

## chapter four

# 4

## Markets in action

### Learning outcomes

*By the end of this chapter you should understand:*

#### **ECONOMIC THEORY**

The concept of market equilibrium

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How changes in demand and supply lead to changes in the market equilibrium

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How price elasticity influences the size of changes in market price and output

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Market shortages and surpluses as instances of market disequilibria

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The difference between pooling and separating disequilibria

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#### **BUSINESS APPLICATION**

How firms can try to manage a market shortage to boost sales; and product, or brand, awareness

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The importance of being able to assess short- and long-run influences on demand, supply, market output and prices in the short and long run

## Chapter map

### Section 4.1

Overtime product markets grow and decline. Products become popular and prices may rise or fall. A firm needs to be capable of reading market signals and predicting how the market will develop in the future. Business may wish to develop plans to exploit a potential market rise but quit from a market which is likely to decline. Understanding market theory provides an insight into these business issues.

### Section 4.2

Sections 4.2 and 4.3 are crucial to the aims of this chapter and all chapters that follow. Time spent on these sections will help you immensely. In order to understand markets we need to bring our understanding of consumers and firms from Chapters 2 and 3 together within one framework. We do this using demand and supply analysis to discover the market equilibrium price and quantity traded.

### Section 4.3

Once we understand market equilibrium we can begin to discover how the equilibrium can change. A change in the demand, or supply, curve will lead to a new equilibrium price and quantity traded. We will illustrate these changes using demand and supply diagrams.

### Section 4.4

This section examines situations where supply does not equal demand. A market may not be in equilibrium. If demand does not equal supply, then the market is in disequilibrium. When demand is greater than supply, a shortage is said to exist. When supply is greater than demand, a surplus is said to exist.

### Section 4.5

This section extends the analysis into a reasonably advanced area of economics. Separate market equilibria from related markets can, on occasion, pool into one market equilibrium. For example, car insurance companies attempt to separate the market into high- and low-risk drivers by charging different premiums. Universities try to split the student market by ability. Why do product suppliers try to do this?

### Section 4.6

Once we understand the market equilibrium and the associated issues of changes in the equilibrium, disequilibrium, and pooling versus separating equilibria it is useful to see how firms might exploit such information. Underpricing pop concerts is an insightful example of how to ensure a sell-out concert.

**PICKING A MARKET  
WINNER**

**BRINGING DEMAND  
AND SUPPLY  
TOGETHER**

**CHANGES IN SUPPLY  
AND DEMAND**

**DISEQUILIBRIUM  
ANALYSIS**

**POOLING AND  
SEPARATING  
EQUILIBRIA**

**AVOIDING THE  
EQUILIBRIUM**

## Chapter map

### Section 4.7

Understanding how demand and supply will change over time, or perhaps more accurately understanding how to predict changes in supply and demand, can provide a useful business insight into how the market price and quantity traded will change over the short and long run.

**LIVING FOR THE  
FUTURE**

## Market theory at a glance

### The issue

The price and the amount of goods and services traded change over time. But what causes these changes in particular product markets?

### The understanding

Price changes in all markets, whether it is beer, entrance to a nightclub or the price of a DVD, stem from changes in supply and demand. Sometimes the price may change simply because demand or supply have changed. In more complex cases demand and supply could change together. Understanding how and why supply and demand change and the implications for market prices are important business skills.

### The usefulness

Markets with upward price expectations will look more attractive than markets with downward price projections. If businesses can appreciate how competing factors will influence the price for their products or of key inputs, then they can begin to develop successful strategies for the firm.

## 4.1 Business problem: picking a winner

### Box 4.1 The consumer electronics industry

#### Video vagaries

Adapted from an article by Ashley Norris, *The Guardian*, 15 April 2003

Last week saw the annual Smart Show at the NEC in Birmingham. Here, the nation's gadget hacks jostle with the country's dealers and manufacturers to discover what are likely to be the must-have electronic items.

For most dealers the most pressing issue was deciding how to fill the shelf space in their stores that was once occupied by VHS video recorders. Sales of

*continued overleaf*

videotape recorders are plummeting, and dealers are keen to know exactly what the consumer will buy to record their programmes on. The truth is that there are now so many potential replacements for the VCR that no one in the consumer electronics industry is quite sure which one to back. The two leading contenders are recordable DVD and hard disc-based recording systems. Both have been on sale for well over a year, and both are showing a gradual upward swing in sales.

How does a firm, or businessperson, know which product to promote and sell, and which to leave alone? Take Box 4.1: as a means of playing music, videos, films and even computer games, DVD players have undoubtedly established themselves as a replacement for video recorders. However, in terms of recording films or TV programmes for users, DVD has a viable competitor in the guise of super hard drives. Similar to computer hard drives, these devices can be built into new television sets or linked to existing home computer systems. Retailers of electronic consumables, which includes DVD players, recordable DVDs and hard drives, have a problem. They need to decide whether to stock recordable DVDs, or hard drives.

The problem for retailers is in some ways linked to the fixed cost issue in Chapter 3. Retail space, whether it is made up of shop space, shelf space, or warehousing, is a fixed cost. Therefore, in order to recover the fixed costs of retail space, retailers have to pick products for sale that will sell good volumes, at good prices.

Some understanding of the problem can be gleaned from an examination of how the price of video recorders has plummeted in the recent past. As DVD players have established themselves as a superior alternative, consumers have switched from video recorders to DVD players. As a result, retailers have had to cut the price of video recorders in order to attract customers to the outdated platform. However, while consumers have been flocking to DVD players, the price of this product has also fallen. We therefore have to explain why the price of both DVD and video recorders has fallen, when consumers have switched between the two platforms. The answer rests on understanding what has been happening to suppliers of DVD players. As DVD players have grown in popularity among consumers, more firms have been willing to enter the market and produce DVD players. Furthermore, as volumes grow, economies of scale in production lead to a reduction in costs. So, a greater number of firms are competing with each other and production costs are falling. This leads to a fall in the price of DVD players to consumers.

**The central message is that the volumes and prices at which the product trades at, are a reflection of consumers' willingness to demand the product and firms' willingness to supply the product. In essence, market places are an interaction of supply and demand.**

In addressing the question of whether recordable DVDs, or hard drive systems will become the industry standard, retailers have to understand the likely factors promoting demand for each product; and the likely factors promoting supply of these products by firms. First, currently DVD is not a standard format, with competing formats from Philips, Pioneer and Panasonic. This limits the ability to record on one machine and transfer to another. Second, the maximum recording time for a DVD is only two hours. Both of these factors might limit consumers'

willingness to demand recordable DVDs. In contrast, hard disc systems can hold up to 40 hours of programming, but there is no archive facility. So, programs will have to be deleted in order to add more content to the disc. An obvious solution is to integrate a DVD recorder with a hard disc system, where the DVD recorder is used to archive content from the hard disc. But this makes the product more expensive to produce and, therefore, firms may be less willing to supply the hybrid solution.

The problem for consumers, retailers and producers is that the products that fail will go the way of the video recorder – obsolete, cheap and not demanded. Whilst whichever product wins out will become an essential domestic consumable.

The problem of predicting future prices and volumes is not just limited to electronic consumables. Consider your own futures. Some of you may wish to supply yourselves as marketing executives, others as accountants and perhaps some as business economists. The wage or price at which you will be hired will depend upon how many other workers wish to supply themselves to your chosen occupation; and how many firms demand such types of workers. Greater supply will increase competition and the price or wage rate will fall, while higher demand by firms will lead to higher wages. You, therefore, have to decide if the supply of workers into your chosen profession will rise or fall, and whether or not demand will rise or fall. Predicting correctly can potentially lead to higher income levels in the future.

The discussion in this chapter will present you with an economist's understanding of the market place. Explicitly highlighting the link between demand and supply in market places and illustrating how changes in demand and supply lead to changes in the market price of a product. By the end of the chapter you will have an understanding of how markets work and, more importantly, how business managers might try to make markets work for them. These ideas, and the structure of the chapter, are summarized in the chapter map.

## 4.2

## Bringing demand and supply together

In Chapter 2, where we examined the price set in the market, we cheated by simply focusing on the willingness to demand. When considering markets and price setting we also need to think about firms and their willingness to supply at various prices. In Chapter 3, when examining the short-run costs of firms, we argued that the firm's supply curve is its marginal cost curve at prices above short-run average variable cost. We are now at a point where we can explore the supply curve more fully.

A supply curve depicts a positive relationship between the price of a product and firms' willingness to supply the product.

In Figure 4.1 we have a **supply curve** for the firm and the industry. Unlike the demand curve, the supply curve has a positive slope. In Chapter 3, when discussing short-run costs, we showed in Section 3.4, figure 3.7 that the supply curve is the firm's marginal cost curve, at prices above average variable cost. As a summary, if the firm wishes to maximize profits, then it will be willing to supply additional units of output if the price it receives is greater, or equal to, the marginal cost. Since the marginal cost increases as output increases, higher prices are needed in order to induce additional supply. Therefore, the supply curve shows a positive relationship between price and output.

At each price Firm B is willing to supply more output than Firm A. This is because the marginal cost at each output level is lower for Firm B. At a price of £5, B is willing to supply 1500 units; A is only willing to supply 1000 units. Therefore, at all prices B is more willing to supply than A.

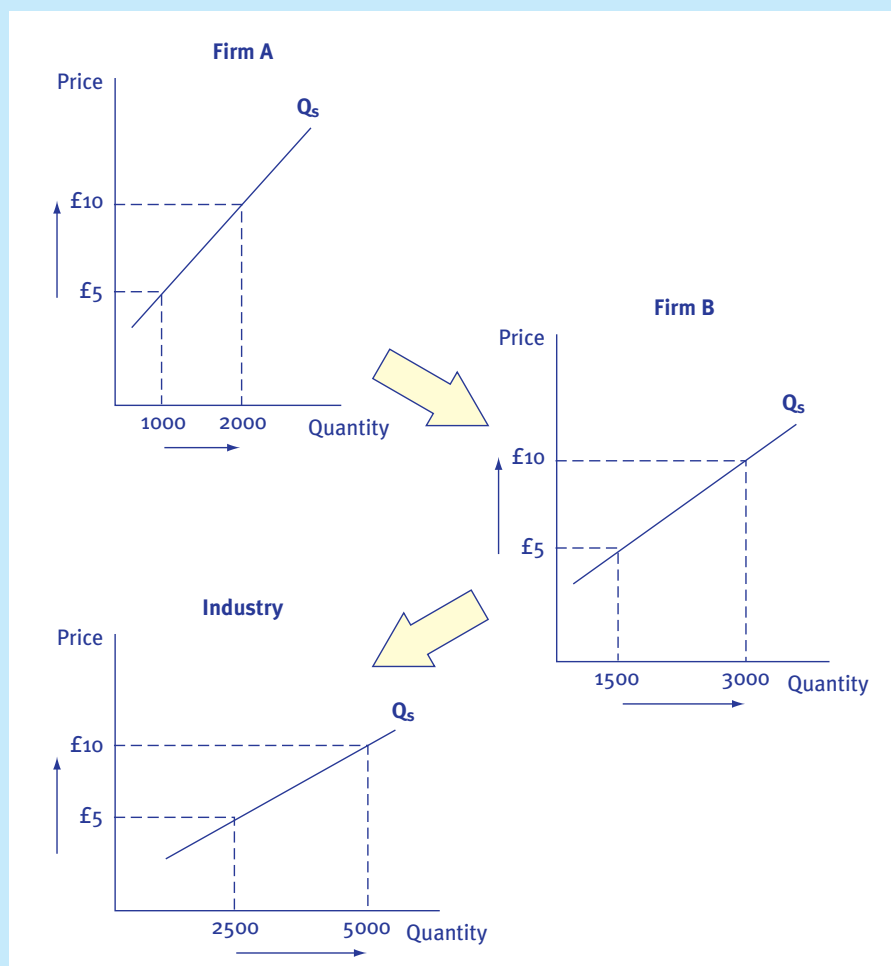
The industry's willingness to supply is equal to the sum of A and B's willingness to supply.

Therefore, at a price of £5, the industry willingness to supply is  $1000 + 1500 = 2500$ .

The industry supply curve in Figure 4.1 is the sum of each firm's willingness to supply at each possible price.

**Figure 4.1** Individual firms and market supply

For Firms A and B, as the price increases willingness to supply increases. At each price Firm B is more willing to supply than Firm A. For example, at £5 A is willing to supply 1000 units and B is willing to supply 1500. The industry supply is simply the sum of A and B. So at £5 the industry's willingness to supply is  $1000 + 1500 = 2500$ . Clearly, as more firms enter the industry, the industry's willingness to supply will increase and the industry supply curve will shift to the right. Similarly, as firms leave the industry, the willingness to supply will reduce and the industry supply curve will shift to the right.



Just as we discussed with the demand curve, we also need to think about the factors that will lead to a shift in supply:

- 1 If more firms enter the market, then supply must shift out to the right with more industry output being offered for sale at any given price. Conversely, if firms close down and exit the market, then the supply curve must shift in to the left, with less industry output being sold at any given price.
- 2 If the costs of labour, or other inputs increase, profits must fall. As the potential to make profits decreases, then firms will be less willing to supply and so the supply curve will move in to the left. Conversely, if input prices fall, then the ability to make a profit increases and supply will shift out to the right.
- 3 If a new technology is invented that enables firms to be more productive, then their costs will fall. This makes profits increase and firms are willing to supply more. The supply curve will then move out to the right.

### Market equilibrium

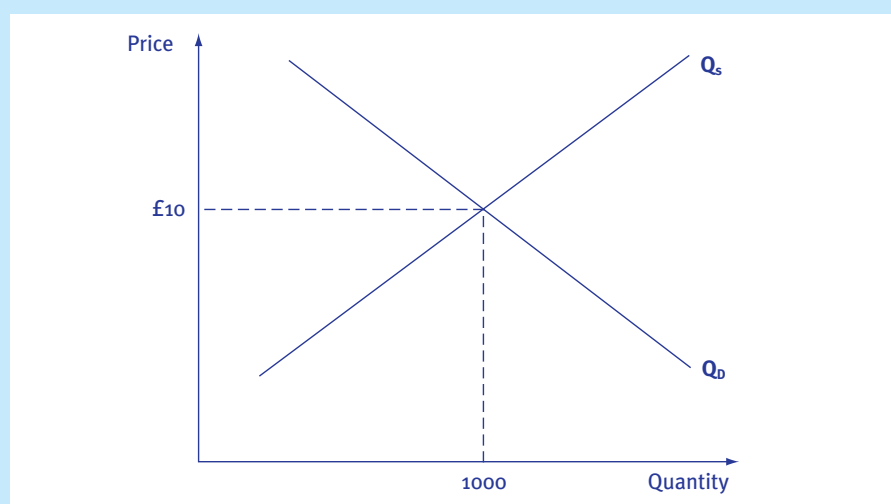
In order to understand the market place we now need to bring consumers and firms together. In Figure 4.2 we have the supply and demand curve together. Where demand and supply meet is known as the **market equilibrium**.

The **market equilibrium** occurs at the price where consumers' willingness to demand is exactly equal to firms' willingness to supply.

As a more realistic example, consider buying a second-hand car. Assume the seller (supplier) offers to sell the car for £5000. You examine the car and make an offer to buy at £4000. This is not equilibrium as you and the seller are willing to buy and sell at different prices. A trade will not occur because you cannot agree on the price. But assume the seller is now willing to reduce the asking price to £4500 and you accept. This is the equilibrium – you have both agreed a price at which you are willing to buy and the owner is willing to sell. As such, a trade will occur.

**Figure 4.2** Market equilibrium

Market equilibrium occurs at the price where the willingness to demand by consumers meets the willingness to supply by firms. In this case, at a price of £10 consumers are willing to purchase 1000 units and firms are willing to sell 1000 units.



In situations of **disequilibria**, at the current price the willingness to demand will differ from the willingness to supply.

Before moving on it is worth making a few comments about the equilibrium. First, we assume that the equilibrium is unique. The demand and supply curve only intersect at one point. Given the condition of *ceteris paribus*, all other things being equal, the equilibrium is a stable position as there are no forces acting to move the price away from the equilibrium. In the case of our car, both the seller and the buyer are happy to trade at the agreed price of £4500. Second, any other combinations of price and quantity that are not the equilibrium values are described as market **disequilibria**.

Third, if the market is in disequilibrium then, as with the case of our car traders, negotiations and resulting price changes will push the market towards its equilibrium position. We will explain these points as we develop your understanding of the market.

### 4.3 Changes in supply and demand

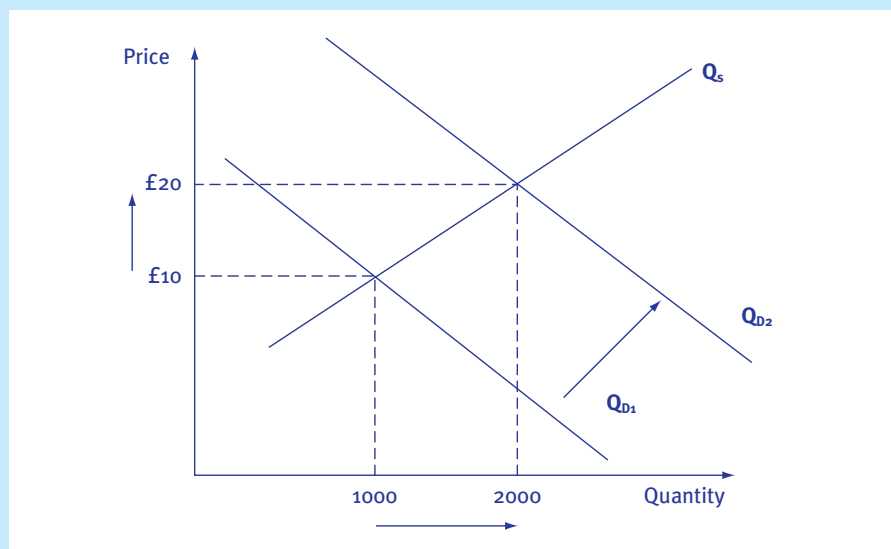
The business problem concerned how market prices are likely to develop in the future. Now that we have a model of the market we can use our understanding of the factors that shift demand and supply to examine how the market reacts to these changes. We will begin by considering changes in demand.

Demand shifts to the right:

- for a normal good when income increases, or if an inferior good when income falls;
- following an increase in the price of the substitute;
- following a reduction in the price of a complement;
- when tastes and preferences improve for this good improve.

Figure 4.3 illustrates a shift in demand to the right. At the initial equilibrium point 1000 units are traded at a price of £10. But as demand shifts out to the right a new equilibrium is achieved and now 2000 units are sold at a higher price of £20.

Figure 4.3 Shift in demand to the right



In part this has occurred in the UK housing market. Housing is likely to be an income elastic good. Therefore, as UK consumers' incomes have risen during a period of economic growth, the willingness to demand homes will shift to the right, as in Figure 4.3. Moreover, the cost of borrowing has become much less as interest rates have fallen to record lows. Homes and mortgages are complements, because ordinarily you need a mortgage to finance the purchase of a home. As a result, the reduction in the price of mortgages will lead to an increase in the demand for mortgages and homes. Therefore, the falling price of mortgages also leads to a shift to the right in the demand for homes, again as shown in Figure 4.3.

We can also bring price expectations into the analysis.

#### Price expectations relate to views on future prices: will prices rise or fall in the future?

If you think prices are going to rise in the future, then you will bring forward your consumption. The demand curve for consumption now, as opposed to consumption in the future, shifts to the right. Taking income, the price of complements and price expectations together, we can understand the increasing equilibrium price of houses in the UK as a consequence of three separate factors which have raised the demand for homes at all price levels. In terms of Figure 4.3, the demand curve for homes has shifted to the right because of income, cheaper mortgages and higher price expectations. In Box 4.2 these same forces are expected to lead to a gradual, rather than an immediate, collapse in house prices and link into our next discussion relating to a leftward shift in demand.

### Box 4.2 The UK housing market

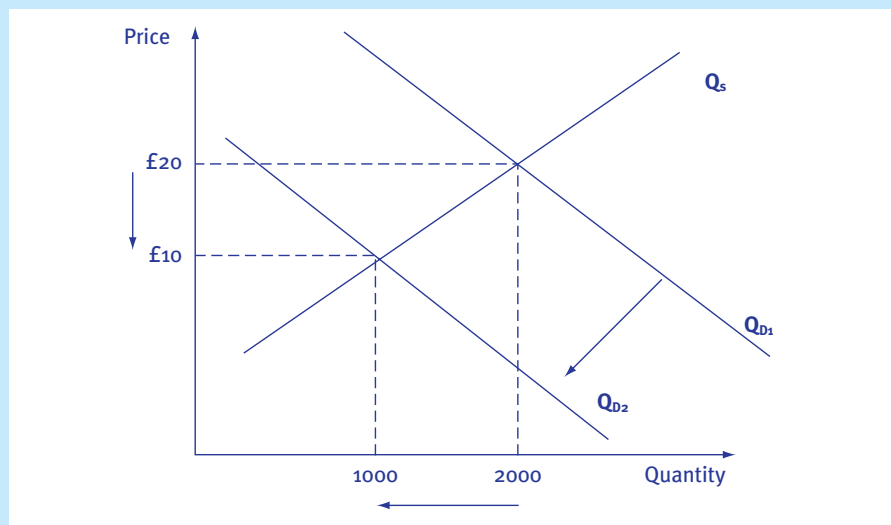
#### Will house prices pop?

Adapted from an article by David Smith, *The Sunday Times*, 9 March 2003

House prices are likely to show a controlled slowdown rather than a dramatic crash.

- 1 Employment levels remain buoyant. This means there is currently no squeeze on incomes leading to a reduction in demand for homes.
- 2 Interest rates are at their lowest since 1955. The housing boom of the late 1980s turned to bust with a doubling of interest rates and unemployment. Neither is in prospect now.
- 3 Lower interest rates will lead to a gearing adjustment. Once people get use to the idea of lower interest rates they will borrow more and higher house prices become more sustainable.
- 4 There will be little distress selling of housing to drive down prices. While some buy-to-let investors have got out, most owner-occupiers will stay put. The cycle of repossessions in the early 1990s should not be repeated.

We can now explore what happens when demand shifts to the left, as in Figure 4.4.

**Figure 4.4** Shift in demand to the left

Demand shifts to the left:

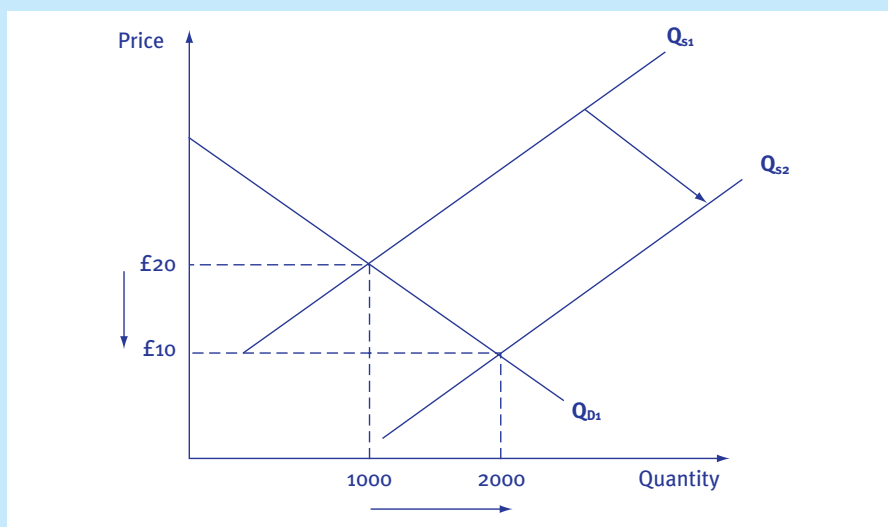
- for a normal good when income falls, or for an inferior good when income rises;
- following a decrease in the price of the substitute;
- following an increase in the price of a complement;
- when tastes and preferences for this good deteriorate.

This time we have simply changed the diagram around. We start at an equilibrium price of £20 selling 2000 units and then demand shifts to the left. The equilibrium price falls to £10 selling only 1000 units. This is effectively what happened to the stock market as investors no longer wished to own dot.com shares. A change in tastes and preferences results in a lower valuation of the shares. This is also what happened to the airline industry after September 11th. Commuters around the world lost the appetite to travel by jumbo jet. Coupled with a slowing global economy, falling corporate incomes reduced the demand for business travel. Less seats are sold at lower prices. Now let us consider supply. Supply shifts to the right:

- if more firms enter the market;
- if the cost of inputs, such as labour, becomes cheaper;
- if technological developments bring about productivity gains.

In Figure 4.5 supply has shifted to the right. The equilibrium moves from a price of £20 selling 1000 units to £10 selling 2000 units. If we assume that the supply has moved to the right because more firms are competing in the market, then this outcome appears sensible.

Increased competition should lead to a drop in prices and more consumers taking up the product. The Internet is a significant technological development and it effectively cuts the costs of being a product provider. For example, rather than having to buy or lease many high-street shops, a new retailer can deal with its customers over the Internet. This significantly reduces its costs. Hence the market price, in major Internet areas such as travel, should fall. Lower prices mean lower profits and

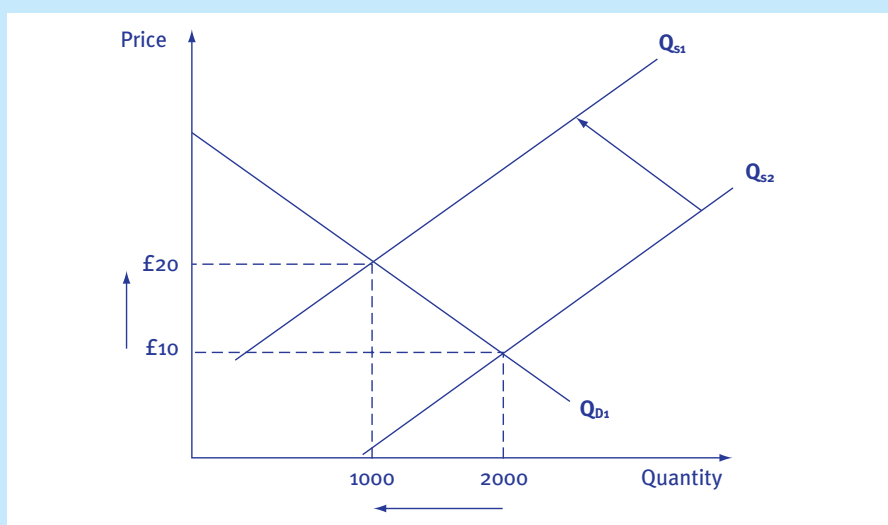
**Figure 4.5** Shift in supply to the right

therefore economists predicted the dot.com crash with ease. We will return to Internet based business in the business applications at the end of the chapter.

Let us now examine a shift supply to the left. Supply shifts to the left:

- if firms exit the market;
- if the cost of inputs, such as labour, become expensive.

If supply shifts to the left, as in Figure 4.6, then the equilibrium price moves from £10 selling 2000 units to £20 selling 1000 units. This might occur if one firm exited the market or took steps to reduce its capacity. The airline industry after

**Figure 4.6** Shift in supply to the left

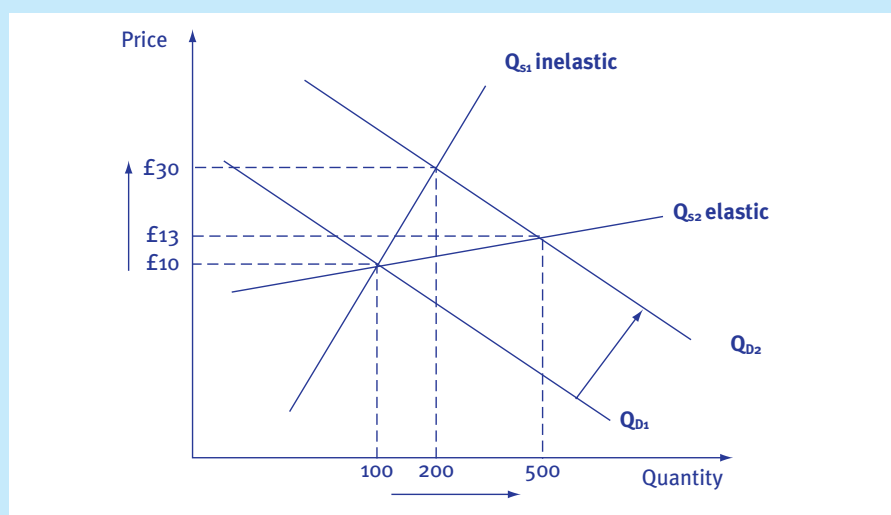
11 September 2001 would be a suitable example. Taking aircraft off unpopular routes, or swapping large jumbos for smaller ones, reduces supply on particular routes. As this happens the cost of running the airline drops and the market price for tickets increases. The airline is then more likely to make a profit.

### Elasticity and changes in the equilibrium

It is also worth noting that the elasticity of supply and demand will influence how the equilibrium changes. In Figure 4.7 we have an inelastic and an elastic supply curve and we can observe what happens to the equilibrium when we shift demand to the right.

**Figure 4.7** Impact of demand changes when supply is elastic or inelastic

Following a change in demand, price changes are greater if supply is inelastic, while output changes are greater if supply is elastic.



Under inelastic supply we should expect that supply will not react strongly to a change in the price and this is what we observe. The price rises from £10 to £30, but output only increase from 100 to 200 units. In the case of elastic supply, the increase in demand brings about a large change in output, 100 to 500 units, but only a small rise in the price, from £10 to £13.

In the real world there are lots of examples where successful business people engineer supply to be inelastic, as opposed to elastic, as this leads to price rises, as opposed to output rises. Lawyers and accountants restrict supply into their professions through the need to pass professional exams in order to act as a lawyer or an accountant. Some people comment that lawyers and accountants have a licence to print money and, in part, you now know why.

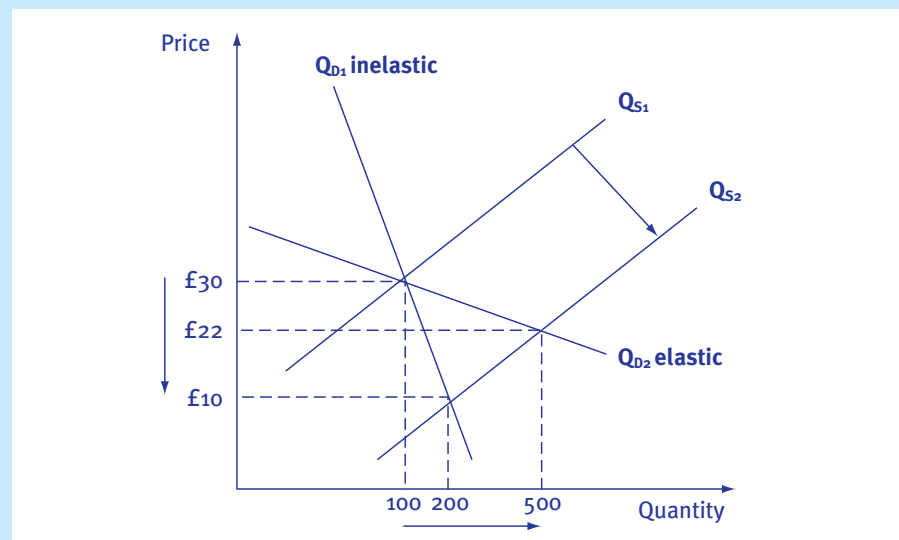
Sport is also a successful industry. Formula 1 motor racing strictly controls the number of teams in the sport and the number of races in a season. It also controls television rights for the F1 season and it can thereby limit the means by which the races are supplied to the viewing public. This is all done with the objective of running a commercially profitable sporting event. Premiership football is the same. Television access to games is strictly controlled by the Football Association, which sells television rights en bloc to Sky. The alternative would be for each club to sell its games

on an individual basis. For example, one week Manchester United might sell their game with Liverpool to the BBC, while the week after they could sell their game with Leeds to ITV. Instead Sky controls the supply of Premiership games and out of 400 games a season they only show around 60. So, by making the product scarce, or by engineering inelastic supply, the price in the market for Premiership games will rise.

In Figure 4.8 we consider how a change in supply affects the equilibrium when demand is elastic or inelastic. When demand is elastic, the increase in supply brings about a small change in the price, dropping from £30 to £22, with output increasing from 100 to 500 units. In the case of inelastic demand, the increase in supply generates a large drop in the price from £30 to £10, but only a small change in output from 100 to 200 units.

**Figure 4.8** Supply changes under elastic and inelastic demand

Following a change in supply, the price change is greater if demand is inelastic. But the output change is greater if demand is elastic.



The clear lesson from this example is that, if faced with inelastic demand for your product, do not increase your production capacity and thereby increase supply, because the price will drop quicker than output increases and your total revenues will fall. However, if you are faced with elastic demand, do consider increasing your capacity and supplying more to the market, as output grows at a faster rate than the declining price and so total revenues will rise.

#### 4.4

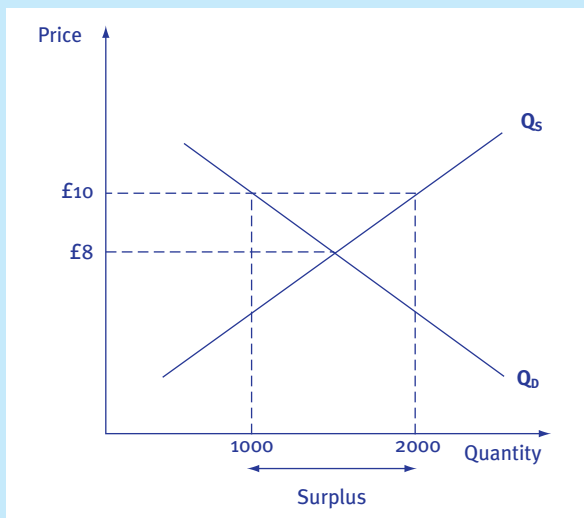
### Disequilibrium analysis

So far we have only considered the market to be in equilibrium, where demand equals supply. In reality markets may never be in equilibrium; they may instead always be moving between equilibrium positions. First, let's consider a situation in which the price is higher than the equilibrium.

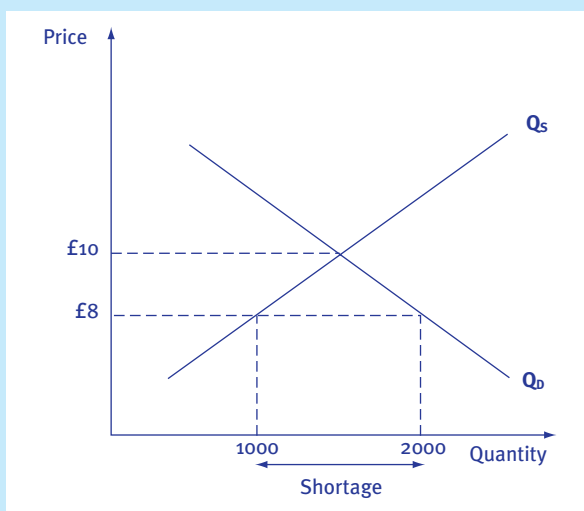
In Figure 4.9 the current market price of £10 is higher than the equilibrium price of £8. At a price of £10 consumers are willing to demand 1000 units, but firms

**Figure 4.9** A market surplus

When the price is set above the equilibrium, firms are very willing to supply, but consumers are not willing to demand. As a consequence more is supplied than demanded. Firms are left with excess stock. In this case, at a market price of £10, firms supply 2000 units but consumers only demand 1000 units, leaving a surplus of 1000 units.

**Figure 4.10** A market shortage

When the price is set below the equilibrium, firms are less willing to supply, but consumers are very willing to demand. As a consequence more is demanded than supplied. In this case, at a market price of £8, firms supply 1000 units but consumers demand 2000 units, leaving a shortage of 1000 units.



are willing to supply 2000 units. This is clearly not an equilibrium position. With supply exceeding demand by  $2000 - 1000 = 1000$  units, the market is said to be running a surplus. In effect, firms will be left with excess stock in their warehouses. We suggested earlier that natural forces would push the market towards the equilibrium, so how might this happen?

If the firm has too much stock then, in accounting terms, its working capital is tied up. The firm has spent money making the product and it now needs to sell the product in order to free its cash for future production. The only way to sell the excess stock is to begin discounting the price until everything is sold. The more excess stock a firm has, the bigger the discount it has to offer. You will have noticed the trick used by clothing retailers: '50% off' is written large but 'on selected ranges' is written much smaller. The goods that are discounted by 50 per cent will almost certainly be those that few, if any, people wanted at the original price. The biggest discounts are generally offered on the products where the retailer has observed the biggest difference between its willingness to supply and consumers' willingness to demand. Therefore, the biggest discounts are offered on the products where the retailer has the biggest level of unwanted stock.

Figure 4.10 illustrates the opposite situation, a market shortage. This time we have the market price of £8, which is below the market equilibrium price of £10. At £8 we can see that consumers are willing to demand 2000 units, but firms are only willing to supply 1000 units. We now have a shortage of  $2000 - 1000 = 1000$  units. Consumers would like to buy twice as much of the product than firms are willing to provide. Two responses are likely. Firms may recognize the high demand for their products and raise the price. Or consumers may begin to bid up the price in order to gain access to the product. If you really want to see the market in action, then watch the Internet auction sites for the most popular Christmas presents, such as the Xbox, the latest mobile phones or recent film releases on DVD.

## 4.5

## Pooling and separating equilibriums

Consider the second-hand car market and assume good-quality cars cost £5000 and bad-quality cars cost £2500. Sellers of good and bad cars specialize in each type of car. So, if you want a good car, you go to a good car seller. Under these arrangements you would be willing to pay £5000 if you wanted a good car, or £2500 if you wanted a bad car. This is a **separating equilibrium**, as each type of product is sold in a separate market.

Now consider a more realistic situation where good and bad cars are sold together. This is a **pooling equilibrium**, where the consumer finds it difficult to differentiate between good and bad products. So, unlike the separating equilibrium, both types of car are sold in the same market.

When you arrive at the dealership you are offered the following option. In a cloth bag are a number of car keys: 50 per cent open up good cars, 50 per cent open up bad cars. How much would you be willing to pay to put your hand in the bag and drive away with a car?

The statistical approach is to work out the expected value of the car. You have a 0.5 chance of gaining a good car worth £5000 and a 0.5 chance of ending up with a bad car worth £2500. The expected value is therefore  $0.5 \times £5000 + 0.5 \times £2500 = £3750$ .

So all cars are sold at the pooling equilibrium price of £3750. If this permeates across the market, sellers of bad cars gain an extra £1250, while suppliers of good cars lose £1250. Over time more bad cars will come to the market and good cars will leave the market. This is known as **Gresham's Law**, where bad products drive out good products.

Suppliers of good-quality cars under a pooling equilibrium are disadvantaged because they are unable to differentiate their products from the bad offerings. In order to solve this problem they need to find a way of creating a separating equilibrium. The way to achieve this is to do something that the bad suppliers would be unwilling to copy. Therefore, in the used car markets we can observe car dealerships offering cars with 100-point checks and 12-month warranties. Offering a 12-month warranty is cheap for good car sellers because the likelihood of the car breaking down is low. In contrast, the bad car suppliers are unwilling to offer warranties because the bad cars are likely to break down and, therefore, the cost of honouring the warranties would be very high.

In terms of a further example, consider the purchase of car insurance in the UK. The insurance company asks for many details before quoting you a price for car insurance. How old are you? How many years no claims do you have? Where do you live? What type of car do you drive? The insurer is trying to separate the market by assessing whether you are a good, or bad risk. If it did not do this, then clearly the market for insurance risks would move towards a pooling equilibrium. Every driver would be charged the same price for car insurance. However, in such a market bad drivers with high accident, or theft rates, pay less than they should, while good drivers, with low accident and theft rates, pay more than they should. Therefore, by separating the market the insurance company is able to charge the right insurance premiums for good and bad drivers. Interestingly the European Commission thinks charging different insurance premiums to different drivers is evidence of discrimination and should be banned. The economic response is that there are separate markets in the insurance sector, each with separate equilibrium prices. One for young males, one for older males. One for young females, and so on. It will be interesting to see who wins the argument. Clearly if the European Commission wins, then a single pooling price

A **separating equilibrium** is where a market splits into two clearly identifiable sub-markets with separate supply and demand.

A **pooling equilibrium** is a market where demand and supply for good and poor products pools into one demand and one supply.

**Gresham's Law** states that an increasing supply of bad products will drive out good products from the market.

will result in higher premiums for good drivers and lower premiums for bad drivers. Therefore, the side you are on depends whether you are a good driver or not.

## 4.6

### Business application: marketing pop concerts – a case of avoiding the equilibrium price

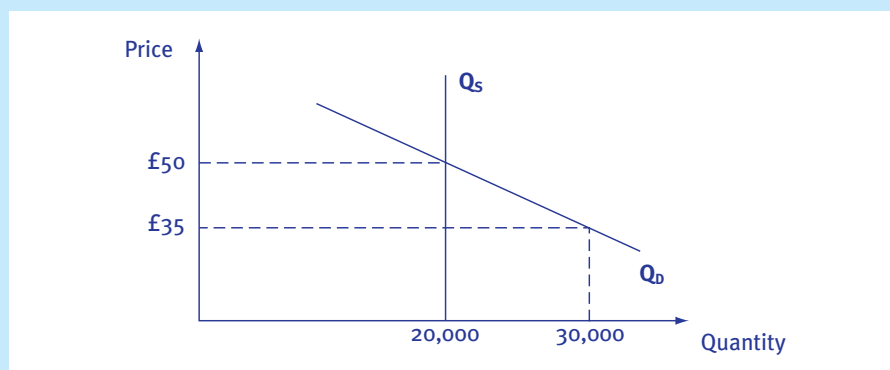
The preceding discussion argued that markets will always find the equilibrium. So-called market forces push the market to a state where demand equals supply. This seems fairly reasonable, but how might a firm manage its market for strategic benefit? Or can the firm control the market forces? A successful businessperson would more than likely answer this last question with a yes.

Take, for example, the task of managing a pop star. Whether or not you like Robbie Williams he is undoubtedly a megastar. Some of his status stems from his talent, but some also stems from his personal management. By way of an example, assume Robbie Williams is going on tour to promote his new album and you are overseeing the task of pricing tickets for various venues.

An arena being used by Robbie Williams holds 20,000 people. The supply of seats at this venue is fixed at 20,000, so supply is perfectly inelastic. If we plot demand and supply, then the result may look like Figure 4.11.

**Figure 4.11** Managing the market

The equilibrium price of £50 clears the market with supply equalling demand. But at a discounted price of £35 a market shortage of tickets can be engineered, with demand outstripping supply. This helps to ensure an instant sell-out success for the concert.



In equilibrium, demand equals supply. The task is to sell 20,000 tickets. So your business problem becomes one of finding the price that will generate a demand of 20,000. In this example we have assumed that £50 is the price that will ensure a demand of exactly 20,000.

Unfortunately, £50 as an equilibrium price is not a good outcome for Robbie Williams. Selling all of the 20,000 tickets for £50 is a huge success but, since the price of £50 is the equilibrium price, the concert is only just a sell-out. Robbie Williams is a megastar and, as such, the media and press expect him to sell out in a matter of hours. A price of £50 will *only just* ensure that he sells out.

However, if we set a ticket price of £35 we can engineer a ticket shortage in the market. At £35, 30,000 fans are willing to buy a ticket. With only 20,000 seats the

concert will be a sell-out, with an additional 10,000 fans still trying to find a ticket on the black market. The importance of a sell-out concert will be evidenced by the positive media attention. Column inches in the celebrity pages of the UK press confirming Robbie Williams's success will help to reinforce his image as a major celebrity. In this way, Robbie Williams's management company are sacrificing ticket revenue, but they are gaining free advertisements in the press.

The price reduction in the market place also generates positive momentum in the market for Robbie Williams's other products. As a successful recording artist, fans will be more willing to buy Robbie Williams's album, calendars, T-shirts and videos. Furthermore, a sell-out concert this year ensures that Robbie Williams can tour next year. However, if the tickets are mispriced and sales are slow, negative press will follow. This is only likely to slow demand for Robbie Williams's products. His megastar status will come under question and next year's tour will be in doubt.

Clearly, understanding how to manage the market is of crucial importance for individuals such as Robbie Williams. But the case of Robbie Williams is only an example of where it is essential to be perceived as successful in the market place. Launching a new product also requires a perception of success. The first people to try your product will be innovators. If the initial customers like your product, additional customers are more likely to try your product. We know from Chapter 2 and demand theory that one of the easiest ways to increase sales of your product is to heavily discount the product in the market place.

Consider the recent fight among rival game consoles Xbox, Cube and PlayStation 2. Each company aims to dominate the market. In order to achieve this it needs to generate momentum among consumers for its product. One way of achieving this is to sell below the equilibrium price, creating a shortage in the market. As more people buy your product and news leaks out that stocks are running low, then the product is obviously a success. Anyone choosing among the rival products will hopefully look on this fact positively.

In Box 4.3 Microsoft admit they overpriced Xbox by a considerable margin. With vast similarities between Xbox, PlayStation 2 and Nintendo, pricing correctly is crucial if, as Microsoft state, the main aim is to lead the market.

### Box 4.3 Correct pricing is crucial

#### Xbox set sights on gaming crown

Adapted from an article by Neil McGreevey, *BBC News Online*, 23 May 2003

It is hard to imagine Microsoft admitting second place to anyone, but in the console wars their powerful Xbox still has a great deal of ground to gain before it can claim the crown from Sony.

The PlayStation's supremacy is being challenged aggressively and Microsoft officials are confident they will succeed in the long run. By Microsoft standards, the Xbox launch was an unimpressive affair, thanks to wildly overpriced hardware. 'The pricing at the start was a mistake, but we learned quickly,' admitted Mr Cassius.

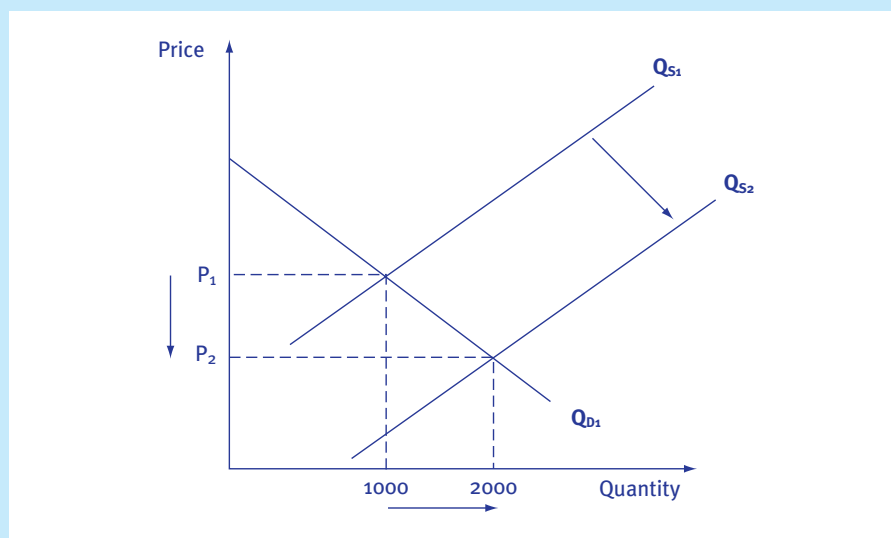
When asked if he foresees a time when Sony is chasing Xbox for the number one position, Mr Cassius is very clear: 'The only question is when. We are out to lead this market; we are not shy about that.'

### 4.7 Business application: living for the future

We saw in Section 4.3 that an increase in supply can lead to a reduction in the equilibrium price and an increase in the amount traded in the market. Figure 4.12 repeats this point. We argued that the rise of the Internet had made entry into certain markets much easier. For example, rather than having to acquire expensive high-street retail space, holiday operators such as Lastminute could operate more cheaply via the Internet. Running a 'virtual' company enables potential customers to access the services of Lastminute, and many other online operators, via the Internet. With the costs of establishing an Internet site being much lower than acquiring retail space, Internet prices for holidays should be very competitive and attract customers. However, the success of Internet-based business has been limited. A principle reason is that because the Internet makes entry into markets, such as the travel agency business very cheap, it fosters competition. If Lastminute can build an Internet site and compete against the established high-street players, then so can anyone else. The supply curve for the market, as in Figure 4.12, shifts to the right as more players enter the market. As a consequence, the equilibrium price falls and customers are shared among a greater number of competitors.

**Figure 4.12** Competition, supply and price

An increase in supply leads to a reduction in the equilibrium price from  $P_1$  to  $P_2$ ; and an increase in the quantity traded from 1000 to 2000 units.



Increased competition leads to a reduction in profits. In Chapter 5 we will provide a more rigorous explanation, but in simple terms if prices are falling and the number of suppliers in the market are increasing, then the chance of generating a profit is somewhat diminished. This likelihood of reduced profits was in part behind the collapse in dot.com shares after the rise of the late 1990s. Investors soon realized that many Internet-based businesses would not generate a profit because of increased competition.

However, before we dismiss the idea of Internet-based business propositions it is useful to examine recent performance by Lastminute. In Box 4.4 it can be seen that Lastminute has managed to achieve a 60 per cent growth rate in three months. This is despite a war with Iraq and the fears regarding Sars reducing demand for travel. The important point is looking to the future. Just like our initial business problem of picking recordable DVDs or hard disc systems, the real issue for Lastminute and other Internet-based business is believing that the market will move positively towards you; and, moreover, surviving until that time. So how has the market moved?

#### Box 4.4 Online travel agents

##### Lastminute 'on track' for profit

*Adapted from BBC News Online, 15 May 2003*

Lastminute.com, the online travel and leisure firm, has reported a loss for the January to March period. The travel sector as a whole has been experiencing a rough time recently because of the war in Iraq and the spread of the Sars virus.

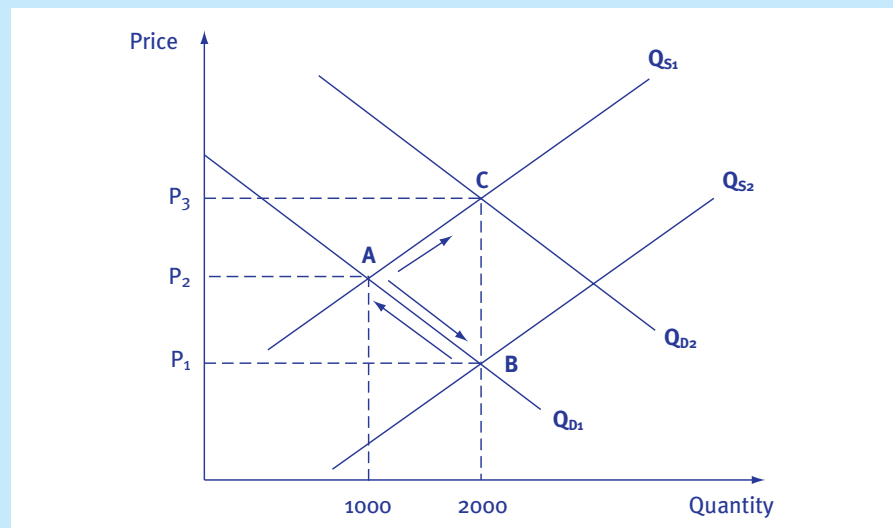
Lastminute's chief executive Brent Hoberman said the company stood to benefit from changes in the way people book their holidays. 'Industry trends are leading towards more last-minute Internet booking, more short breaks and more consumers building their own flexible packages,' he said. 'These trends have ensured that demand for our products remained robust and delivered 60 per cent organic growth in the quarter.' The number of registered subscribers rose to just over 7 million by the end of March, compared with just over 5 million a year earlier. Total transaction value for the period more than doubled to £92.2m from £40.8m.

Two influences need to be examined: supply and demand. These are illustrated in Figure 4.13. In terms of supply, other loss-making Internet-based travel agencies may not have survived in the long run. The supply curve may have shifted to the left, reducing competition and providing a positive lift to equilibrium prices. The other and perhaps more important change has been the increase in demand. As more workplaces and households have gained access to the Internet, and as consumers have been reassured about the security of trading on the Internet, Internet-based transactions have increased. The demand curve has shown a very big shift to the right. The equilibrium level of prices and output improve and the potential for surviving Internet-based companies to earn a profit in the future has increased.

The essential point is that the long-run trends in the market can be as important as short-term outcomes. It is important for business and financial backers to develop a good understanding of the future paths of supply and demand faced by a business. By understanding if demand and supply are likely to improve or worsen future market trading conditions, firms can improve current decisions regarding entry into, or exit from, particular markets.

**Figure 4.13** Influence of supply and demand on Internet-based travel agencies

Beginning at A: Internet technology increases the number of travel agencies; supply shifts from  $Q_{S1}$  to  $Q_{S2}$ . The equilibrium moves to B, with lower prices and a higher level of output. Lower profits from lower prices and increased competition lead to some firms leaving the market. The supply curve shifts back to  $Q_{S1}$  and equilibrium A. At or around the same time, the use of the Internet by consumers increases. Demand shifts to the right from  $Q_{D1}$  to  $Q_{D2}$ . The equilibrium moves from A to C, with higher prices and higher output.



### Input markets

**Input markets** are where factor inputs, such as land, labour, capital or enterprise, are traded.

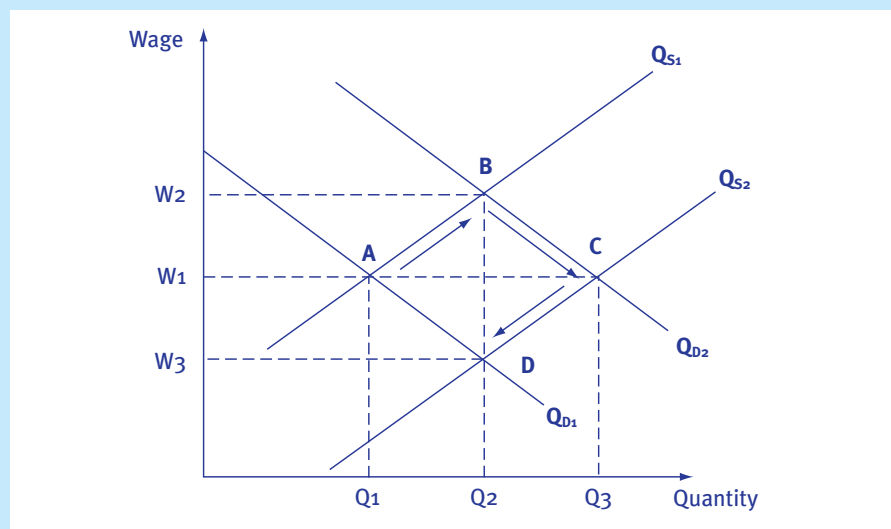
Firms do not only sell into markets, they also buy inputs, such as labour and raw materials from markets. It is therefore important to understand how these **input markets** will develop as rises in input prices will lead to increases in firms' costs.

For example, consider the market for IT staff. In the late 1990s demand for IT staff by firms was very high. Two reasons drove this high level of demand. First, the impending millennium bug associated with the start of 2000 forced companies to spend vast amounts of money on IT staff to test and rectify computer systems. Second, the rise of virtual and dot.com businesses encouraged firms to develop Internet-based businesses. This combined increase in demand for IT staff increased the wage rate for IT staff and is illustrated in Figure 4.14.

Two further influences then occurred. First, the high wage rates being paid to IT staff attracted workers into the IT industry, graduates entered IT employment and new student recruitment moved towards IT-based courses. The supply of IT-capable workers shifted to the right. Second, the millennium bug did not appear and Internet-based business did not increase as rapidly as expected. Firms reduced demand for IT staff and the demand curve shifted back to the left. With an increase in supply and a reduction in demand, IT wages have fallen. Companies now seeking IT support know that the market price has fallen and forcibly negotiate prices down. This is in contrast to the late 1990s when IT workers in a very tight market could forcibly negotiate prices upwards.

**Figure 4.14** Input price changes over time

Beginning at A: demand for IT workers shifts to the right following a rise in demand for Internet-based business and the millennium bug. The equilibrium moves to B and wage rates rise to  $W_2$ . Higher wages attract new additional workers into the market and supply shifts from  $Q_{S1}$  to  $Q_{S2}$ . The equilibrium is now at C and wages fall to  $W_1$ . Following overinvestment in IT, a lack of a millennium bug problem and a slow take up of Internet-based business, the demand for IT staff shifts back to the left from  $Q_{D2}$  to  $Q_{D1}$ . The equilibrium is now at D and wages have fallen to  $W_3$ .



### Summary

- 1 The supply curve shows a positive relationship between the market price and the willingness to supply.
- 2 The industry supply curve is the sum of all the individual firms' supply curves.
- 3 The market equilibrium occurs where the willingness to supply equals the willingness to demand.
- 4 The equilibrium is changed whenever demand or supply change. If demand increases, the price will rise and more will be traded. But if supply increases the price will drop while more will be traded. A reduction in demand leads to a reduction in prices and the amount traded, while a reduction in supply leads to higher prices and less being traded.
- 5 If the current price is above the equilibrium, supply will exceed demand and the market will show a surplus. Suppliers are likely to discount the price to shift excess stock and eventually return to the equilibrium price.
- 6 When the current price is below the equilibrium, demand will exceed supply and the market will show a shortage. The price will rise in the market as consumers seek out scarce supply and eventually the market will return to its equilibrium.

*Summary continued overleaf*

- 7 If consumers cannot differentiate between quality differences among competing products, the market is said to exhibit a pooling equilibrium. Providers of good-quality products will strive to create a separating equilibrium by undertaking behaviour that poor-quality providers are unwilling to match.
- 8 Good businesses can attempt to control or influence the market. Setting a price below the market equilibrium can help to launch a product and gain valuable market share.
- 9 Understanding how the market will develop in the future requires an understanding of supply and demand. Such an understanding can be used to forecast changes in product prices and input prices, all of which are essential for strategic planning.

### Learning checklist

*You should now be able to:*

Explain the concept of market equilibrium and use a demand and supply diagram to show the equilibrium

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Use demand and supply diagrams to analyse changes to price and quantity following changes in demand and supply

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Explain how changes in the equilibrium price and quantity are influenced by the elasticity of demand and supply

---

Explain the difference between a shortage and a surplus

---

Explain the difference between a pooling and a separating equilibrium

---

Explain how firms can benefit from pricing below the equilibrium price

---

Explain how an understanding of future trends in demand, supply and prices is of use to business



### Links to other chapters

Chapter 2 Consumers in the market place  
Chapter 3 Firms in the market place  
Chapter 5 Market structure and firm performance



### Developments in this chapter

Market equilibrium occurs where the willingness to demand equals the willingness to supply  
Changes in demand and supply lead to changes in the equilibrium  
The elasticity of supply and demand influence the size of the change in equilibrium price and quantity following changes in supply and demand  
Prices above the equilibrium lead to surpluses, while prices below the equilibrium lead to shortages  
Pooling equilibrium versus separating equilibrium and insurance markets



### Business applications

Pricing below the equilibrium to generate a shortage and appear successful  
Understanding how demand and supply change over the long run and lead to changes in market trading conditions



### Questions

- 1 Celebrity status brings riches, but will the increase in the number of boy bands, docusoaps and reality TV programmes, such as *Big Brother*, change the market price of celebrities?
- 2 If incomes were rising in an economy would you wish to invest in a house-building company?
- 3 Is studying for a degree a strategy for creating a separating equilibrium in the labour market?
- 4 Healthcare in the UK is free. Draw a diagram illustrating how waiting lists for hospital treatment in the UK reflect a market shortage at zero price.

