curve shifting to \(D_2\), there would be a shortage of \(h - g\) at the original price \(P_{e1}\). This would cause price to rise to the new equilibrium \(P_{e2}\). As it did so, there would be a movement along the supply curve from point \(g\) to point \(i\), and along the new demand curve \((D_2)\) from point \(h\) to point \(i\). Equilibrium quantity would rise from \(Q_{e1}\) to \(Q_{e2}\).

The effect of the shift in demand, therefore, has been a movement along the supply curve from the old equilibrium to the new: from point \(g\) to point \(i\).
BOX 2.2 UK HOUSE PRICES

From raising the roof to falling through the floor

Headlines about UK house prices are commonplace. If we draw up a list of British obsessions we could perhaps add house prices to a list, including the weather, football and the lives of the rich and famous! Sometimes these headlines speak of rapidly increasing house prices and the problems facing households looking to get their feet on the first rung of the housing ladder. At other times, the headlines refer to falling house prices and the possibility that some households will be faced with ‘negative housing equity’ whereby the outstanding value of a mortgage is greater than the value of the property against which it is secured.

These changing headlines reflect two important characteristics of UK house prices: (i) their volatility; and (ii) their tendency to rise over the long term. These characteristics can be observed in the chart. House prices in 2008 were some 44 times higher than back in 1970, equivalent to an annual increase of around about 10.5 per cent. During the same period, consumer prices increased by the much smaller factor of 10.4 and this equates to an annual increase of 6.4 per cent. The fact that actual or nominal UK house prices have increased more quickly than consumer prices leads economists to talk about an increase in the real price of housing. In other words, the price of housing has increased relative to the average price of a basket of consumer goods and services.

House prices have not only grown more quickly than the average price of consumer goods and services, they have also increased more quickly than incomes. Household incomes increased by some 9 per cent a year between 1970 and 2008, some $1/2$ percentage points less than house prices. While the difference might not seem a lot in a single year, it is quite significant over time and helps explain why UK house prices increased from around $2\frac{1}{2}$ times annual income in 1970 to over 4 times annual income in 2008.

The chart nicely captures the volatility in house prices. This is done by observing the annual rate of change in house prices, better known as the annual rate of house price inflation. There were marked increases in house prices in the early 1970s and early 1980s, with annual house price inflation rates approaching or exceeding 30 per cent. On each occasion house price inflation rates soon moderated, but house prices continued to increase.

We see further very strong growth in house prices in the late 1980s, but this time it is followed by house price falls. Indeed, house prices fell in each of the first four years of the 1990s. By the end of the 1990s house price inflation picked up again and the UK experienced a protracted period of robust growth.

Source: Based on data from Department of Communities and Local Government
But by 2008 the UK was again experiencing falling house prices. It is fair to say that UK house prices have truly been on a roller-coaster ride!

**The determinants of house prices**

House prices are determined by demand and supply. If demand rises (i.e. shifts to the right) or if supply falls (i.e. shifts to the left), the equilibrium price of houses will rise. Similarly, if demand falls or supply rises, the equilibrium price will fall.

But why have UK house prices increased over the long term and more quickly than incomes and consumer prices? The answer is that demand has grown faster than supply. And why have we seen such volatility in house prices? The answer here lies in fluctuations in demand combined with a stock of housing that changes only slowly.

Let us examine the various factors that affected the demand for houses.

*Incomes (actual and anticipated).* The second half of the 1980s and from 1997 to 2007 were periods of rapidly rising incomes. The economy was experiencing an economic ‘boom’. Many people wanted to spend their extra incomes on housing: either buying a house for the first time, or moving to a better one. What is more, many people thought that their incomes would continue to grow, and were thus prepared to stretch themselves financially in the short term by buying an expensive house, confident that their mortgage payments would become more and more affordable over time.

The early 1990s and 2008/9, by contrast, were periods of recession, with rising unemployment and either falling or much more slowly growing incomes. People had much less confidence about their ability to afford large mortgages.

*The desire for home ownership.* Many British households aspire to owner-occupation. This has often been reflected in government policies. Two examples include tax relief on mortgage interest payments and the ‘right to buy scheme’ which, initiated under Prime Minister Thatcher’s government in the 1980s, gives council tenants the right to buy their property from councils or housing associations. In the 1980s, both these policies were believed to have fuelled the growth in housing demand. Tax relief on home loans was subsequently reduced and then removed in April 2000.

*The cost of mortgages.* Interest rates affect the cost of servicing a given mortgage. Debt servicing relates to the repayment of capital and to interest payments. When interest rates fall, the costs of servicing debt fall. This helps to fuel the demand for housing. During the period from 1997 interest rates were historically low which enabled people to afford larger mortgages and thus afford to buy more expensive houses. In contrast, at the end of the 1980s and into the early 1990s, and again from 2004 to 2008, interest rates were rising. Mortgages were becoming increasingly unaffordable for many people.

*The availability of mortgages.* In the two housing boom periods of the late 1980s and from 1997 to 2007, mortgages were readily available. With house prices rising, banks and building societies were prepared to accept smaller deposits on houses, and to lend a larger multiple of people’s income. After all, if borrowers were to default, lenders would still have a very good chance of getting all their money back.

In the early 1990s, however, and again from 2008, banks and building societies were more cautious about granting mortgages. They were aware that, with falling house prices, rising unemployment and the growing problem of negative equity, there was an increased danger that borrowers would default on payments.

Speculation. A belief that house prices will continue to move in a particular direction can exacerbate house price movements. For instance, both in the late 1980s and during much of the 2000s there was a belief that house prices would continue to rise. This encouraged people to buy as soon as possible, and to take out the biggest mortgage possible, before prices went up any further. There was also an effect on supply. Those with houses to sell held back until the last possible moment in the hope of getting a higher price. The net effect was for a rightward shift in the demand curve for houses and a leftward shift in the supply curve. The effect of this speculation, therefore, was to help bring about the very effect that people were predicting (see Section 3.5).

In the early 1990s, and again from 2008, the opposite occurred. With house prices falling, those thinking of buying houses held back, hoping to buy at a lower price. People with houses to sell tried to sell as quickly as possible before prices fell any further. Again the effect of this speculation was to aggravate the change in prices – this time a fall in prices.

Thus speculation tends to increase house price volatility.

1. **Draw supply and demand diagrams to illustrate what happened to UK house prices (a) during the early and middle parts of the 2000s; (b) during the late 2000s.**
2. **What similarities exist between the causes of the house price boom and bust of the late 1980s/early 1990s and that of the 2000s?**
3. **If actual house prices are rising can real house prices fall? Explain you answer.**
Firms that are quoted on the stock market (see Case Study 4.1 in MyEconLab) can raise money by issuing shares. These are sold on the ‘primary stock market’.

People who own the shares receive a ‘dividend’ on them, normally paid six-monthly. The amount varies with the profitability of the company.

People or institutions that buy these shares, however, may not wish to hold on to them forever. This is where the ‘secondary stock market’ comes in. It is where existing shares are bought and sold. There are stock markets, primary and secondary, in all the major countries of the world.

There are more than 3200 shares and other securities listed on the London Stock Exchange and trading in them takes place each Monday to Friday (excluding Bank Holidays). The prices of shares depend on demand and supply. For example, if the demand for Tesco shares at any one time exceeds the supply on offer, the price will rise until demand and supply are equal. Share prices fluctuate throughout the trading day and sometimes price changes can be substantial.

To give an overall impression of share price movements, stock exchanges publish share price indices. The best-known one in the UK is the FTSE (‘footsie’) 100, which stands for the ‘Financial Times Stock Exchange’ index of the 100 largest companies’ shares. The index represents an average price of these 100 shares.

The index was first calculated on 3 January 1984 with a base level of 1000 points. The chart shows the opening monthly value of the FTSE 100 since January 1995.

From its start in 1984 to the end of 2008, the FTSE 100 increased by an average of 7.7 per cent each year. However, this figure masks some significant variations in the prices of shares. For instance, the first three years of the new millennium saw the FTSE 100 fall by some 43 per cent and in 2008 the index fell by almost one-third!

In contrast, share prices rose by 132 per cent from 1995 to 2000. The long-run upward trend in share prices combined with their volatility is something we also see in UK house prices (see Box 2.2).

But what causes share prices to change? Why were they so high in 1999, but only just over half that value just three years later? The answer lies in the determinants of the demand and supply of shares.

**Demand**

There are five main factors that affect the demand for shares.

The dividend yield. This is the dividend on a share as a percentage of its price. The higher the dividend yields on shares the more attractive they are as a form of saving. One of the main explanations of rising stock market prices from 2003 to 2007 was high profits and resulting high dividends. Similarly, the slowdown in the world economy after 2007 led to falling profits and falling dividends.

The price of and/or return on substitutes. The main substitutes for shares in specific companies are other shares. Thus if, in comparison with other shares, Tesco shares are expected to pay high dividends relative to the...
slowing of economic growth. This combined with other
the decade many countries experienced a temporary
persists it can cause significant falls. In the early part of
people hold back from buying. If this negative sentiment
shaken. Negative sentiment helps to push prices down as
further fuel speculation and further share buying. Of course, this
These positive sentiments encouraged people to buy
shares and pushed prices up even more. Of course, this
in the mid-2000s. Much of the wealth worldwide
in a form that can
easily be turned into cash (and hence used to buy shares).

Incomes. If the economy is growing rapidly and people’s
incomes are thus rising rapidly, they are likely to buy more
shares. For instance, in the second half of the 1990s,
when household sector disposable income grew by an
average of 3 per cent per year, share prices rose rapidly
(see chart).

Wealth. ‘Wealth’ or ‘net worth’ is the accumulated value of
people’s financial and physical assets, less any financial
liabilities (see Chapter 8)). The households sector’s wealth
increased in the second half of the 1990s and people
used their increased wealth to buy shares. It was a similar
picture in the mid-2000s. Much of the wealth worldwide
was in relatively ‘liquid’ form – i.e. in a form that can
easily be turned into cash (and hence used to buy shares).

Expectations. In both the mid- to late 1980s and the
1990s, people expected share prices to go on rising.
In the 1980s there was a sense that the UK economy
had undergone a transformation enabling permanently
higher rates of economic growth. In the case of the late
1990s, reforms to policy-making, including central bank
independence (see Chapter 12), again suggested better
economic times lay ahead and an end to ‘boom and bust’.
These positive sentiments encouraged people to buy
shares and pushed prices up even more. Of course, this
can further fuel speculation and further share buying.

By contrast, the early and late 2000s saw confidence
shaken. Negative sentiment helps to push prices down as
people hold back from buying. If this negative sentiment
persists it can cause significant falls. In the early part of
the decade many countries experienced a temporary
slowing of economic growth. This combined with other
negative factors, such as the 11 September 2001 attack
on the World Trade Center and various corporate scandals,
such as the accounting fraud concerning the giant US
company Enron.

In the late 2000s, there was a global financial crisis
followed by a severe economic slowdown. Stock markets
plummeted. Between October 2007 and 2008 the FTSE
100 fell by almost a half (see chart). Furthermore the FTSE
and other stock markets around the world moved wildly as
investors tried to gauge of the severity of the crisis. Share
prices moved sharply in response to releases of economic
data, firms’ trading figures and policy initiatives designed
to stabilise the financial system and to get banks lending
again.

Supply
The factors affecting supply are largely the same as those
affecting demand, but in the opposite direction.

If the return on alternative forms of saving falls, people
with shares are likely to hold on to them, as they represent
a better form of saving. The supply of shares to the market
will fall. If incomes or wealth rises, people again are likely
to want to hold on to their shares.

As far as expectations are concerned, if people believe
that share prices will rise, they will hold on to the shares
they have. Supply to the market will fall, thereby pushing
up prices. If, however, they believe that prices will fall,
as they did in 2008, they will sell their shares now before
prices do fall. Supply will increase, driving down the
price.

Share prices and business
Companies are crucially affected by their share price. If a
company’s share price falls, this is taken as a sign that
‘the market’ is losing confidence in the company. This will
make it more difficult to raise finance, not only by issuing
additional shares in the primary market, but also from
banks.

It will also make the company more vulnerable to a
takeover bid. This is where one company seeks to buy out
another by offering to buy all its shares. A takeover will
succeed if the owners of more than half of the company’s
shares vote to accept the offered price. Shareholders are
more likely to agree to the takeover if the company’s
shares have not being doing very well recently.

1. If the rate of economic growth in the economy is
3 per cent in a particular year, can we expect
share prices to rise by 3 per cent that year?
Explain your answer.

2. Of what importance do you think the publication
of economic and financial data by firms and
governments is in affecting share prices?
A change in supply

Likewise, if one of the determinants of supply changes (other than price), the whole supply curve will shift. This will lead to a movement along the demand curve to the new intersection point.

For example, in Figure 2.7, if costs of production rose, the supply curve would shift to the left: to $S_2$. There would be a shortage of $g - j$ at the old price of $P_{e1}$. Price would rise from $P_{e1}$ to $P_{e3}$. Quantity would fall from $Q_{e1}$ to $Q_{e3}$. In other words, there would be a movement along the demand curve from point $g$ to point $k$, and along the new supply curve ($S_2$) from point $j$ to point $k$.

To summarise: a shift in one curve leads to a movement along the other curve to the new intersection point. Sometimes a number of determinants might change. This may lead to a shift in both curves. When this happens, equilibrium simply moves from the point where the old curves intersected to the point where the new ones intersect.

Pause for thought

Is the following statement true? ‘An increase in demand will cause an increase in price. This increase in price will cause a reduction in demand, until demand is reduced back to its original level.’ Explain your answer and try using a demand and supply diagram to illustrate what is going on.

Recap

1. If the demand for a good exceeds the supply, there will be a shortage. This will lead to a rise in the price of the good.
2. If the supply of a good exceeds the demand, there will be a surplus. This will lead to a fall in the price.
3. Price will settle at the equilibrium. The equilibrium price is the one that clears the market: the price where demand equals supply.
4. If the demand or supply curve shifts, this will lead either to a shortage or to a surplus. Price will therefore either rise or fall until a new equilibrium is reached at the position where the supply and demand curves now intersect.
THE FREE-MARKET ECONOMY

How well does it serve us?

Advantages of a free-market economy

The fact that a free-market economy functions automatically is one of its major advantages. There is no need for costly and complex bureaucracies to co-ordinate economic decisions. The economy can respond quickly to changing demand and supply conditions.

When markets are highly competitive, no one has great power. Competition between firms keeps prices down and acts as an incentive to firms to become more efficient. The more firms there are competing, the more responsive they will be to consumer wishes.

The more efficiently firms can combine their factors of production, the more profit they will make. The more efficiently workers work, the more secure will be their jobs and the higher their wages. The more carefully consumers decide what to buy, the greater the value for money they will receive.

Thus people pursuing their own self-interest through buying and selling in competitive markets helps to minimise the central economic problem of scarcity, by encouraging the efficient use of the nation’s resources in line with consumer wishes. From this type of argument, the following conclusion is often drawn by defenders of the free market: ‘The pursuit of private gain results in the social good.’ This is obviously a highly significant claim and has profound moral implications (see Threshold Concepts 5 and 6).

Problems with a free-market economy

In practice, however, markets do not achieve maximum efficiency in the allocation of scarce resources, and governments feel it necessary to intervene to rectify this and other problems of the free market. The problems of a free market are as follows:

- Competition between firms is often limited. A few giant firms may dominate an industry. In these cases they may charge high prices and make large profits. Rather than merely responding to consumer wishes, they may attempt to persuade consumers by advertising. Consumers are particularly susceptible to advertisements for products that are unfamiliar to them.
- Lack of competition and high profits may remove the incentive for firms to be efficient.
- Power and property may be unequally distributed. Those who have power and/or property (e.g. big business, unions, landlords) will gain at the expense of those without power and property.
- The practices of some firms may be socially undesirable or have adverse environmental consequences. For example, a chemical works may pollute the environment.
Some socially desirable goods would simply not be produced by private enterprise. What firm would build and operate a lighthouse, unless it were paid for by the government?

A free-market economy may lead to macroeconomic instability. There may be periods of recession with high unemployment and falling output, and other periods of rising prices.

Finally, there is the ethical objection that a free-market economy, by rewarding self-interested behaviour, may encourage selfishness, greed, materialism and the acquisition or pursuit of power.

We shall be examining these various problems in more detail in later chapters.

**The mixed economy**

Because of the problems of both free-market and command economies, all real-world economies are a mixture of the two systems. The economies of the former communist bloc all used the market mechanism to some extent. All market economies involve some degree of government intervention.
During this period, the supply of coffee increased by around 3.6 per cent a year, outstripping the 1.5 per cent annual increase in demand. The growth in supply was largely caused by new plantings in Vietnam and Brazil. In 2002 world demand was estimated to be around 106 million bags; but production was over 120 million bags with a further 40 million bags held in stock.

The effect of the low price on many coffee growers, who are mainly to be found in some of the world’s poorest countries, was catastrophic. Many farmers were driven into debt; others left the land and migrated to cities, worsening the often appalling conditions there. Others switched to growing narcotic drugs, such as coca in Vietnam.

As we can see from the chart, the price of coffee recovered after 2004, peaking in July 2008 at $133 per lb, its highest level since July 1997. In part, this was due to farmers diversifying into other crops; in part, it was due to buoyant global demand, with the emergence of new coffee markets, such as China and Russia, and strong demand in coffee-producing countries themselves.

In 2008, however, a combination of good harvests and a recovery in the coffee prices caused supply to increase substantially. Although demand was still growing in developing countries, the onset of recession in developed countries was halting the growth in demand and, as a result, the world growth in supply outstripped the world growth in demand. By the end of 2008 the price had fallen back to $103 per lb.

You might be wondering why the price of a latte or an espresso in your favourite coffee shop did not follow the price received by coffee growers in the early and late 2000s. Well, of the price you pay for a cup of coffee only a very small part is accounted for by the coffee beans. The rest pays for the wages of staff, overheads, advertising and profits.

Fine, but why has the price of instant coffee in supermarkets not more closely followed the price of coffee? In particular, why did it not fall more noticeably during the ‘crisis years’ of the early 2000s? The answer here lies in the actions of coffee roasters. About a half of the world production of coffee is bought by just four huge companies – Kraft, Nestlé, Procter & Gamble and Sara Lee. These companies did not, in general, pass on the reduction in the price of coffee to producers but substantially increased their profits. (We will be looking at the behaviour of large firms in Chapter 5, in the section on oligopoly.)

1. What do you think caused the large increase in the price of coffee in 1997?
2. Use supply and demand diagrams to explain (a) the fall in coffee prices in the late 1990s and early 2000s; (b) the increase in coffee prices from 2004 to 2008

The material in this box has largely been drawn from the ICO website (www.ico.org).

**Government intervention may be able to rectify various failings of the market.** Government intervention in the market can be used to achieve various economic objectives that may not be best achieved by the market. Governments are not perfect, however, and their actions may bring adverse as well as beneficial consequences.

The fact that government intervention can, at least in principle, correct market failures is the seventh of our 15 threshold concepts.

In mixed market economies, the government may control the following:

- **Relative prices** of goods and inputs, by taxing or subsidising them or by direct price controls.
- Relative incomes, by the use of income taxes, welfare payments or direct controls over wages, profits, rents, etc.
- The pattern of production and consumption, by the use of legislation (e.g. making it illegal to produce unsafe goods), by direct provision of goods and services (e.g. education and defence), by taxes and subsidies or by nationalisation.

**Definition**

**Relative price**
The price of one good compared with another (e.g. good X is twice the price of good Y).
The macroeconomic problems of unemployment, inflation, lack of growth, balance of trade deficits and exchange rate fluctuations, by the use of taxes and government expenditure, the control of bank lending and interest rates, the direct control of prices, and the control of the foreign exchange rate.

Just how the government intervenes, and what the effects of the various forms of intervention are, will be examined in detail in later chapters.

The relative merits of alternative mixtures of government and the market depend on the weight attached to various political and economic goals: goals such as liberty, equality, efficiency in production, the fulfilling of consumer wishes, economic growth and full employment. No one type of mixed market economy is likely to be superior in all respects.

### Recap

1. A free-market economy functions automatically, and if there is plenty of competition between producers, this can help to protect consumers’ interests.
2. In practice, however, competition may be limited; there may be great inequality; there may be adverse social and environmental consequences; there may be macroeconomic instability.
3. All real-world economies are some mixture of the market and government intervention. Governments intervene in market economies in various ways in order to correct the failings of the free market. The degree and form of government intervention depend on the aims of governments and the nature of the problems they are attempting to tackle.

### Pause for thought

Why do governments on the political right tend to intervene less in markets than governments on the political left? Does this mean that whether something is an economic ‘problem’ depends on your perspective?
QUESTIONS

1. Why do the prices of fresh vegetables fall when they are in season? Could an individual farmer prevent the price falling?

2. If you were the owner of a clothes shop, how would you set about deciding what prices to charge for each garment at the end-of-season sale?

3. The number of owners of mobile phones has grown rapidly and hence the demand for mobile phones has also grown rapidly. Yet the prices of mobile phones have fallen. Why?

4. Assume that oil begins to run out and that extraction becomes more expensive. Trace through the effects of this on the market for oil and the market for other fuels.

5. This question is concerned with the supply of oil for central heating. In each case consider whether there is a movement along the supply curve (and in which direction) or a shift in it (and whether left or right).
   (a) New oil fields start up in production.
   (b) The demand for central heating rises.
   (c) The price of gas falls.
   (d) Oil companies anticipate an upsurge in demand for central heating oil.
   (e) The demand for petrol rises.
   (f) New technology decreases the costs of oil refining.
   (g) All oil products become more expensive.

6. The weekly demand and supply schedules for t-shirts (in millions) in a free market are as follows:

<table>
<thead>
<tr>
<th>Price (£)</th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity demanded</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>14</td>
<td>16</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>Quantity supplied</td>
<td>18</td>
<td>16</td>
<td>14</td>
<td>12</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

(a) What is the equilibrium price and quantity?
(b) Assume that changes in fashion cause the demand for t-shirts to rise by 4 million at each price. What will be the new equilibrium price and quantity? Has equilibrium quantity risen as much as the rise in demand? Explain why or why not.

(c) Now plot the data in the table on a graph and mark the equilibrium. Also plot the new data corresponding to (b) and mark the new equilibrium.

7. On separate demand and supply diagrams for bread, sketch the effects of the following: (a) a rise in the price of wheat; (b) a rise in the price of butter and margarine; (c) a rise in the price of rice, pasta and potatoes. In each case, state your assumptions.

8. For what reasons might the price of foreign holidays rise? In each case identify whether these are reasons affecting demand or supply (or both).

9. If both demand and supply change, and if we know in which direction they have shifted but not how much, why is it that we will be able to predict the direction in which either price or quantity will change, but not both? (Clue: consider the four possible combinations and sketch them if necessary: (a) D left, S left; (b) D right, S right; (c) D left, S right; (d) D right, S left.)

10. What will happen to the equilibrium price and quantity of butter in each of the following cases? You should state whether demand or supply (or both) have shifted and in which direction. (In each case assume *ceteris paribus*.)
   (a) A rise in the price of margarine.
   (b) A rise in the demand for yoghurt.
   (c) A rise in the price of bread.
   (d) A rise in the demand for bread.
   (e) An expected rise in the price of butter in the near future.
   (f) A tax on butter production.
   (g) The invention of a new, but expensive, process for removing all cholesterol from butter, plus the passing of a law which states that all butter producers must use this process.
Chapter 2 ■ Markets, demand and supply

myeconlab

Log on to MyEconlab and complete the studyplan exercises for this chapter to see how much you have learnt and where you need to revise most. Make sure you access all the supporting textbook resources including the online workbook, newsblog, audio animations, guided solutions and ebook.

Additional case studies in the Essentials of Economics MyEconLab (www.pearsoned.co.uk/sloman)

2.1 The interdependence of markets. A case study in the operation of markets, examining the effects on a local economy of the discovery of a large coal deposit.

2.2 Bentham and the philosophy of utilitarianism. This looks at the historical and philosophical underpinning of the ideas of utility maximisation.

2.3 Stocks and flows. This examines one of the most important distinctions in economics and one that we shall come across on several occasions.

2.4 Adjusting to oil price shocks. A case study showing how demand and supply analysis can be used to examine the price changes in the oil market since 1973.

2.5 Rationing. A case study in the use of rationing as an alternative to the price mechanism. In particular, it looks at the use of rationing in the UK during the Second World War.

Websites relevant to this chapter

Numbers and sections refer to websites listed in the Web appendix and hotlinked from this book’s website at www.pearsoned.co.uk/sloman.

- For news articles relevant to this chapter, see the Economics News Articles link from the book’s website.
- For general news on markets, see websites in section A, and particularly A2, 3, 4, 5, 8, 9, 18, 24, 25, 26, 36. See also sites A42 and A44 for links to economics news articles from newspapers worldwide.
- For links to sites on markets, see the relevant sections of I4, 7, 11, 17.
- For data on the housing market (Box 2.2), see sites B7, 8, 11 and E2.
- For student resources relevant to this chapter, see sites C1–7, 9, 10, 19; D3.
- For sites favouring the free market, see C17 and E34.
2.1 Marginal utility theory. This develops the analysis of Box 2.1 and shows how the marginal utility the consumer receives from a product affects demand.

2.2 Indifference analysis. This examines the choices consumers make between products and shows how these choices are affected by the prices of the products.