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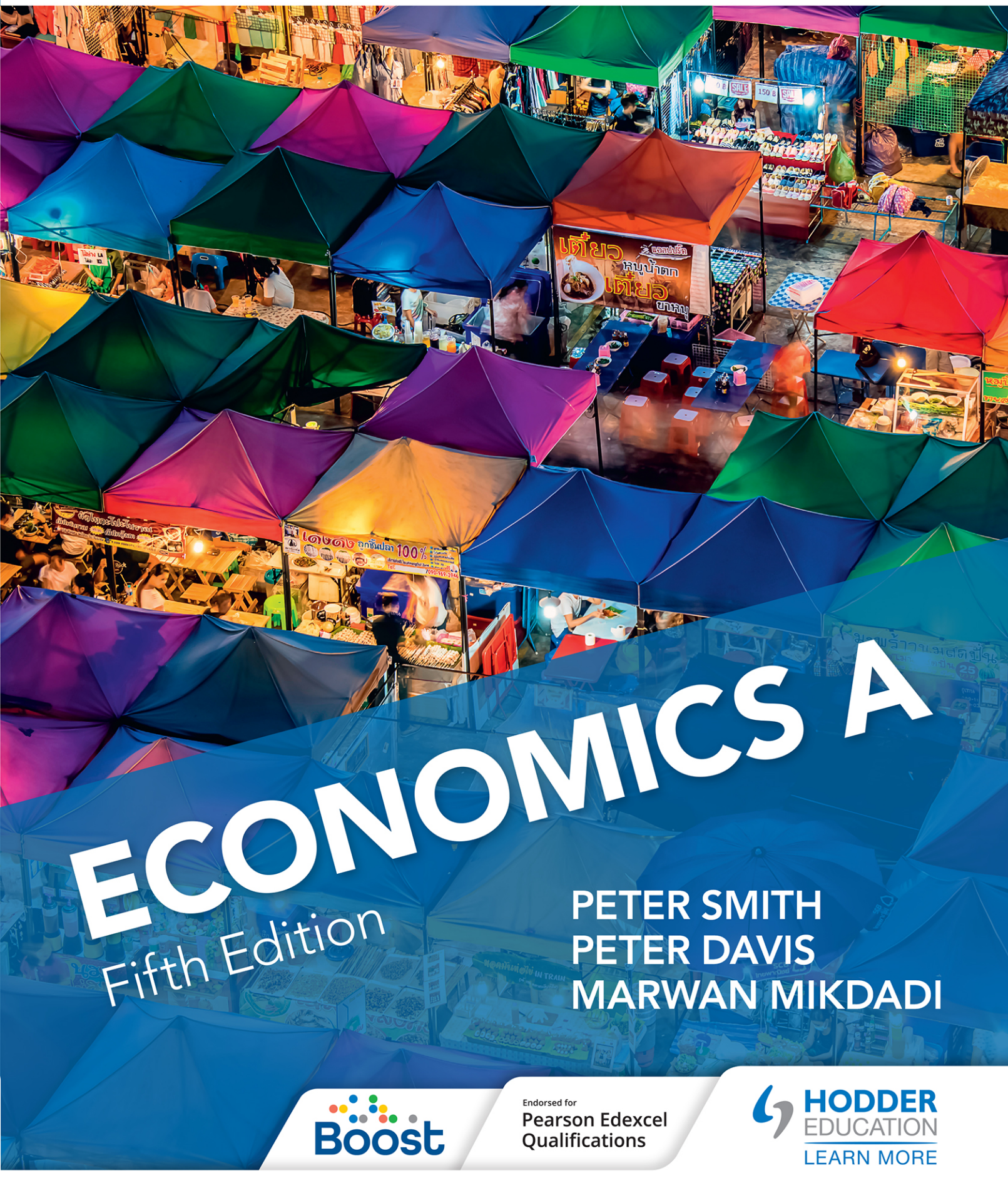

ECONOMICS A

Fifth Edition

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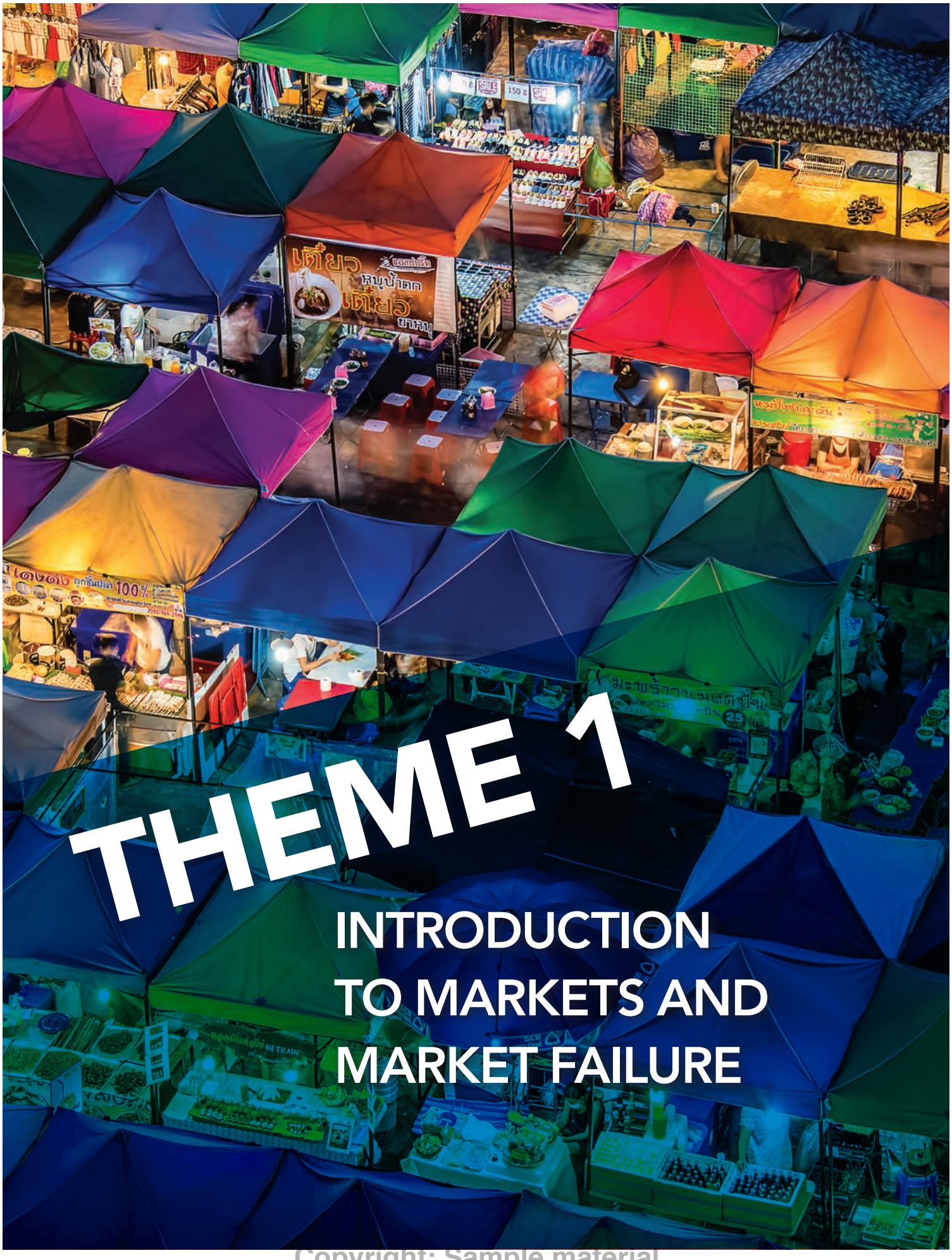

THEME 1

INTRODUCTION TO MARKETS AND MARKET FAILURE

1 The nature of economics

1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6

Welcome to economics. Many of you opening this book will be meeting economics for the first time, and you will want to know what is in store for you as you set out to study the subject. This opening chapter sets the scene by introducing you to some key ideas and identifying the scope of economic analysis. As you learn more of the subject, you will find that economics is a way of thinking that broadens your perspective on the world around you.

In this chapter

This chapter will introduce you to:

- the nature and scope of economic analysis
- the role of models and assumptions in economics
- positive and normative statements
- the importance of scarcity and choice
- the concept of opportunity cost
- the notion of factors of production
- the distinction between renewable and non-renewable resources and the idea of sustainability
- the production possibility frontier
- the concept of the division of labour
- how specialisation can improve productivity
- the role of markets and what is meant by a mixed economy
- alternative ways of coordinating the allocation of resources in society
- the distinction between microeconomics and macroeconomics

What is economics?

As its name suggests, economics deals with all aspects of economic behaviour. It explores the way that individuals, businesses and governments take economic decisions. For example, it highlights the factors that influence the decisions made by households in choosing what to consume, and the decisions made by firms about what goods and services to produce. It also examines the decisions made by governments about taxation and expenditure.

All these decisions interact with each other — and human behaviour is not always easy to understand — so economics faces a substantial challenge in trying to deal with the complexity of the real world.

Key term

model a simplified representation of reality used to provide insight into economic decisions and events

If economists are to cope with this complexity, it is essential to simplify reality in some way; otherwise the task would be overwhelming. Economists therefore work with **models**. These are simplified versions of reality that are more manageable for analysis, allowing economists to focus on some key aspects of the world.

Often this works by allowing them to focus on one thing at a time. A model almost always begins with assumptions that help economists to simplify their questions. These assumptions can then be gradually relaxed so that the effect of each one of

them can be observed. In this way, economists can gradually move towards a more complicated version of reality.

Chapter 2 considers the demand for a good, and the factors that affect how much of a good is demanded by consumers. Trying to analyse all the possible influences on these decisions would be difficult, so it is common to start by exploring how the price of a good affects the quantity demanded, under the assumption that all other influences stay the same. This is a common assumption in economics, which is sometimes expressed by the Latin phrase **ceteris paribus**, meaning 'other things being equal'. Given the complexity of the real world, it is often helpful to focus on one thing at a time.

Economics explores the way that individuals, businesses and governments take economic decisions

To evaluate a model, it is not necessary that it be totally realistic. The model's desired objective may be to help in predicting future behaviour, or in testing empirical evidence collected from the real world. If a model provides insights into how individuals take decisions, or helps to explain economic events, then it has some value, even if it seems remote from reality.

However, it is always important to examine the assumptions that are made, and to ask what happens if these assumptions do not hold.

Test yourself 1.1

What phrase is used by economists when assuming that some variables are to be held constant?

Economics as a social science

A question that is often raised in relation to economics as a subject is whether it can be regarded as a 'science', given that it deals with decisions taken by human beings. Economics attempts to study economic aspects of society using a scientific approach, and as such can be seen as a **social science**.

In many physical sciences, investigation can proceed by testing hypotheses in the laboratory through carrying out experiments. Experimental economics is a rapidly expanding area in the subject, but although this allows economists to improve their understanding of individual behaviour, there are still many areas of economics where it is not possible to rely on experiments to advance knowledge.

Key terms

ceteris paribus a Latin phrase meaning 'other things being equal'; it is used in economics when we focus on changes in one variable while holding other influences constant

social science a subject involving the scientific study of human beings

Economists can stage experiments in which they ask a sample of individuals how they would act in various situations — for example, what they would pay for a good or service. This can provide insights into economic behaviour. However, there are situations in which it is simply not possible to set up an experiment. A government cannot decide to double the rate of income tax to find out what would happen. A firm would be wary of making a substantial increase in the price of its product just to see what happens.

Astrophysics faces similar challenges, as it cannot move stars and planets around to see what happens! Instead it relies on observations to develop its theories. Economics also relies on observation and assumptions to interpret the way in which economic decisions are taken. It then attempts to apply logic and scientific reasoning to build on assumptions in order to explain behaviour.

Positive and normative economic statements

Economics aims to look at the causes and consequences of choices in an objective way. However, some of its subject matter requires careful attention if we are to remain objective. To achieve this, it is important to be clear about the difference between **positive** and **normative statements**.

In short, a positive statement is about *facts* and in principle is testable. A normative statement is about *what ought to be*. Another way of looking at this is that a statement becomes normative when it involves an opinion or **value judgement**.

Suppose the government is considering raising the tax on cigarettes. It may legitimately consult economists to discover what effect a higher tobacco tax will have on the consumption of cigarettes and on government revenues. This would be a *positive* investigation, in that the economists are being asked to use economic analysis to forecast what will happen when the tax is increased.

A very different situation will arise if the government asks whether it *should* raise the tax on cigarettes. This calls for an opinion to be expressed (a value judgement). For example, a response might be to say that the tax on cigarettes ought not to be raised because it discriminates against smokers. This would be a *normative* statement. There are some words that indicate normative statements, such as 'should' or 'ought to' — watch for these.

Most of this book is about positive economics. However, you should be aware that positive analysis is often called upon to inform normative judgements. If the aim of a policy is to stop people from smoking (which reflects a normative judgement about what *ought* to happen), then economic analysis may be used to highlight the strengths and weaknesses of those alternatives in a purely positive fashion.

Critics of economics often joke that economists always disagree with one another: for example, it has been said that if you put five economists in a room together, they will come up with at least six conflicting opinions. However, although economists may arrive at different value judgements, and have differences when it comes to normative issues, there is much greater agreement when it comes to positive analysis. Nonetheless, value judgements do influence economic decision making and policy because different people — and political parties — may have different views about what is desirable for society, even if they agree on how policies may work.

Key terms

positive statement a statement about what is (i.e. about facts)

normative statement a statement that involves a value judgement about what *ought to be*

value judgement a statement based on your opinion or beliefs, rather than on facts

Study tip

Notice that the word 'positive' here is not used in the sense of being opposite to 'negative'. A positive statement that is found to be false is still a positive economic statement, as it is a statement about facts.

Synoptic link

The effect of a tax on cigarettes is examined in Chapter 5.

Test yourself 1.2

Is the following statement a normative or a positive statement? 'The government ought to raise unemployment benefits.'

The economic problem

For any society in the world, the fundamental economic problem faced is that of **scarcity**. You might think that this is obvious for some societies in the developing world, where poverty and hunger are rife. But it is also true for relatively prosperous economies such as those of Switzerland, the USA and the UK.

It is true in the sense that all societies have *finite resources*, but people have unlimited wants. A big claim? Not really. There is no country in the world in which all wants can be met, and this is clearly true at the global level.

There is a difference between wants and needs. Everyone needs to breathe and to eat, so air and food are necessary for human life. However, there are also things that people would like to consume, and these are known as wants.

There are some goods that may be regarded as **free goods**. An example might be the earth's atmosphere, which would not normally be regarded as scarce. Goods that are scarce are known as **economic goods**. Most goods fall into this category.

Talking about scarcity in this sense is not the same as talking about **poverty**. Poverty might be seen as an extreme form of scarcity, in which individuals lack the basic necessities of life; whereas even relatively prosperous people face scarcity, because resources are limited.

Scarcity and choice

The key issue that arises from the existence of scarcity is that it forces people to make choices. Each individual must choose which goods and services to consume. In other words, everyone needs to prioritise the consumption of whatever commodities they need or would like to have, as they cannot satisfy all their wants. Similarly, at the national level, governments have to make choices between alternative uses of resources.

Test yourself 1.4

Give examples of the ways in which the government spends its funds.

It is this need to choose that underlies the subject matter of economics. Economic analysis is all about analysing those choices made by individual people, firms and governments.

Opportunity cost

This raises one of the most important concepts in all of economic analysis — the notion of **opportunity cost**. When an individual chooses to consume one good, they do so at the cost of the item that would have been next in their list of priorities. For example, suppose you are on a strict diet, and at the end of the day you can 'afford' either one chocolate or a piece of cheese. If you choose the cheese, the opportunity cost of the cheese is the chocolate that you could have had instead.

This important notion can be applied in many different contexts, because whenever you make a decision you reject an alternative in favour of your chosen option. You have chosen to read this book — when instead you could be watching television or meeting friends.

Test yourself 1.3

Thinking of yourself, give an example of a 'want' and of a 'need'.

Synoptic link

The meaning and causes of poverty are examined in Chapter 27, where you will see that although absolute poverty may only exist in developing countries, relative poverty also exists in advanced countries such as the UK.

Key terms

scarcity a situation that arises when people have unlimited wants in the face of limited resources

free goods goods such as the earth's atmosphere that are not normally regarded as being scarce

economic goods goods that are scarce

poverty a situation in which individuals lack the basic necessities of life or have low incomes relative to their fellow citizens

opportunity cost in decision making, the value of the next-best alternative forgone

Key term

marginal analysis an approach to economic decision making based on considering the additional (marginal) benefits and costs of a change in behaviour

Study tip

Opportunity cost is a key concept in economics, and is important in a variety of contexts. Similarly, marginal analysis is a key part of economic thinking, so make sure that you understand these fully from the outset.

The notion of opportunity cost is related to an important tool in economics known as **marginal analysis**. This is based on the idea that people take decisions by considering small changes that could be made. For example, in choosing whether to read this book, you may consider if the extra (marginal) benefit you will receive from doing so will exceed the additional benefit you would receive from watching television. Firms may also take decisions in this way, perhaps by checking whether the cost of producing and selling an additional unit of output will exceed the extra (marginal) return they receive from selling it. This approach will become familiar to you as you continue to study economics.

Exercise 1.1

Asif has just started his A level courses, and has chosen to take Economics, Mathematics and French. Although he was certain about the first two, it was a close call between French and English. What is Asif's opportunity cost of choosing French?

As you move further into studying economics, you will encounter this notion of opportunity cost again and again. A household choosing to buy a new car faces an opportunity cost in having to forgo a holiday. A farmer choosing to grow onions incurs an opportunity cost in not being able to grow potatoes. The need to balance the relative merits of alternative choices is challenging, but crucial. Economic thinking helps to explain how such choices are made, and how they could be improved.

Test yourself 1.5

Suppose your school or college wants to build a new sports hall. Identify possible elements of the opportunity cost of such a project.

Economic agents

In analysing the process by which choices are made, it is important to be aware of the various economic agents that are responsible for making decisions. In economic analysis, there are three key groups of decision makers: consumers, producers and government.

- *Consumers* (individuals and households) make choices about their expenditure. In this role, they are consumers who demand goods and services. In order to be able to buy goods, consumers need income, so they also take decisions about the supply of their labour, which is discussed in the next section.
- *Producers* (firms or businesses) exist in order to produce output of goods or services. Producers also make choices, particularly about which goods or services to produce, and the techniques of production to be used. The prices at which they can sell are also important in economic analysis. Firms also have a dual role, as they need to purchase machines and raw materials if they are to produce goods and services.
- *Government* fulfils several roles in society. It undertakes expenditure, and influences the economy through its taxation and regulation of markets.

Opportunity cost is crucial for each of these economic agents, because they each face constraints on their choices. As soon as they choose one course of action, they forgo the possibility of taking an alternative decision.

Factors of production

People in a society play two quite different roles. On the one hand, they are the consumers, the ultimate beneficiaries of the process of production. On the other hand, they are a key part of the production process in that they are instrumental in producing goods and services by supplying labour. The production process requires not only labour but other resources as well. These productive resources are known as the **factors of production**. The main types are outlined in Table 1.1.

Key term

factors of production resources used in the production process; inputs into production, particularly including labour, capital, land and enterprise

Table 1.1 The factors of production

Labour	The most obvious human resource, labour is a key input into production. There are many different types of labour, encompassing different skill levels and working in different ways, from unskilled labourers to web designers or brain surgeons.
Capital	The term 'capital' covers inputs such as plant and machinery, transport equipment and factory buildings.
Enterprise	Enterprise is another human resource. An entrepreneur is someone who organises production and identifies projects to be undertaken, bearing the risk of the activity. This is an important role in the modern economy, where firms need to be alert for market opportunities. Management is also sometimes classified as a human resource, although it might be seen as a particular form of labour.
Land	Land covers the inputs provided by nature — both the land itself and the natural resources that nature provides in the form of raw materials.

The way in which these inputs are combined in order to produce output is another key part of the allocation of resources. Firms need to take decisions about the mix of inputs used in order to produce their output. Such decisions are required no matter what form of economic activity a firm is engaged in.

The rewards to factors of production

The factors of production need to be rewarded in return for the services that they provide, as shown in Table 1.2.

Table 1.2 Rewards to the factors of production

Labour	Households supply their labour in return for wages and salaries. The wage is therefore the reward for the labour services that they supply, for which they must give up their leisure time.
Capital	Interest is the return on the use of capital services. It is the return that the firm gains from using the capital goods in the production process. In doing this, the firm forgoes the interest that it could have gained from investing in a financial asset.
Enterprise	Profit is the reward for enterprise. By recognising income-earning opportunities for the firm, the entrepreneur is able to make profit for the business.
Land	It is the rental that constitutes the reward for the use of land in production.

Synoptic link

The decisions taken by producers are discussed later, in particular in Chapter 18, but first you need to understand more about the behaviour of households and firms.

Test yourself 1.6

How do we refer to resources such as labour, land, capital and enterprise when they are used in production?

Factors of production — labour (workers), capital (buildings) and land

Renewable and non-renewable resources

An important distinction is between **renewable resources** such as forests, and **non-renewable resources** such as oil or coal.

In the case of renewable resources, there have been many debates in recent years about the dangers of depleting such resources at too rapid a rate to allow replacement. One example of this has been the stocks of some fish such as cod, where it has been argued that overfishing may lead to the extinction of the species. Similar arguments have been applied to other resources such as the rainforests. This has highlighted the importance of sustainable development, which has been defined as 'development which meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland Commission, 1987). Applying this to the case of cod fishing, for example, sustainable fishing would be seen in terms of not catching so many cod that the overall population becomes unsustainable.

For non-renewable resources, reserves are finite — by definition — so concern has arisen over their possible exhaustion. Attention has tended to focus on oil, which is much in demand, especially given rapidly rising car ownership. This has led to a search for renewable sources of energy (and the development of electric cars), which would also contribute to sustainability. One economic issue here is whether the prices of resources such as oil will rise as reserves are depleted. This could then have the effect of giving incentives to firms to develop alternative, 'green' sources of energy. It could also mean that some reserves of oil that are currently uneconomic may become viable. This is one example of how prices can be seen to guide resource allocation.

Key terms

renewable resources natural resources that can be replenished, such as forests that can be replanted, or solar energy that does not get used up

non-renewable resources natural resources that once used cannot be replenished, such as coal or oil

Test yourself 1.7

Name one example of a renewable energy resource, and one example of a non-renewable energy source.

Exercise 1.2

Classify each of the following as human, natural (renewable or non-renewable) or produced resources:

a timber
b the services of a window cleaner
c a combine harvester
d a computer programmer who sets up a company to market their software
e a computer

The three key economic questions

By now you should be getting some idea of the subject matter of economics. The American economist Paul Samuelson (who won the Nobel Prize for Economic Sciences in 1970) identified three key questions that economics sets out to investigate:

1 *What?* What goods and services should be produced in a society from its scarce resources? In other words, how should resources be allocated among producing smartphones, potatoes, banking services and so on?

2 *How?* How should the productive resources of the economy be used to produce these various goods and services?

3 *For whom?* Having produced a range of goods and services, how should these be allocated among the population for consumption?

Test yourself 1.8

What were the three key questions that Samuelson identified for economics?

Exercise 1.3

With which of Samuelson's three questions (what, how, for whom) would you associate the following?

a A firm chooses to switch from producing laptop computers in order to increase its output of tablet computers.

b The government reduces the highest rate of income tax.

c Faced with increased labour costs, a firm introduces labour-saving machinery.

d There is an increase in social security benefits.

e The owner of a fish-and-chip shop decides to close down and take a job in a local factory.

Summary: key economic ideas

- Positive statements are about what is, whereas normative statements are about what ought to be.
- The fundamental problem faced by any society is scarcity, because resources are finite but wants are unlimited. As a result, choices need to be made.
- Each choice has an opportunity cost – the value of the next-best alternative forgone.
- The amount of output produced in a period depends on the inputs of factors of production.
- The rate at which renewable resources are used needs to be seen in the light of the notion of sustainability.
- Economics deals with the questions of what should be produced, how it should be produced, and for whom.

The production possibility frontier

Economists rely heavily on diagrams to help in their analysis. In exploring the notion of opportunity cost, a helpful diagram is the **production possibility frontier (*PPF*)**. This shows the maximum combinations of goods that can be produced with a given set of resources.

Key term

production possibility frontier (*PPF*) a curve showing the maximum combinations of goods or services that can be produced in a given period with available resources

First consider a simple example. In an earlier exercise, Asif was studying for his A levels. Suppose now that he has got behind with his homework. He has limited time available, and has five economics questions to answer and five maths exercises. An economics question takes the same time to answer as a maths exercise.

What are the options? Suppose he knows that in the time available he can tackle either all of the maths and none of the economics, or all of the economics and none of the maths. Alternatively, he can try to keep both teachers happy by doing some of each.

Quantitative skills 1.1

Drawing and interpreting graphs: the production possibility frontier

An important quantitative skill is to be able to draw and interpret graphs. The diagram showing the *PPF* is a good example to introduce this skill.

When you look at Figure 1.1, you may be surprised to see that the 'curve' is actually a straight line. What is important to the economist is that we can use diagrams to show an economic relationship. Sometimes, this may be a line, but sometimes we might expect a curve. In Figure 1.1, the 'curve' happens to be a straight line.

Figure 1.1 shows the options that Asif faces. He can devote all of his efforts to maths, and leave the economics for another day. He will then be at point *A* in the figure, choosing to do 5 maths exercises (which you read off as the value on the vertical axis), but no economics exercises (reading zero on the horizontal axis).

Alternatively, he can do all the economics exercises and no maths, and be at point *B*. The line joining these two extreme points shows the intermediate possibilities. For example, at *C* he does 2 economics exercises and 3 maths problems – again you read off the values from the two axes.

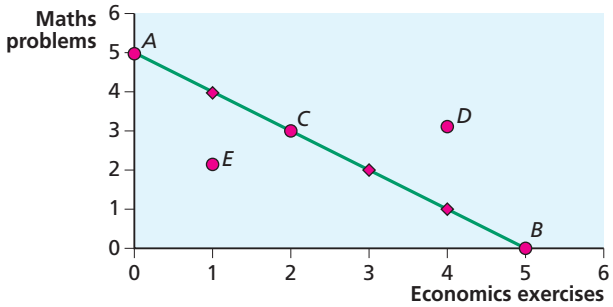

Figure 1.1 The production possibility frontier

The line shows the maximum combinations that Asif can tackle – which is why it is called a 'frontier'. There is no way he can manage to be beyond the frontier (for example, at point *D*), as to do 3 maths exercises and 4 economics ones would need more time than he has available. However, he could end up inside the frontier, at a point such as *E*. This could happen if he gives up, and squanders his time by watching television; that would be an inefficient use of his resources – at least in terms of tackling his homework.

As Asif moves down the line from left to right, he is spending more time on economics and less on maths. The opportunity cost of tackling an additional economics question is an additional maths exercise forgone. One way of expressing this is that Asif faces a trade-off between the time spent on economics and on maths.

A trade-off

Key term

trade-off a situation in which the choice of one alternative requires the sacrifice of another

In the example discussed in the Quantitative skills box, Asif faces a **trade-off** between the time spent on economics and on maths. In other words, Asif can only spend more time on economics by spending less time on maths. He must trade off one against the other. You will come across many instances of this notion as your study of economics progresses.

Figure 1.2 shows how the *PPF* provides information about opportunity cost. Suppose we have a farmer with 10 hectares of land who is choosing between growing potatoes and onions. The *PPF* shows the combinations of the two crops that could

be produced. For example, if the farmer produces 300 tonnes of onions on part of the land, then 180 tonnes of potatoes could be produced from the remaining land. In order to increase production of potatoes by 70 tonnes from 180 to 250, 50 tonnes of onions must be given up. Thus, the opportunity cost of 70 extra tonnes of potatoes is seen to be 50 tonnes of onions.

Why might the *PPF* be curved?

Notice that the *PPF* in Figure 1.2 is drawn as a curve instead of a straight line. This is because the farmer's land varies in different plots, with some plots being ideal for potatoes but others being better for onions. The farmer can choose a balanced approach, using each plot of land for the use to which it is suited. However, if he were to choose to produce only onions (or only potatoes), overall the land would be less productive. In other words, the more onions that are produced, the higher their opportunity cost in terms of potatoes (and vice versa), reflected in the way that the *PPF* gets steeper moving from left to right.

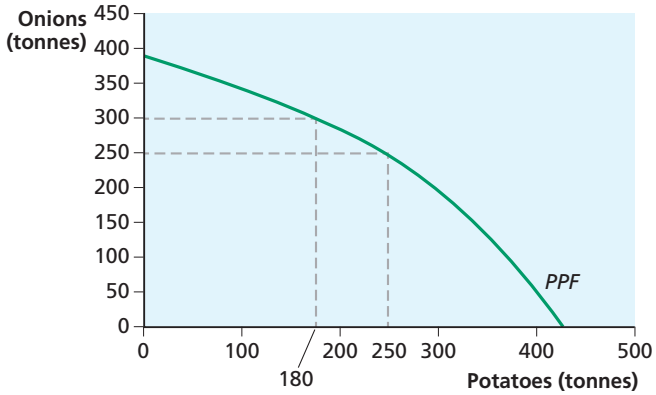

Figure 1.2 Opportunity cost and the *PPF*

Consumption and investment

To move from thinking about an individual to thinking about an economy as a whole, it is first necessary to simplify reality. Assume an economy that produces just two types of good: **capital goods** and **consumer goods**. Consumer goods are for present use, whereas capital goods are to be used to increase the future capacity of the economy — in other words, for investment.

Figure 1.3 illustrates society's options in a particular period. Given the resources available, society can produce any combination of capital and consumer goods along the *PPF* line. Thus, point *A* represents one possible combination of outputs, in which the economy produces C_1 consumer goods and K_1 capital goods.

As with the simpler example, if society were to move to the right along the *PPF*, it would produce more consumer goods — but at the expense of capital goods. Thus, it can be seen that the opportunity cost of producing consumer goods is forgone opportunities to produce capital goods. However, as the economy moves towards complete specialisation in one of the types of good, factors are no longer being best used, and the opportunity cost changes. For example, if nearly all of the workers are engaged in producing

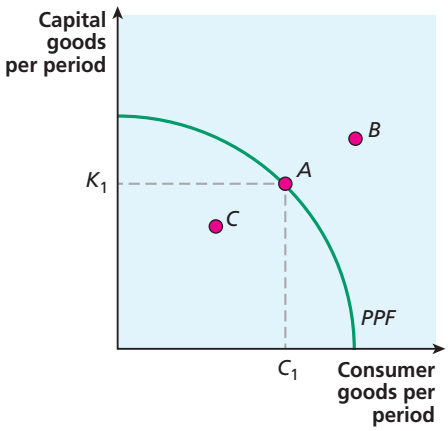

Figure 1.3 Capital and consumer goods

Study tip

Diagrams are an important way of explaining economic concepts, and being able to integrate economic diagrams into your analysis is a good way of improving your understanding – and showing examiners that you understand!

Test yourself 1.9

If a firm buys a computer to use in its production process, is this an example of a consumer or a capital good?

Key terms

capital goods goods used as part of the production process, such as machinery or factory buildings

consumer goods goods produced for present use (consumption)

consumer goods, it becomes more difficult to produce still more of these, whereas those workers producing machinery find they have too few resources with which to work. In other words, the more consumer goods are being produced, the higher is their opportunity cost.

It is now possible to interpret points *B* and *C*. Point *B* is unobtainable given present resources, so the economy cannot produce that combination of goods. This applies to any point outside the *PPF*. On the other hand, at point *C* society is not using its resources efficiently. In this position there is *unemployment* of some resources in the economy. By making better use of the resources available, the economy can move towards the frontier, reducing unemployment in the process. However, at any point on the frontier, production is productively efficient in the sense that all resources are being fully utilised.

Test yourself 1.10

In Figure 1.3, which labelled points represent productively efficient positions?

Economic growth or decline

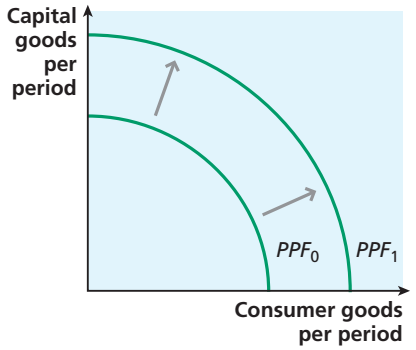

Figure 1.4 Economic growth

Figure 1.3 focuses on a single period. However, if the economy is producing capital goods, then in the following period its capacity to produce should increase, as it will have more resources available for production. How can this be shown on the diagram? An expansion in the available inputs suggests that in the next period the economy should be able to produce more of both goods. This is shown in Figure 1.4.

In the initial period the production possibility frontier is at PPF_0. However, in the following period the increased availability of capital resources enables greater production, and the frontier moves to PPF_1. This is a process of **potential economic growth**, an expansion of the economy's productive capacity through the increased availability of inputs. If the economy were to go into decline, such that less output could be produced, the frontier would shift inwards.

Key term

potential economic growth an expansion in the productive capacity of the economy

Notice that the decision to produce more capital goods today means that fewer consumer goods will be produced today to provide more in the future.

An increase in the availability of inputs is not the only way in which the *PPF* could shift outwards. An increase in the way in which the inputs are used would also allow the *PPF* to shift out. Such a change would be known as an increase in productivity. This could happen through technical advance, for example.

Test yourself 1.11

Suppose that a firm devises a new and more cost-effective production method. How would this affect the *PPF*?

There could also be a shift inwards of the *PPF* if there is a reduction in the availability of inputs, or a fall in the productivity of inputs. For example, returning to the farmer's production of onions and potatoes, if part of the land is flooded and becomes unusable, then the farmer would have less land to work. If the land is over-farmed, it could become less productive. In either case, the *PPF* would shift inwards.

Total output in an economy

Remember that the *PPF* is a model: a much simplified version of reality. In a real economy, many different goods and services are produced by a wide range of different factors of production — but it is not possible to draw diagrams to show all of them.

The total output of an economy like the UK is measured by its **gross domestic product (GDP)**.

Key term

gross domestic product (GDP) a measure of the economic activity carried out in an economy over a period

By calculating the *average* level of GDP per person in a country, it is possible to derive a measure of the average amount of resources per person — or average income per head.

Exercise 1.4

Megan has been cast away on a desert island, and has to survive by spending her time either fishing or climbing trees to get coconuts. The *PPF* in Figure 1.5 shows the maximum combinations of fish and coconuts that she can gather during a day. Which of the points *A* to *E* represents each of the following?

a a situation where Megan spends all her time fishing

b an unobtainable position

c a day when Megan goes for a balanced diet – a mixture of coconuts and fish

d a day when Megan does not fancy fish, and spends all day collecting coconuts

e a day when Megan spends some of the time trying to attract the attention of a passing ship

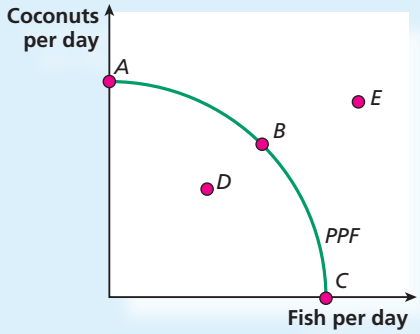

Figure 1.5 Fish and coconuts

Summary: the production possibility frontier

- The production possibility frontier shows the maximum combinations of goods or services that can be produced in a period by a given set of resources.
- At any point on the frontier, society is making full use of all resources.
- At any point inside the frontier, there is unemployment of some resources.
- Points beyond the frontier are unobtainable.
- In a simple society producing two goods (consumer goods and capital goods), the choice is between consumption and investment for the future.
- As society increases its stock of capital goods, the productive capacity of the economy increases, and the production possibility frontier moves outwards: this may be termed 'economic growth'.

Specialisation and the division of labour

How many workers does it take to make a pin? The eighteenth-century economist Adam Smith figured that 10 was about the right number. He argued that when a worker was producing pins on their own, carrying out all the various stages involved in the production process, the maximum number of pins that could be produced in one day was 20 — given the technology of his day, of course. This would imply that 10 workers could produce about 200 pins if they worked in the same way as the lone worker. However, if the pin production process were broken into 10 separate stages, with one worker specialising in each stage, the maximum production for a day's work would be a staggering 48,000. This is known as **division of labour**.

Key term

division of labour a process whereby the production procedure is broken down into a sequence of stages, and workers are assigned to a particular stage

The division of labour is effective because individual workers become skilled at performing specialised tasks. By focusing on a particular stage, they can become highly adept, and thus more efficient, at carrying out that task. In any case, people are not all the same, so some are better at certain activities. Furthermore, this specialisation is more efficient because workers do not spend time moving from one activity to another. Specialisation may also enable firms to operate on a larger scale of production. You will see later that this may be advantageous.

This can be seen in practice in many businesses today, where there is considerable specialisation of functions. Workers are hired for particular tasks and activities. You do not see your star striker pulling on the goalkeeper's jersey at half time because he fancies a change. Earlier in the chapter, it was argued that 'labour' is considered a factor of production. This idea can be developed further by arguing that there are different types of labour, having different skills and functions.

Advantages and disadvantages of division of labour

Specialisation therefore means that workers can focus on the tasks that they perform well and hence become more productive, which could then have a favourable effect on a firm's costs of production. Training can also be provided more cost-effectively when it can be focused on specific tasks that workers need to perform. Furthermore, working as a team allows more overall output to be produced. However, it is possible to take specialisation too far. A worker who spends all their time on a narrow and repetitive task may find that it becomes tedious or that they become bored and careless. This could then mean that firms face problems of staff turnover. Over-specialisation may also mean that a team of workers becomes inflexible: if a worker specialising in a key part of the production process becomes ill, it may be difficult to find cover.

Employees at a BMW factory. Each worker specialises in a particular task, creating an efficient assembly line

Specialisation between firms and nations

Although we refer to the division of labour, we can extend these arguments to consider specialisation among firms. For example, consider car manufacturing. The process of mass-producing cars does not all take place within a single firm. One firm may specialise in producing tyres; another may produce windscreens; another may

focus on assembling the final product. Here again, specialisation enables efficiency gains to be made.

Specialisation also takes place among nations, simply because some countries are better equipped to produce some products than others. For example, it would not make sense for the UK to go into commercial production of pineapples or mangoes. There are other countries with climatic conditions that are much more suitable for producing these products. On the other hand, many Formula 1 racing teams have their headquarters in the UK, and there are benefits from this specialisation.

Specialisation may have disadvantages. A firm that specialises may find that it is vulnerable in times of recession, or if it supplies another firm that encounters trading difficulties. If this means that demand for its product falls, it may have to close down. This might be seen as an incentive to diversify its product range so that it does not depend so heavily on a particular activity or product.

A nation may face similar issues, especially if it chooses to specialise in a product that is strategically important. For example, a country that specialises in agricultural production may find itself in difficulty if the price of its products falls relative to other goods. If the country is highly dependent on exporting goods, or on importing key items, then a global disruption of trade could create problems. This was evident during the coronavirus (COVID-19) pandemic and the war in the Ukraine.

Synoptic link

The possible gains from specialisation and trade are discussed more fully in Chapter 24 in the context of international trade.

Summary: specialisation and the division of labour

- Adam Smith introduced the notion of division of labour.
- This suggests that workers can become more productive by specialising in stages of the production process.
- This enables more output to be produced.
- There may be limits to specialisation: in the production process, performing repetitive tasks may become tedious and induce errors, and for the firm or economy too much specialisation involves risk.

Test yourself 1.12

Name a possible disadvantage of over-specialisation in production.

Markets

You will find that in economics the term '**market**' is used frequently, so it is important to be absolutely clear about what is meant by it.

Key term

market a set of arrangements that allows transactions to take place

A market need not be a physical location (although it could be — you might regard a local farmers' market as an example of 'a set of arrangements that allows transactions to take place'). The COVID-19 pandemic accelerated the trend towards online shopping, meaning that everyone has become accustomed to ways of buying and selling that do not involve direct physical contact between buyer and seller — so the notion of an abstract market should not be too alien a concept.

In relation to a particular product, a market brings together potential buyers and sellers. This is explored in the coming chapters.

Synoptic link

The role of prices in influencing resource allocation is explored more fully in Chapter 5.

Markets are important in the process of resource allocation, with prices acting as a key signal to potential buyers and sellers. If a firm finds that it cannot sell its output at the price it has chosen, this is a signal about the way that buyers perceive the product. Price is one way that firms find out about consumers and their willingness to pay for a particular product.

The functions of money

Imagine a world without money. It is lunchtime, and you fancy a banana. In your bag you have an apple. Perhaps you can find someone with a banana who fancies an apple? But the only person with a banana available fancies an ice cream. The problem with such a *barter system* is that you need to find someone who wants what you have and who has what you want — a *double coincidence of wants*. If this problem were to be faced by a whole economic system, undertaking transactions would be so inefficient as to be impossible. Hence the importance of *money* as a *medium of exchange*.

In order to fulfil this role, money must be something that is acceptable to both buyers and sellers. Nobody would accept money in payment for goods or services if they did not trust that they could proceed to use money for further transactions. Money must thus also act as a *store of value*: it must be possible to use it for future transactions. This quality of money means that it can be used as one way of storing wealth for future purchases.

Money also allows the value of goods, services and other assets to be compared — it provides a *unit of account*. In this sense, prices of goods reflect the value that society places on them, and must be expressed in money terms. So, money is also a *measure of value*.

Test yourself 1.13

Name the four key functions of money.

A further role for money is that it acts as a *method of deferred payment*. For example, a firm may wish to agree a contract for the future delivery of a good, or may wish to hire a worker to be paid at the end of the month. Such contracts are typically agreed in terms of a money value.

All of these *functions of money* are important to the smooth operation of markets, and are crucial if prices are to fulfil their role in allocating resources within society. This will become apparent as you learn more about economics.

The coordination problem

With so many different individuals and organisations (consumers, firms, governments) all taking decisions, a major question is how it all comes together. How are all these separate decisions coordinated so that the overall allocation of resources in a society is coherent? In other words, how can it be ensured that firms produce the commodities that consumers wish to consume? And how can the distribution of these products be organised? These are some of the basic questions that economics sets out to answer.

Market economy

A **free market economy** is one in which market forces are allowed to guide the allocation of resources within a society without intervention from government. Prices play a key role in this sort of system, providing signals and incentives to producers and consumers. Adam Smith argued that in such a system, resources would be allocated effectively (and fairly) through the operation of an 'invisible hand'. This operates when individuals are free to pursue their own interests. Firms would produce the goods and services that consumers wish to consume.

Synoptic link

The role of prices in influencing resource allocation is explored in Chapter 4.

Karl Marx argued that in a capitalist society in which there is private ownership of productive resources, the owners of capital would exploit their position at the expense of labour, eventually resulting in revolution. Although this did not transpire in the way that Marx expected, there was a move in some countries away from private ownership of capital and towards state control of resource allocation through central planning.

Command economy

A **command economy** is one in which the government undertakes the coordination role, planning and directing the allocation of resources. Given the complexity of modern economies, reliance on central planning poses enormous logistical problems. In order to achieve a satisfactory allocation of resources across the economy, the government needs to make decisions on thousands of individual matters.

One example of this emerges from the experience of central planning in Russia after the revolution in 1917. Factories were given production targets to fit in with the overall plan for the development of the economy. These targets then had to be met by the factory managers, who faced strong incentives to meet those targets. Factories producing nails were given two sorts of target. Some factories were given a target to produce a certain number of nails, whereas others were given targets in weight terms. The former responded by producing large numbers of very small nails; the latter produced a very small number of very big nails. Neither was what the planners had in mind!

Micromanagement on this sort of scale proved costly to implement administratively. The collapse of the Soviet bloc in the 1990s largely discredited this approach, although a small number of countries (such as North Korea and Cuba) continue to stick with central planning. China has moved away from pure central planning by beginning to allow prices to be used as signals.

Key terms

free market economy an economy in which market forces are allowed to guide the allocation of resources

command economy an economy in which decisions on resource allocation are guided by the state

Evaluation of economic systems

An influential economist was Friedrich von Hayek, who came from what became known as the neo-Austrian School. He saw that in the period after the Second World War, there was a move towards more intervention in the economy by governments which perceived that markets were not working effectively. For example, John Maynard Keynes had argued for a more active government in times of high unemployment, such as occurred in many countries in the 1930s. Hayek argued that such intervention would be damaging, because governments are faced with imperfect information, especially in a command economy. Markets would be more effective because they rely on people responding to signals and incentives.

Free market and centrally planned economies tackle the problem of how to allocate resources in very different ways, but both extreme forms are seen to experience problems. There are situations in which a free market system fails to produce an outcome that is good for society. On the other hand, the logistical problems facing a centrally planned economy also create insurmountable difficulties in micromanaging such a complex economic system.

In a free market system, prices can guide the allocation of resources in line with consumer preferences. Competition between firms can help to drive innovation and efficiency in production. However, markets do not always work effectively (as will be seen later in this Theme). Another disadvantage is that without government intervention, inequality between groups in society can arise, and the poor may not always be adequately protected.

In a command economy, there may be more equality across society and the government may be able to ensure good provision of essential services. However, inefficiency occurs when the allocation of resources is centrally directed. There may also be limits to inequality if certain groups are able to corner more than their fair share of the country's resources.

Study tip

Famous economists such as von Hayek and Keynes were influential in developing theories that we still rely upon today. Linking your own explanations of economic systems to their ideas can help you to develop your arguments.

Key term

mixed economy an economy in which resources are allocated partly through price signals and partly on the basis of intervention by the state

In practice, most economies operate a **mixed economy** system, in which market forces are complemented by some state intervention. This may be important because free markets can lead to inequality in the distribution of resources in society. It has been argued that any such state intervention should be *market-friendly*: in other words, when governments do intervene in the economy, they should do so in a way that helps markets to work, rather than trying to have the government replace market forces. In such an economy, the government plays a minimal role by setting the framework in which markets can operate.

Incentives

Another important concept that is at the heart of economic analysis is the notion that individuals respond to *incentives*. The coordination problem is handled in different forms of economy through the operation of different forms of incentive that influence decision making. In a market economy, prices and profits provide incentives, whereas in a centrally planned economy these incentives are replaced by state directives.

Test yourself 1.14

Name one example of a mixed economy.

Microeconomics and macroeconomics

Key terms

microeconomics the study of economic decisions taken by individual economic agents, including households and firms

macroeconomics the study of the interrelationships between economic variables at an aggregate (economy-wide) level

The discussion so far has focused sometimes on individual decisions, and sometimes on the decisions of governments, or of 'society' as a whole. Economic thinking is applied in different ways, depending on whether the focus is on the decisions taken by individual agents in the economy or on the interaction between economic variables at the level of the whole economy:

- **Microeconomics** deals with individual decisions taken by households or firms, or in particular markets.
- **Macroeconomics** examines the interactions between economic variables at the level of the aggregate economy.

In some ways the division between the two types of analysis is artificial. The same sort of economic reasoning is applied in both types, but the focus is different.

Exercise 1.5

Think about the following, and see whether you think each represents a microeconomic or macroeconomic phenomenon:

a the overall level of prices in an economy
b the price of ice cream
c the overall rate of unemployment in the UK
d the unemployment rate among catering workers in Aberdeen
e the average wage paid to construction workers in Southampton

Summary: free market, mixed and command economies

- Decisions about resource allocation need to be coordinated within a society.
- This may happen by allowing markets to guide decisions, through direct intervention by the state, or through a combination of the two in a mixed economy.
- Microeconomics deals with individual decisions made by consumers and producers, whereas macroeconomics analyses the interactions between economic variables in the aggregate – but both use similar ways of thinking.

Economics in the real world 1.1

Plantains and coffee

Jacob is a subsistence farmer who lives in Nangare, a village in the west of Uganda. He lives in a mud hut and owns two sheep, two chickens and one mattress for his household of ten people. He farms a small piece of land, on which he grows plantains (a staple food crop in Uganda, related to the banana) and some coffee. One of the key decisions that Jacob faces is how to allocate his land between plantains and coffee. If he chooses to plant more coffee in his field, he faces a cost, as growing more coffee means growing fewer plantains.

A number of factors are likely to influence this decision. For example, the prices of plantains and coffee may be important, and it may be that the costs involved in growing the two crops are different. Or it may be that some parts of the land are more suitable for growing one of the crops. There may also be other crops that could be grown on the land. All of these factors could affect Jacob's decisions.

Follow-up questions

a With reference to Jacob's choice between growing plantains and coffee, explain the concept of opportunity cost.

b Draw a possible production possibility frontier to illustrate Jacob's choice of producing plantains and coffee.

Plantains or coffee? How will Jacob allocate his land?

c Identify a point on the diagram that you drew for part (b) to illustrate a situation in which:

- **i** Jacob uses his land to produce only plantains.
- **ii** Jacob uses his land to produce a combination of plantains and coffee.
- **iii** Jacob does not use all of the land available, but produces a combination of the two crops.

Exam-style questions

1.1 Nature of economics

Short-answer questions

1 The production possibility frontier can be used to illustrate the trade-off between consumer and capital goods. An economy is currently achieving economic efficiency.

a Economic efficiency is best illustrated by any point: **(1)**

- **A** On the production possibility frontier
- **B** Where more consumer goods are produced than capital goods
- **C** Within the production possibility frontier
- **D** Where more capital goods are produced than consumer goods

b Draw a fully labelled production possibility frontier diagram to illustrate the opportunity cost of an economy producing more consumer goods. **(4)**

2 Economics is an example of a social science.

a As a social science, economics is **least likely** to involve: **(1)**

- **A** Making assumptions
- **B** Building economic models
- **C** Making value judgements
- **D** Conducting scientific experiments

Global wind generation rose from 1,587 to 1,814 terawatt hours between 2020 and 2021. However, many environmentalists believe the transition to renewable energy is too slow.

b Explain what is meant by the term 'positive statement'. **(2)**

c Calculate the percentage change in global wind generation between 2020 and 2021. You are advised to show your workings. **(2)**

Data response question: Government spending on HS2

Extract A: The rising cost of HS2

In February 2020, Boris Johnson confirmed the go-ahead for High Speed 2 (HS2). The controversial high-speed railway aims to reduce journey times between London and cities in the Midlands and the North of England, as well as increasing the rail network capacity.

Construction began in September 2020 and will employ 22,000 workers in its first phase. Division of labour is crucial to the success of the project and will be aided by the use of the most up-to-date technology. Although many of the jobs created will be directly in the construction of the railway itself, HS2 will also employ engineers, architects and designers.

However, there are also concerns about the increased government spending on the HS2 project, with the cost rising from £32.7 billion in 2012 to £56 billion in 2015. An independent review says the final bill could be as high as £106 billion. There have also been delays during the COVID-19 pandemic due to social distancing requirements, staff absences and problems resulting from global supply-chain disruption.

3 a With reference to Extract A, explain how increased government spending on the HS2 project will influence its opportunity cost. **(5)**

b Assess the likely benefit of using division of labour in the HS2 project. **(10)**

Essay question

4 According to the Index of Economic Freedom in 2022, Singapore is the best example of a free market economy in the world. The Singaporean economy is characterised by low levels of regulation and taxation.

Evaluate the likely benefits of scarce resources being allocated by a free market economy, such as Singapore. Refer to at least **one** famous economist in your answer. **(25)**

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