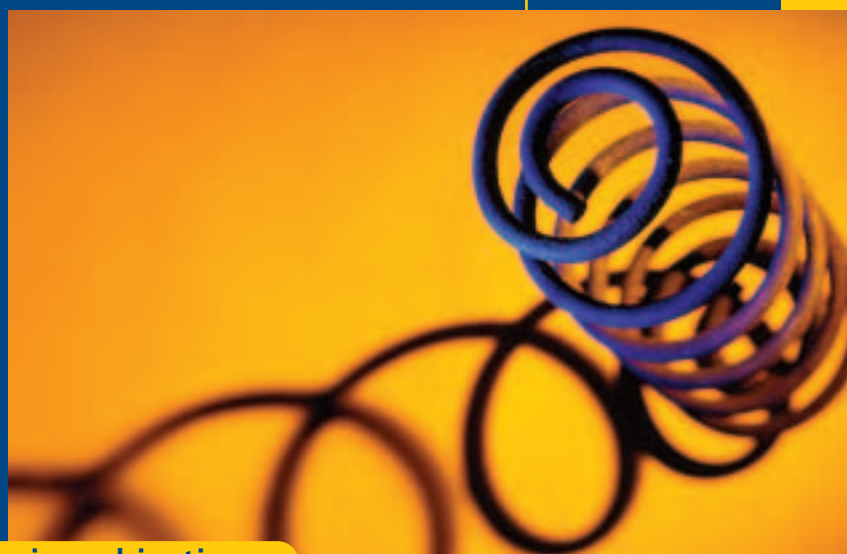


the economising problem



learning objectives

- Discuss the two fundamental facts that form the bases of the economising problem.
- Define the economising problem and expand on the definition of economics introduced in Chapter 1.
- Discuss the meaning of economic efficiency and examine the importance of specialisation to its achievement.
- Illustrate, extend and modify our definition of economics through the use of production possibilities tables and curves.
- Introduce the concept of opportunity cost, the law of increasing opportunity costs, and the law of comparative advantage.
- Restate and discuss the economising problem in terms of five fundamental questions.
- Survey briefly the different ways in which institutionally and ideologically diverse economies respond to the economising problem.
- Briefly discuss the roles of markets and money within the economic systems of industrially advanced economies.
- Use the production possibilities curve model to examine the trade-off between current and future consumption, and the importance of comparative advantage as a basis for trade between nations.
- Review the volume and pattern of Australia's trade.

Introduction

Chapter 2 plays an important role in your education in economics and the economic way of thinking. Here we introduce and explore the implications of some of the fundamentals of economics. As we do so, we will build on your understanding of the economic perspective of Chapter 1 in several stages. First, we introduce the facts that underlie the economising problem. Next we introduce several of the cornerstones of economic analysis and the economic way of thinking. These concepts are specialisation, opportunity cost and comparative advantage. These concepts are central to the economic organisation and function of Australia and many other industrially advanced nations, and provide some of the bases for trade between nations.

Industrially advanced economies have some further features in common. These include the use of money as a medium of exchange, and a reliance on markets and prices to coordinate at least some proportion of their economy's production and consumption activity. This prompts our discussion of these features at this point in the textbook, providing some important background material for the study of markets in Chapter 3, and the role of the market in allocating resources and products in Chapter 4.

After we have discussed some of the features that are common to industrially advanced nations, we provide a brief but important examination of the 'isms'. The 'isms' are the characteristics of the alternative economic systems that may be used to solve the component parts of the economising problem. Next, we will apply the concepts of opportunity cost, comparative advantage and specialisation to the analysis of three important issues: (1) the impact of technological advance; (2) the trade-off between current consumption and investment and future possibilities; and (3) an issue of great importance, the economic basis for trade between nations. We finish our discussion of trade in this chapter with a description of both the importance and composition of Australia's trade with the rest of the world.

The foundation of economics

There are two fundamental facts that constitute the **economising problem** and thus provide a foundation for the field of economics. We must carefully state and fully understand these two facts, since everything that follows in our study of economics depends either directly or indirectly on them.

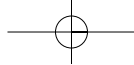
- Society's material wants, that is, the material wants of its citizens and institutions, are virtually unlimited, or insatiable.
- Economic resources—the means of producing goods and services—are limited or scarce.

Material wants: the desires of consumers to obtain and use various goods and services that give utility.

Utility: the economist's term for pleasure or satisfaction.

Unlimited wants

At any given time, the individuals and institutions that constitute society have innumerable **material wants** unfulfilled. But what do we mean by the term 'material wants'? We mean the desires of consumers to obtain various goods and services, the consumption of which provides **utility**. Utility is the economist's term for pleasure or satisfaction.



Some of these material wants—food, clothing and shelter—have biological roots. But the conventions and customs of society—the social and cultural environment in which we live—influence our material wants as well. Thus an amazingly wide range of products fit the bill: houses, cars, toothpaste, CDs, pizzas, jeans and so on. Innumerable products that we sometimes classify as necessities (food, shelter and clothing) and luxuries (perfumes, yachts and sparkling wine) are all capable of satisfying human wants. Of course what is a luxury to Smith may be a necessity to Jones, and what is viewed as a common necessity today may have been a luxury a few short years ago.

Services may also satisfy our wants as much as tangible products. Car repairs, an appendectomy, a haircut and legal advice also satisfy human wants. On reflection, we realise that we buy many goods—for example, consumer durables such as cars and washing machines—for the services they provide. The differences between goods and services are often less than they first seem.

As a group, our material wants are insatiable (unlimited), meaning that our material wants for goods and services are incapable of ever being completely satisfied. Our wants for a particular good or service can obviously be satisfied; that is, over a short period of time we can obtain sufficient amounts of toothpaste or beer. But goods and services in general are another story. Here we do not, and presumably cannot, obtain enough.

Further, over time, our wants seem to multiply; at the same time we fill some of the wants, we add new ones. The rapid development and introduction of new products attract our interest, and extensive advertising and sales promotion try to persuade us that we need items we might not otherwise consider buying. Not long ago we had no desire for digital-video discs (DVDs), mobile phones with a built-in fax capability or Internet connection. Furthermore, we often cannot stop with simple satisfaction; the acquisition of a new Ford may whet the appetite for a Porsche or Mercedes.

The overall objective of all economic activity is to attempt to satisfy society's diverse material wants.

Economic resources:

all the natural, human and manufactured resources that go into the production of goods and services.

Land:

an economic resource which includes all the natural resources that go into the production of goods and services.

Capital:

all the manufactured aids to production used to produce goods and services and distribute them to the final consumer without directly satisfying human wants.

Investment:

the process of producing and accumulating capital goods.

Scarce resources

Consider the second fundamental fact that *economic resources are limited or scarce*. What do we mean by **economic resources**? In general, we mean all the natural, human and manufactured resources that go into the production of goods and services. This obviously covers many things: factory and farm buildings; all equipment, tools and machinery used in the production of manufactured goods and agricultural products; a variety of transport and communication facilities; innumerable types of labour; and land and mineral resources of all kinds. Economists broadly classify such resources as:

- *property* resources—land, raw materials and capital
- *human* resources—labour and entrepreneurial ability.

Resource categories

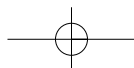
Let us examine these various resource categories.

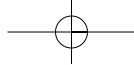
Land

The economist means more than is recognised by most people by the term **land**. Land constitutes all natural resources—all 'gifts of nature'—that are usable in the productive process. Such resources include arable land, forests, mineral and oil deposits, and water.

Capital

Capital, or investment goods, consists of those goods manufactured as aids to production. Capital includes factory, storage, transport and distribution facilities, and all tools, machinery and equipment used in producing goods and services and getting them to the ultimate consumer. The process of producing and accumulating capital goods is known as **investment**.





Capital goods ('tools') differ from consumer goods because the latter satisfy wants directly, whereas the former satisfy wants indirectly by facilitating the production of consumable goods. Note especially that the term 'capital' as here defined does not refer to money. True, businesspeople and economists often talk of 'money capital', meaning money available to purchase machinery, equipment and other productive facilities. But money, as such, produces nothing; hence, it is not considered as an economic resource.

Real capital—tools, machinery and other productive equipment—is an economic resource; *money* or *financial capital* is not.

Labour

Labour: a broad term the economist uses for all human physical and mental talents (excluding entrepreneurial ability) that can be used in producing goods and services.

Labour is the economist's broad term for all human physical and mental talents that can be used in producing goods and services. (This excludes a special class of human talent—entrepreneurial ability—which, because of its special significance in a capitalistic economy, we consider separately.) Thus the services of a builder's labourer, retail clerk, machinist, teacher, band member and investment banker all fall under the general heading of labour.

Entrepreneurial ability

Entrepreneurial ability: the human resource which combines the other resources to produce a product, make non-routine decisions, innovate, and bear risk.

Finally, there is the special human resource we label **entrepreneurial ability** or, more simply, *enterprise*. We assign four related functions to the entrepreneur.

The entrepreneur takes the *initiative* in combining the resources of land, capital and labour in the production of a good or service. Acting as both spark plug and catalyst, the entrepreneur is at once the driving force behind production and the agent who combines the other resources in what is hoped will be a profitable venture.

The entrepreneur makes basic business policy *decisions*, that is, those non-routine decisions that set the course of a business enterprise.

The entrepreneur is an *innovator*—the one who attempts to introduce, on a commercial basis, new products, new productive techniques or even new forms of business organisation.

The entrepreneur is a *risk bearer*. This is apparent from a close examination of the other three functions. Entrepreneurs in a capitalistic system have no guarantee of profit. The reward for their time, efforts and abilities may be attractive profits, or losses and eventual bankruptcy. They risk not only time, effort and business reputation, but also their invested funds and those of associates or shareholders.

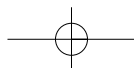
Resource payments

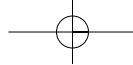
The income received from supplying land or raw materials is called *rental* income, whereas that from providing capital is called *interest* income. The income accruing to those who supply labour is called *wages* and includes salaries and various wage and salary supplements in the form of bonuses, commissions, royalties and so on. Entrepreneurial income is called *profits*, which, of course, may be a negative figure—that is, losses.

The four broad categories of economic resources, or *factors of production* or *inputs* as they are often called, leave room for debate when it comes to classifying specific resources. For example, suppose you receive a dividend on some BHP Billiton shares you own. Is this an interest return for the capital equipment that the company was able to buy with the money you provided in buying the shares? Or is this return a profit that compensates you for the risks involved in purchasing company shares? What about the earnings of a one-person corner store where the owner is both the entrepreneur and the labour force? Are the owner's earnings to be considered as wages or profit income? The answer to these situations is 'some of each'. The point is this: although we might argue about classifying a given flow of income as wages, rent, interest or profits, all income can be listed under one of these general headings.

Relative scarcity

Economic resources, or factors of production, have one fundamental characteristic in common: *economic resources are scarce, or limited in supply*. Our planet contains only limited





amounts of resources available for the production of goods and services. Quantities of arable land, mineral deposits, capital equipment and labour services are not infinite—they are limited. This scarcity is a constraint on productive activity, so that the output of goods and services is also limited. Society is not able to consume all that it wants. Thus in Australia, which is one of the world's more affluent nations, output per person was limited to about \$36 500 in 2001–02. In the poorest nations, output per year per person was as little as about \$200.

Relative intensity of resource use in production

Economic resources are not combined in the same proportions to produce each product. A product is said to be a relatively **land-intensive commodity** if its production process uses relatively large amounts of the land resource compared with the average rate at which this resource is combined with the other resources in the economy's production processes. For example, the production of gold is relatively land-intensive.

Similarly, a product is said to be relatively **labour-intensive** if its production process uses relatively large amounts of the labour resource compared with the average use of labour in production processes throughout the economy. For example, the production of hairdressing services is relatively labour-intensive.

Finally, a product is said to be **capital-intensive** in its production process when it uses capital in relatively greater proportions in its combination with other resources than generally used in the economy's production processes. Capital-intensive industries include oil refining and power generation, which require few workers but large amounts of capital for production.

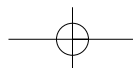
Labour- (land-, capital-) intensive commodity: a commodity in which the production process uses relatively large amounts of the labour (land, capital) resource compared with the average rate at which this resource is combined with others in the economy's production process.

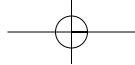
- The foundation of economics lies in the two fundamental facts that constitute the economising problem: society's material wants are unlimited; and the economic resources available to satisfy these wants are scarce or limited in supply.
- Material wants represents those goods and services that, when consumed, provide utility (satisfaction) to consumers.
- Society's scarce economic resources are described under four categories: land, which represents all natural resources; capital, which represents all goods and services that aid in the production and delivery of consumption goods and services to consumers; labour, representing the physical and mental talents used to produce goods and services; and entrepreneurial ability.
- Entrepreneurial ability combines four functions: initiative in combining the factors of production; the making of business policy decisions; innovation in terms of production outputs, techniques or business organisation; and the bearing of business risk.
- In exchange for supplying resources, the owners of the resources receive income payments: rent for land, interest for capital, wages for labour, and profit for entrepreneurial endeavour.
- The production of particular goods and services requires relatively intensive use of one resource when compared with the average use of each resource in all the economy's production processes, making individual goods or services relatively land-, labour- or capital-intensive.

CHECKPOINT

Economics and efficiency

As stated in Chapter 1, economics is the social science concerned with the problem of using or administering scarce resources (the means of producing) in order to attain the greatest or maximum fulfilment of society's unlimited wants (the goal of producing). Economics is concerned with 'doing the best with what we have'. If our resources are scarce, we cannot satisfy all of society's material wants. The next best thing is to achieve the greatest possible satisfaction of these wants.





Efficiency: the result of using or administering scarce resources to produce the maximum amount of desired goods and services, thereby achieving the greatest possible fulfilment of society's wants.

Full employment: the employment of all available resources.

Full production: the maximum amount of goods and services that can be produced from the employed resources of an economy.

Allocative efficiency: occurs when all available resources are devoted to the combination of goods most wanted by society.

Productive efficiency: occurs when goods or services are produced using the lowest cost production methods.

Society wishes to use its limited resources efficiently; that is, it wants to obtain the maximum amount of desired goods and services producible with its available resources. To achieve this, it must achieve both full employment and full production. Economics is a science of **efficiency**—efficiency in the use of scarce resources.

Full employment

By **full employment** we mean that all available resources should be employed: no workers should be involuntarily out of work; no capital equipment or arable land should sit idle. Notice that we say that all *available* resources should be employed. Different societies have customs and practices that determine which resources are available for employment. For example, legislation and custom provide that children and the very aged should not be employed. Further, it is desirable for productivity to allow land to lie fallow periodically. Finally, some resources will need to be conserved for the future.

Full production

The employment of all available resources is, however, insufficient to achieve efficiency. **Full production** must also be achieved. By full production we mean that all employed resources should be used to make the most valued contributions to output. If we fail to achieve full production, economists say that our resources are *underemployed*.

Full production implies that two kinds of efficiency—allocative and productive efficiency—are achieved.

- **Allocative efficiency** means that resources are devoted to the combination of goods and services most wanted by society. For example, society wants CDs rather than records. The most desired combination of goods and services we call the *optimum product mix*.
- **Productive efficiency** occurs when the least costly production techniques are used to produce the desired goods and services. Efficiency requires that Fords and Holdens be produced with computer-based robot assembly techniques rather than with the primitive assembly lines of the 1950s. Nor do we want our wheat growers to harvest with scythes, when elaborate harvesting machines will do the work at a fraction of the cost per tonne.

Specialisation and efficiency

The extent to which society relies on specialisation to enhance productive efficiency is astounding. For example, the vast majority of consumers produce virtually none of the goods and services they consume and, conversely, consume little or nothing of what they produce. Few households seriously consider any extensive production of their own food, shelter and clothing. Society learned long ago that self-sufficiency breeds inefficiency. Two major forms of specialisation enhance productive efficiency: the division of labour and geographic specialisation.

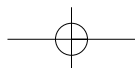
Division of labour

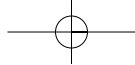
In what specific ways might human specialisation—the **division of labour**—enhance productive efficiency?

Specialisation permits individuals to take advantage of existing differences in their *abilities* and skills. If cavedweller A is strong, quick and accurate with a spear, and cavedweller B is weak and slow but patient, this distribution of talents can be most efficiently utilised if A hunts and B fishes.

Even if the abilities of A and B are identical, specialisation may prove to be advantageous. By devoting all our time to a single task, we are more likely to develop the appropriate skills and to discover improved techniques than when apportioning time among a number of diverse tasks. *We learn by doing*. We learn to be a good hunter by hunting.

Finally, specialisation—devoting all our time to, say, a single task—obviously *avoids the loss of time* entailed in shifting from one job to another.





For all these reasons, the division of labour results in greater productive efficiency in the use of human resources.

Geographic specialisation

Specialisation is also desirable on a regional basis. Sugar could be grown in Western Australia, but because of the unsuitability of the land, rainfall and temperature, the costs would be very high. Queensland could probably produce some iron, but such production would be relatively costly. As a result, Western Australia produces those products—iron in particular—to which its resources are best adapted, and Queensland does the same, producing sugar. In this way both produce surpluses of their specialties. Then, very sensibly, Western Australia and Queensland effectively swap, through the market system, some of their surpluses. Specialisation permits each area to turn out those goods its resources can most efficiently produce. In this way both Western Australia and Queensland can obtain a larger amount of both iron and sugar than would otherwise be the case. As we shall see later in this chapter, geographic specialisation also forms a basis for trade between nations.

Production possibilities table

The economising problem can be clarified by use of a production possibilities table. This device reveals the core of the economising problem: *Because resources are scarce, a full-employment, full-production economy cannot have an unlimited output of goods and services. As a result, choices must be made about which goods and services to produce and which to go without.*

Assumptions

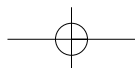
Several specific assumptions will set the stage for our illustration.

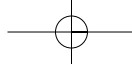
- 1 *Efficiency*: The economy is operating at full employment and achieving productive efficiency.
- 2 *Fixed resources*: The available supplies of the factors of production are fixed in quantity and quality. They can, however, be shifted or reallocated, within limits, among different uses; for example, a relatively unskilled labourer can work on a farm or in a fast-food outlet, or pack shelves at a supermarket.
- 3 *Fixed technology*: The state of the technological development is constant; that is, technology does not change during the course of our analysis.
- 4 *Two products*: To simplify our illustration further, we suppose our economy is producing just two products—for example, tractors and chocolate—instead of the innumerable goods and services actually produced. Chocolate is symbolic of **consumer goods**; that is, those goods and services that directly satisfy our wants. Tractors are symbolic of **capital goods**; that is, those goods that satisfy our wants indirectly by permitting more efficient production of consumer goods.

The second and third assumptions are another way of saying that we are looking at our economy at some specific point in time, or over a very short period of time. Over a relatively long period it would clearly be unrealistic to rule out technological advances and the possibility that resource supplies might vary.

Necessity of choice

It is evident from the assumptions that a choice must be made between alternatives. Resources are limited. Thus the total amounts of tractors and chocolate that our economy is capable of producing are limited. Limited resources mean a limited output. Since resources are limited in





supply and fully employed, any increase in the production of tractors will necessitate the shifting of resources away from the production of chocolate. And the reverse holds true: if we choose to step up the production of chocolate, the necessary resources must come at the expense of tractor production. Society cannot have its cake and eat it, too. Facetiously put, there's no such thing as a 'free lunch'. This is the essence of the economising problem.

Table 2.1, a **production possibilities table**, lists some alternative combinations of tractors and chocolate that our hypothetical economy might conceivably choose. Though the data in this and following production possibilities tables are hypothetical, the points illustrated are of great practical significance.

Table 2.1

Production possibilities of chocolate and tractors with full employment, 2003 (hypothetical data)

Type of product	Production alternatives				
	A	B	C	D	E
Chocolate (in hundred thousand bars)	0	1	2	3	4
Tractors (in thousands)	10	9	7	4	0

At alternative A, our economy would be devoting all its resources to the production of tractors (capital goods). At alternative E, all available resources would be devoted to the production of chocolate (consumer goods). Both these alternatives are clearly unrealistic extremes; any economy typically strikes a balance in dividing its total output between capital and consumer goods. As we move from alternative A to E, we step up the production of consumer goods (chocolate) by shifting resources away from capital goods production.

Remember that because consumer goods directly satisfy our wants, any movement towards alternative E looks tempting. In making this move, society increases the current satisfaction of its wants. But there is a cost involved. This transfer of resources catches up with society over time, as society's stock of capital goods dwindles—or at least ceases to expand at the current rate—with the result that the efficiency of future production is impaired. In moving from alternative A towards E, society is in effect choosing 'more now' at the expense of 'much more later'.

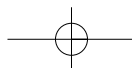
In moving from E towards A, society is choosing to forgo current consumption. This sacrifice of current consumption frees resources that can now be used in stepping up the production of capital goods. By building up its stock of capital, society can anticipate more efficient production and, therefore, greater consumption in the future.

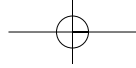
At any point in time, a full-employment, full-production economy must sacrifice some of product X to obtain more of product Y. The basic fact that economic resources are scarce prohibits this type of economy from having more of both X and Y.

Production possibilities curve

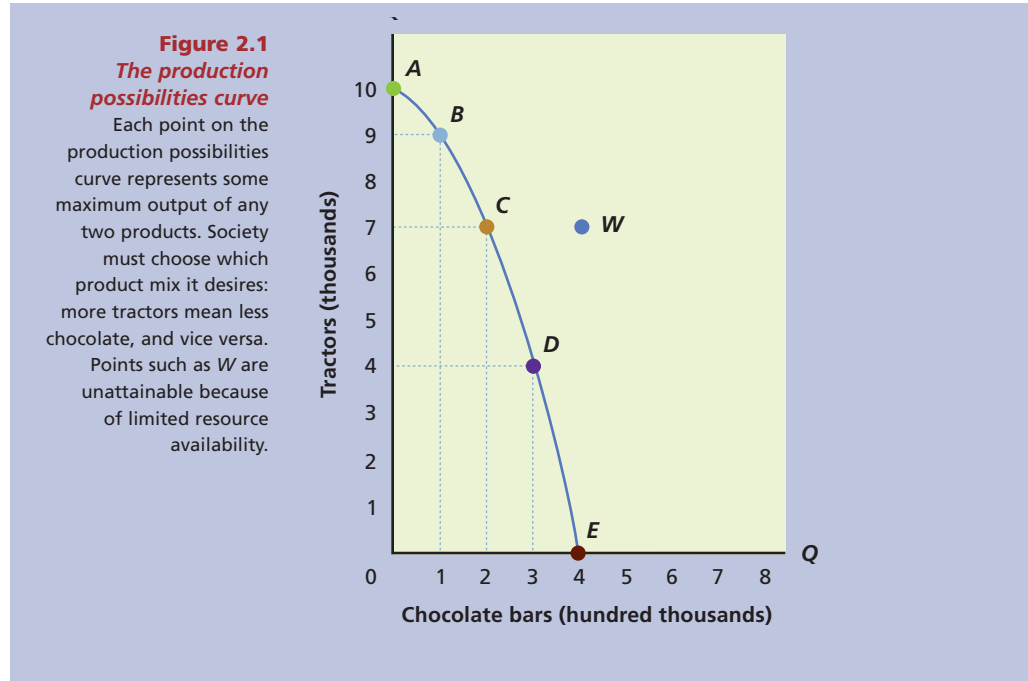
To further our understanding of the production possibilities table, we can view its data graphically. We use a simple two-dimensional graph, putting the output of tractors (capital goods) on the vertical axis and the output of chocolate (consumer goods) on the horizontal axis (see Figure 2.1, page 40). Following the plotting procedure that was discussed in the appendix to Chapter 1, we can draw the 'production possibilities curve'.

Each point on the production possibilities curve represents some maximum output of the two products. The curve is, in effect, a *frontier*. To realise the various combinations of chocolate and tractors that fall on the production possibilities curve, society must achieve full employment and full production. All combinations of chocolate and tractors on the curve





represent maximum quantities attainable only as the result of the most efficient use of all available resources. Points lying *inside* the curve are also attainable, but are not as desirable as points on the curve. These interior points represent a failure to achieve full employment and full production. Points lying *outside* the production possibilities curve such as *W* would be superior to any point on the curve. But such points are unattainable, given the current supplies of resources and technology. The production barrier of limited resources prevents the production of any combination of goods lying outside the production possibilities curve.



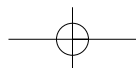
Law of increasing opportunity costs

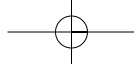
We have stressed that—since resources are scarce, relative to the virtually unlimited wants that people attempt to satisfy by using these resources—choices must be made between alternatives. More of *X* (chocolate) means less of *Y* (tractors). *The amount of other products that must be forgone or sacrificed to obtain a unit of any other product is called the opportunity cost of that product.* In our case, the units of tractors (*Y*) that must be forgone to get an additional unit of chocolate (*X*) is the **opportunity cost** of *X*. Hence, in moving from alternative *A* to *B* in Table 2.1, we find that the cost of 1 unit of chocolate is 1 unit of tractors.

Opportunity cost: the amount of other products that must be forgone or sacrificed to obtain a unit of any product.

If we pursue the concept of cost through the additional production alternatives—*B* to *C*, *C* to *D*, and so on—an important economic principle is revealed. In moving from alternative *A* to alternative *E*, the sacrifice or cost of tractors involved in getting each additional unit of chocolate increases. In moving from *A* to *B*, just 1 unit of tractors is sacrificed for 1 more unit of chocolate. However, going from *B* to *C* involves the sacrifice of 2 units of tractors for 1 more of chocolate; then 3 of tractors for 1 of chocolate, and, finally, 4 for 1. Conversely, you should confirm that, in moving from *E* to *A*, the cost of an additional tractor is $1/4$, $1/3$, $1/2$ and 1 unit of chocolate, respectively, for each of the four shifts.

Note that this discussion of opportunity cost is couched in *real* or physical terms rather than monetary terms. Further, the analysis is in terms of *added* or *marginal* cost of a good rather than the total, or cumulative, opportunity cost. The opportunity cost of an extra unit of *X* is the units of *Y* forgone or extra loss from the total output of *Y*.





Concavity

Graphically, the **law of increasing opportunity costs** is reflected in the shape of the production possibilities curve. Specifically, the curve is *concave*, or bowed out from the origin. Consider the heights of the vertical dotted lines in Figure 2.1. When the economy moves from *A* towards *E* it must give up successively larger amounts of tractors (1, 2, 3, then 4 units), to acquire equal increments of chocolate (1 unit in each case). Technically, this means that the slope of the production possibilities curve becomes steeper as we move from *A* to *E*, and such a curve, by definition, is concave when viewed from the origin.

Rationale

What is the economic rationale for the law of increasing opportunity costs? Why does the sacrifice of tractors increase as we get more chocolate? The complete answer is rather complex. But, simply stated, it amounts to this: *Economic resources are not completely adaptable to alternative uses*. As we attempt to step up chocolate production, resources that are less and less adaptable to this use must be induced, or ‘pushed’, into that line of production. If we start at *A* and move to *B*, we can first pick resources whose productivity in chocolate production is great relative to their productivity in tractor production. But, as we move from *B* to *C*, *C* to *D*, and so on, those resources that are highly productive in the making of chocolate become increasingly scarce. To obtain more chocolate, resources will be needed whose productivity in the making of tractors is great in relation to their productivity in the making of chocolate. It will take more and more of such resources—and hence a greater sacrifice of tractors—to achieve a given increase of 1 unit in the production of chocolate.

This lack of perfect flexibility, or interchangeability, on the part of resources, and the resulting increase in the amount of one good that must be sacrificed in order to acquire more and more units of another good, is the rationale for the law of increasing opportunity costs. In this case, these costs are stated as sacrifices of goods and not in terms of dollars and cents.

Allocative efficiency revisited

Our analysis has purposely stressed full employment and productive efficiency, the realisation of which allows society to achieve *any point* on its production possibilities curve. We now focus again on allocative efficiency, the question of determining the most valued or optimal point on the production possibilities curve. Of all the attainable combinations of chocolate and tractors on the curve in Figure 2.1, which is optimal or ‘best’? That is, what quantities of resources should be allocated to chocolate and what quantities to tractors?

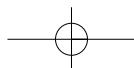
Business insight

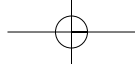


What value the entrepreneur’s efforts?

Many people who start their own businesses often ignore the opportunity cost of their own entrepreneurial effort. This is particularly so in the small business area, where owner–managers often work very long hours for very little income.

Although the benefits of being your own boss may be significant, it is important that you ask and answer either of the following questions: ‘What would my time and effort be worth if someone else had to pay for it?’ or ‘What would it cost me if I had to pay for someone else to do my job?’ The answers will allow you to better evaluate your continued involvement in the activity.





Our discussion of the ‘economic perspective’ in Chapter 1 puts us on the right track. Recall that economic decisions rely on comparisons of marginal benefits and marginal costs. Any economic activity—for example, production or consumption—should be expanded so long as marginal benefits exceed marginal costs, and should be reduced if marginal costs are greater than marginal benefits.

Generalisation: Resources are being efficiently allocated to any product when its output is such that its marginal benefit equals its marginal cost ($MB = MC$). Assume that by applying this analysis to our two products we find that 200 000 and 7 are the *most* desirable quantities. This would mean that alternative C on our production possibilities curve—200 000 bars of chocolate and 7 tractors—would result in allocative efficiency for our hypothetical economy.

- Economic efficiency is achieved when society gains the maximum output from its scarce resources. This requires that full employment and full production are achieved.
- Full employment requires that all resources available to society, given its legislation and customs, are employed.
- Full production means producing the ‘right’ goods for society given the wants of its members (allocative efficiency) in the ‘best’ or least-cost way (productive efficiency). An implication of this is that that marginal benefit of an increase in the output of one product is equal to its marginal cost of production.
- Achievement of productive efficiency depends on optimising the benefits of the division of labour—maximising the contributions of different abilities, making use of the effects of learning by doing, and reducing time losses involved in the transfer from one activity to another—and geographic specialisation in a way such that no resources are underemployed.
- Opportunity cost is couched in *real* terms, and is shown by the slope of the production possibilities curve. The opportunity cost of a product represents the amount of an alternative product that must be sacrificed to obtain an additional, or marginal, unit of that product.
- The *law of increasing opportunity costs* is reflected in the concave shape of the production possibilities curve. The economic rationale for the law of increasing opportunity costs is that economic resources are not completely adaptable between alternative uses. Thus, as we increase the production of product A at the cost of product B, we move resources that are less and less suited to the production of A away from the production of B.

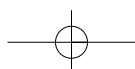
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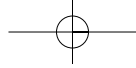
Unemployment and growth

It is important to explore what happens when the first three assumptions underlying our explanation of the production possibilities model (see page 38) are relaxed.

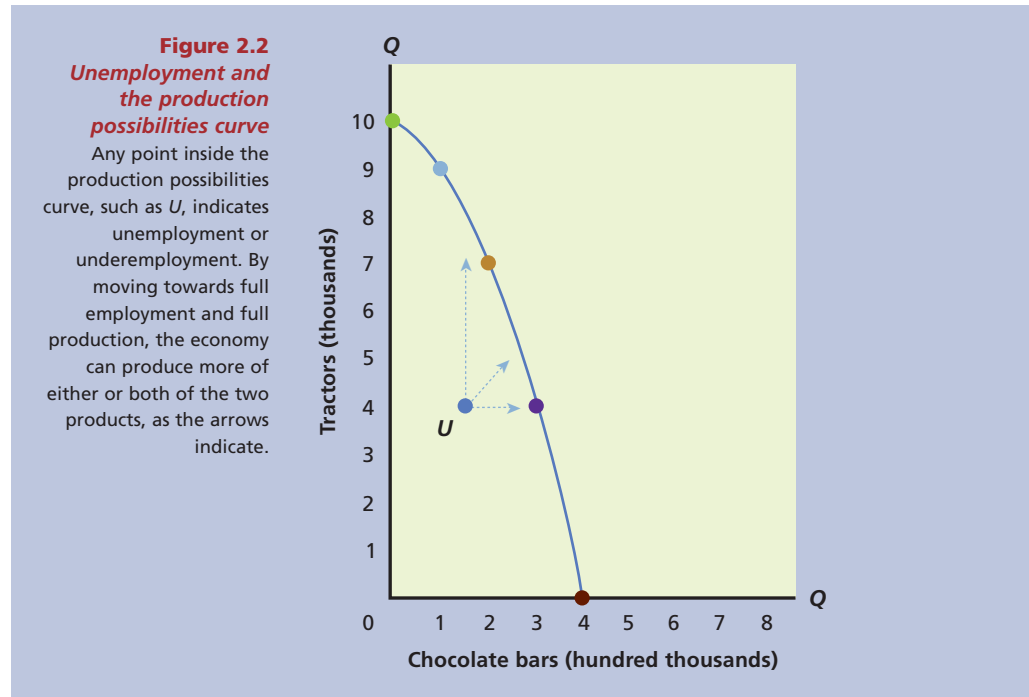
Unemployment and underemployment

The first assumption was that our economy is characterised by full employment and productive efficiency. How would our analysis and conclusions be altered if idle resources were available (that is, if there is unemployment) or if least-cost production was not realised? With full employment and productive efficiency, our five alternatives in Table 2.1 represent a series of maximum outputs; that is, they illustrate combinations of tractors and chocolate that might be produced when the economy is operating at its full capacity. With unemployment or productive inefficiency, the economy would obviously be producing less than indicated by each of the alternatives shown in Table 2.1.





Graphically, a situation of unemployment or productive inefficiency can be illustrated by a point inside the original production possibilities curve. This is reproduced in Figure 2.2. Point *U* is one such a point. Here the economy is obviously falling short of the various maximum combinations of chocolate and tractors reflected by all the points on the production possibilities curve. We are producing less of at least one of our alternative products than is possible given our current level of technology and resources. The broken arrows in Figure 2.2 indicate three of the possible paths back to full employment and least-cost production. A movement towards full employment and productive efficiency will obviously entail a greater output of at least one if not both products.



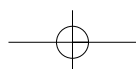
A growing economy

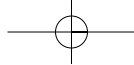
When we drop the remaining assumptions that the quantity and quality of resources and technology are fixed, the production possibilities curve will shift position; that is, the potential total outputs of the economy will change.

Expanding resource supplies

Let us abandon the simplifying assumption that our total supplies of land, labour, capital and entrepreneurial ability are fixed in quantity and quality. Commonsense tells us that over a period the growing population in Australia will result in increased supplies of labour and entrepreneurial ability. Historically, our stock of capital has increased at a significant, although unsteady, rate. And, although we are depleting some of our energy and mineral resources, new sources are being discovered. The well-managed drainage of swamps and the development of irrigation programs may add to our supply of arable land.

The net result of these increased supplies of the factors of production will be the ability to produce more of both tractors and chocolate. Thus in, say, 2023, the production possibilities of Table 2.1 for 2003 may be obsolete, having given way to those shown in Table 2.2 (page 44).





Note that the greater abundance of resources results in a greater output of one or both products at each alternative. **Economic growth**, in the sense of an expanded total output, has occurred.

Table 2.2

Production possibilities of chocolate and tractors with full employment, 2023 (hypothetical data)

Type of product	Production alternatives				
	A'	B'	C'	D'	E'
Chocolate (in hundred thousand bars)	0	2	4	6	8
Tractors (in thousands)	14	12	9	5	0

Such a favourable shift in the production possibilities curve does not, however, guarantee that the economy will operate at a point on that new curve. The economy might fail to realise its new potential. Some 9.9 million jobs will give us full employment at the present time, but 10 years from now our labour force, because of a growing population, will be much larger and 9.9 million jobs will not be sufficient for full employment. The production possibilities curve may shift, but the economy may fail to produce at a point on that new curve.

Technological advance

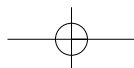
Our other simplifying assumption is a constant or unchanging technology. Observation tells us that technology has progressed with amazing rapidity over a long period. What are the effects of advances in technology? These include new and better goods and improved ways of producing these goods. For now, let us think of technological advance as involving only improvements in capital facilities, that is, more efficient machinery and equipment. Such technological advance alters our earlier discussion of the economising problem by improving productive efficiency, so allowing society to produce more goods with a fixed amount of resources. As with increases in resource supplies, technological advance permits the production of more tractors and more chocolate.

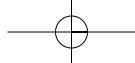
Illustrating growth

We can use our production possibilities curve to provide us with a clear idea of the impact of economic growth on the production choices that society faces. When the supplies of resources increase or an improvement in technology occurs, the production possibilities curve shifts outwards and to the right, as illustrated by the curve $A'E'$ in Figure 2.3. Economic growth can be reflected as a rightward shift of the production possibilities curve; it is the result of increases in resource supplies, improvements in resource quality and technological advance. The consequence of growth is that our full-employment economy can enjoy a greater output of both chocolate and tractors.

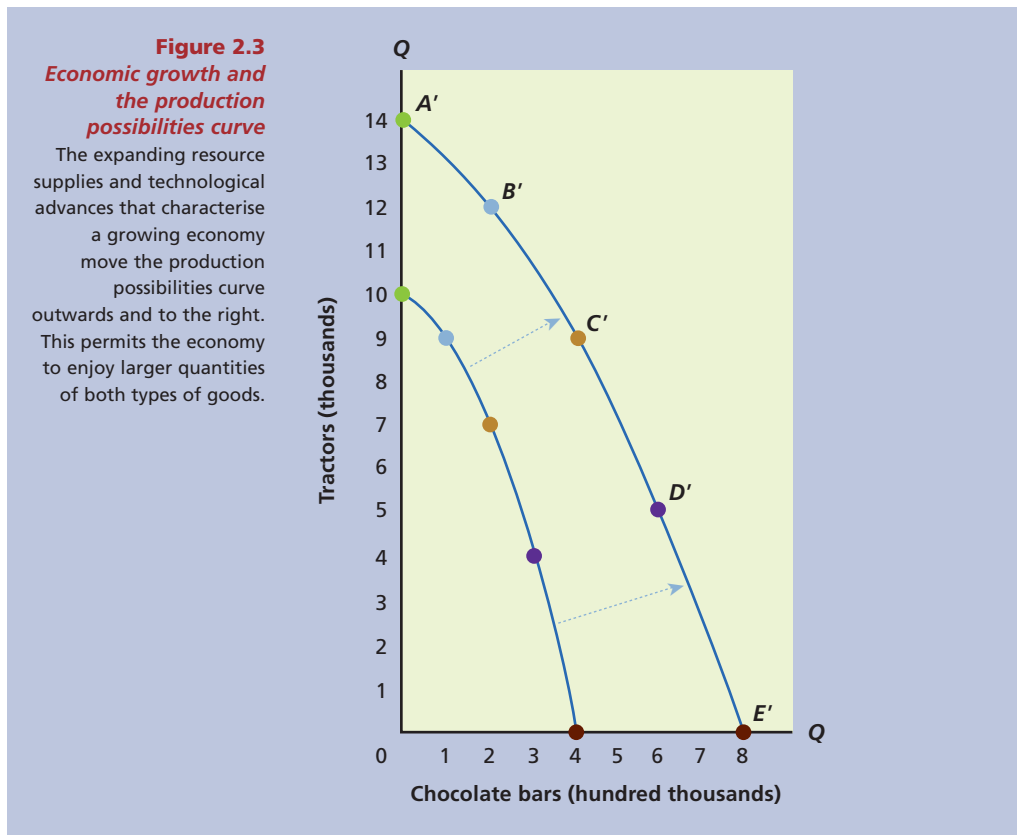
Economic growth need not and usually does not entail proportionate increases in a nation's capacity to produce various products. Note in Figure 2.3 that, although the economy is able to produce twice as much chocolate, the increase in tractor production is only 40 per cent.

On Figure 2.3, pencil in two new production possibilities curves. One should show the situation where a better technique for producing tractors has been developed but the technology for producing chocolate is unchanged. The other should show the situation where improved technology for producing chocolate has been developed but the technology for producing tractors remains unchanged. In each case, the intercept on the axis for the product for which there has been no technological advance does not change; the production possibilities curve moves out only along the axis of the product for which a better production technique has been developed. However, the general result is that, given its existing supplies of





resources, society may choose to produce and consume more of both products even though technological improvement has occurred in one area only.



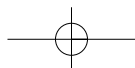
- We may illustrate unemployment or inefficient production (underemployment) within the production possibilities framework by locating the current output of the economy at a point that lies within the production possibilities curve.
- When the supplies of resources increase or an improvement in technology occurs, the production possibilities curve shifts outwards and to the right.

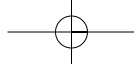
- Economic growth can be reflected as a rightward shift of the production possibilities curve; it is the result of increases in resource supplies, improvements in resource quality and technological advance.
- The consequence of growth is that our full-employment economy can enjoy a greater output of both products, even though economic growth does not typically entail proportionate increases in a nation's capacity to produce each alternative product.

CHECKPOINT

Five fundamental questions

Having examined the economising problem through considering production possibilities, we now look at the problem from another perspective. The economising problem can be broken down into **five component parts** or **fundamental questions**.





- 1 *How much total output is to be produced?*
At what level or degree should resources be utilised in the production process? The answer to this question helps determine the location of the production possibilities curve and, therefore, how much total output a society can produce.
- 2 *What combination of outputs is to be produced?*
Society must decide what collection of goods and services will most fully satisfy its wants. Which specific goods and services are to be produced? In what quantities do we want each produced? In our discussion of the production possibilities curve, we assumed a two-product economy, and the optimum point will be some particular point on the curve.
- 3 *How are these outputs to be produced?*
Having determined the desired composition of total output, we ask: How should this total output be produced? Which firms should do the production? How will they choose the ideal (least-cost) combination of resources and the best technology to use in producing the chosen output? Alternatively, how can we guarantee we are on the production possibilities curve?
- 4 *Who is to receive and consume these outputs?*
How is society to share the total output among the various economic units that constitute our economic system? How, for example, will the total output of final goods and services be shared by the various households in our economy? This is the fundamental question of distribution.
- 5 *How can the system be adapted to change?*
Can the economic system make the appropriate responses required to remain efficient over time? Modern societies are dynamic and changing systems. Many things change: consumer tastes, the supplies of resources, and technology. All these changes imply the need for significant reallocations of resources to preserve efficiency in their use.

Scarcity of economic resources

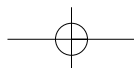
Scarcity of economic resources lies behind all five of these fundamental questions. They are a breakdown of the basic economising problem of scarce resources and unlimited wants.

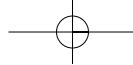
The interrelatedness of these questions is apparent. It is difficult to treat them independently of one another; they require simultaneous treatment.

The economising problem can be broken down into the following five component parts or fundamental questions:

- How much total output should society produce? The location of the production possibilities curve is determined by choosing the level at which resources should be utilised in the production process.
- What combination of outputs is to be produced? Society must decide which specific goods and services are to be produced and in what quantities to most fully satisfy its wants.
- How are these outputs to be produced? Society must determine which firms should produce the outputs, and how to choose the least-cost combination of resources and the best technology in the production process.
- Who is to receive and consume these outputs? This is the fundamental question of distribution.
- How can the system adapt to change?

CHECKPOINT





Business insight



Opportunity cost in the 'dismal science'

The area of opportunity cost is one that gives the 'dismal science' of economics an edge over many other social sciences in the formulation and delivery of business and policy advice. Although often unpopular, the idea that we should look very carefully at the opportunity cost of our decisions—that is, at the next best alternatives forgone—reminds us of a number of important things. The first is that we have choices; there is no single 'correct' way to solve many of the problems faced by business and government. Looking at alternatives reduces the chance of making costly mistakes. The second is that if we make a decision, there will be opportunities lost, resources used and so on that had value to us before taking the alternative that we have chosen. This may make us think more carefully about the full costs of any decision made. The result should be decisions that have been better thought out.

Asia in focus



Governments helping to solve the 'what' problem

In most economies the 'what to produce' problem is rarely left entirely to the private sector. Government is actively involved through both its regulatory and legal frameworks, and through direct entry into the product markets. The Asian region provides us with good

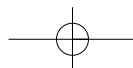
examples of the degree to which this intervention varies in importance when compared across economies. In this case, we have chosen to look at the central government share of expenditure relative to the value of national output of goods and services (GDP).

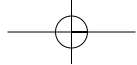
Country	Central government expenditure (per cent of GDP)
Australia	23.4
Bangladesh	12.7
China	10.9
India	15.9
Indonesia	20.1
Malaysia	19.7
Pakistan	21.3
Philippines	19.7
Thailand	25.1

SOURCE: World Bank, 2002 *World Development Indicators*.

Questions

- 1 What sort of items do governments spend money on? Give examples.
- 2 In light of your answer to question 1, provide some explanations for the apparent differences in the relative share of government expenditure in the countries listed in the above table.
- 3 What non-economic factors will help to explain the role of government in the 'what to produce' decision? Explain.





The 'isms'

We must recognise that the way in which these five fundamental questions are answered depends in part on the type of economic system we are considering. A variety of different institutional arrangements and coordinating mechanisms may be used to respond to the questions of what to produce, for whom, and so on. Historically, many of the industrially advanced economies of the world have differed essentially on two grounds:

- the ownership of the means of production
- the method by which economic activity is coordinated.

We will examine briefly the main characteristics of two 'polar' types of economic systems.

Pure capitalism

Pure capitalism, or **laissez-faire capitalism**, is characterised by the private ownership of property and resources, freedom of enterprise and choice, and the use of a system of markets and prices to coordinate and direct economic activity. In such a system, each participant is motivated by his or her own self-interest; each economic unit seeks to maximise its income through individual decision making. The market system functions as a mechanism through which individual decisions and preferences are communicated and coordinated.

An assumption of pure capitalism is that goods and services are produced and resources are supplied under competitive conditions; that is, there are many independently acting buyers and sellers of each product and resource. As a result, economic power is widely dispersed. Advocates of pure capitalism argue that such an economy is conducive to efficiency in the use of resources and in production of outputs, employment stability, and rapid economic growth. Hence, there is limited need for government planning control or intervention. Indeed, the term *laissez faire* (literally 'allow to act', that is, 'leave alone') means keeping government from interfering with the economy, because such interference simply disturbs the efficiency with which the market system functions. Government's role is therefore limited to the protection of private property and establishing the appropriate legal framework to facilitate the functioning of free markets.

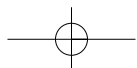
The command economy

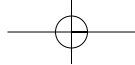
The polar alternative to pure capitalism is the **command economy**, or **communism**, characterised by public ownership of virtually all property resources and the collective determination of economic decisions through central economic planning. A central planning organisation makes all major decisions concerning the level of resource use, the organisation of production, and the composition and distribution of output. The government owns all business firms, and production is directed according to state directives.

Production targets for each enterprise are determined by a planning organisation. A production plan specifies the amounts of resources to be allocated to each enterprise so that it can achieve its planned production goals. The division of output between capital and consumer goods is centrally decided and capital goods are allocated among industries in terms of the central planning board's long-term priorities. The questions of what, how and so on are essentially centrally determined.

Mixed systems

Real-world economies lie between the extremes of pure capitalism and the command economy. The Australian economy leans towards pure capitalism, but with important differences. Government plays an active role in our economy in promoting economic stability and growth, in providing certain goods and services that would be underproduced or not produced at all by the market system, and in modifying the distribution of income. In contrast to the wide dispersion of economic power among many small units that characterises pure





capitalism, Australian capitalism has spawned powerful economic organisations in the form of huge companies and strong unions. The ability of these power blocs to manipulate and distort the functioning of the market system to their advantage provides a further reason for government involvement in the economy.

Although the former Soviet Union (USSR) historically approximated the command economy, it relied to some extent on market-determined prices, and had some elements of private ownership. These were important, particularly in the distribution of output among consumers. Recent reforms in the former USSR and most of the eastern European nations, and to an extent in China, have been designed to move these command economies towards more capitalistic, market-orientated systems.

Private ownership and reliance on the market system do not always go together, nor do central planning and public ownership. For example, the fascism of Hitler's Nazi Germany has been called **authoritarian capitalism** because the economy was subject to a high degree of government control and direction but property was privately owned. In contrast, the former Yugoslav economy of **market socialism** was characterised by public ownership of resources, coupled with an increasing reliance on free markets to organise and coordinate economic activity. The Swedish economy is also a hybrid system. Although most economic activity is conducted in the private sector, government is deeply involved in achieving economic stability and in redistributing income. For example, in 1999, Swedish government expenditures as a percentage of gross domestic product (GDP) were among the highest in the OECD (Organisation for Economic Cooperation and Development) at 39.5 per cent, compared with 23.4 per cent in Australia. Similarly, the capitalistic economy of Japan involves a high degree of planning between government and the business sector.

Table 2.3 summarises the various ways economic systems can be categorised on the basis of the two criteria we are using. Note that the real-world examples we have placed in this framework only approximately fit the assigned categories.

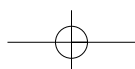
Table 2.3
Comparative economic systems

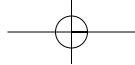
Ownership of resources	Coordinating mechanism	
	Market system	Central planning
Private	Australia	Nazi Germany
Public	former Yugoslavia	former Soviet Union (USSR)

The traditional economy

Table 2.3 is couched in terms of industrially advanced, or at least semi-developed, economies. Many of the less developed countries of the world have **traditional** or **customary economies** (see Chapter 17 of the companion book, *Macroeconomics*, 7th edition). Production methods, exchange and the distribution of income are all sanctioned by custom. Heredity and caste circumscribe the economic roles of individuals, and socioeconomic immobility is pronounced. Technological change and innovation may be closely constrained because they clash with tradition and threaten the social fabric. Economic activity is often secondary to religious and cultural values and society's desire to perpetuate the status quo.

Finally, we can say that there are no unique or universally accepted solutions to the five economising problems. Various societies, with their different cultural and historical backgrounds, mores and customs, ideological frameworks and resources (which differ both quantitatively and qualitatively) use different institutions in dealing with the scarcity problem. However, all economies, whatever their accepted goals, ideology, technologies, resources and





culture, want to achieve efficiency in the use of their respective resources. The best method for responding to the economising problem in one economy may be inappropriate in another.

- The term 'isms' is used to refer to the different institutional arrangements regarding ownership and the coordinating mechanisms for economic activity that may be used to respond to the five fundamental questions that constitute the economising problem.
- Laissez-faire capitalism is characterised by private ownership of resources and use of a competitive market system to derive prices that coordinate the allocation of resources and production.
- A command economy is characterised by public ownership of resources and the use of central economic planning to determine resource allocation and production.
- Most advanced economies are mixed systems that combine elements of both laissez-faire capitalism and the command economy systems. They range from authoritarian capitalism to market socialism.
- Traditional economies, which are often less developed economies, are characterised by the use of custom to determine answers to the five fundamental questions.

CHECKPOINT

Characteristics of advanced economies

There are certain institutions and practices that are characteristic of all modern or relatively advanced economies. They are:

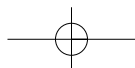
- the use of advanced technologies and large amounts of capital goods
- specialisation
- the use of money
- a reliance, albeit limited in some areas, on the market mechanism for the allocation of resources and to guide production decisions.

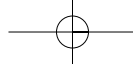
Advanced technologies and specialisation are prerequisites to the efficient employment of any economy's resources. The use of money is a permissive characteristic that allows society to use advanced production techniques and to more easily practise and reap the benefits of specialisation. Markets provide a relatively efficient, although not always socially acceptable, means for the allocation of resources and products against competing claims.

Extensive use of capital goods

All industrially advanced economies—whether they approximate the capitalist, socialist or communist ideology—are based on advanced technologies and the extensive use of capital goods. Under pure capitalism it is competition, coupled with freedom of choice and the desire to further self-interest, that provides the means for achieving a rapid rate of technological advance. The capitalistic framework is highly effective in harnessing incentives to develop new products and improved techniques of production, because the monetary rewards that are derived accrue directly to the innovator. Pure capitalism therefore presupposes the extensive use and rapid development of complex capital goods—tools, machinery, large-scale factories and facilities for storage, transport and marketing.

Why are the existence of advanced technologies and the extensive use of capital goods important? Because the most direct method of producing a product is usually the least efficient. It would be ridiculous for a farmer—even a backyard farmer—to attempt production with bare hands. It pays huge dividends in terms of more efficient production and, therefore, a more abundant output to use the tools of production—that is, capital equipment—to aid in the productive process. There is a better way of getting water out of a well than diving in after it!





Specialisation

Society learned long ago that self-sufficiency breeds inefficiency. As was discussed earlier in this chapter, there are two major forms of **specialisation** used to enhance productive efficiency: the division of labour and geographic specialisation.

Global watch



Business tax rates across the globe

One of the main ways for governments to influence the 'for whom' decision is through the tax system, for example through business tax rates. These tax rates vary across the globe, but not generally by as much as

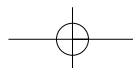
might be expected. Although not high by world standards, Australian business tax rates are relatively high within the Asian region.

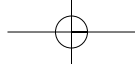
Country	Corporate tax rate, 2000 (%)
Australia	34
Canada	38
China	30
France	33
Germany	25
Hong Kong	16
India	40
Indonesia	30
Italy	36
Japan	30
South Korea	28
Malaysia	28
New Zealand	33
Philippines	32
Singapore	26
Thailand	30
United Kingdom	30
United States	35

SOURCE: PricewaterhouseCoopers, *Corporate Taxes: Worldwide Summaries 2001–2002*, 2001.

Questions

- Rank the countries in this list according to the level of the business tax rate, and determine Australia's position within that list. Does Australia have a relatively high business (corporate) tax rate? Explain.
- What is the average tax rate of the countries in the table? Does Australia's tax rate fall above or below this average? Based on your calculations, does Australia have a relatively high business (corporate) tax rate? Does your assessment of Australia's tax rate differ from that in your answer to question 1? How?
- Does a high corporate tax rate suggest that a country is a high-tax country? What factors do you think might affect this interpretation? Discuss some of these factors.





Use of money

Virtually all economies, advanced or primitive, use money. Money performs a variety of functions, but first and foremost it is a medium of exchange.

If trade between individuals or nations were prohibited for some reason, the gains from specialisation could be lost to society. Consumers want a wide variety of products and, in the absence of trade, would tend to devote their human and material resources to many diverse types of production. If exchange could not occur or was very inconvenient to transact, consumers would be forced to be more self-sufficient. A convenient means of exchanging goods is a prerequisite for specialisation.

Bartering: the exchange of one good or service for another good or service.

Exchange can, and sometimes does, occur on the basis of **bartering**—that is, swapping goods for goods. But bartering as a means of exchange can pose serious problems for the economy.

Exchange by barter requires a **coincidence of wants** between the two transactors. For example, assume that Queensland has excess sugar to trade and wants to obtain iron. Assume that Western Australia has excess iron to swap and wants to acquire sugar. An exchange can occur. But if this coincidence of wants did not exist, trade would be inhibited.

Suppose that Queensland does not want any of Western Australia's iron, but is interested in buying manufactured goods from New South Wales. Suppose that New South Wales wants Western Australia's iron but not Queensland's sugar. And, to complicate matters, suppose that Western Australia wants some of Queensland's sugar but none of New South Wales's manufactured goods. In no case do we find a coincidence of wants. Trade by barter would be difficult.

Money: any item which is generally acceptable to buyers and sellers for facilitating the exchange of goods and services.

To overcome such a stalemate, modern economies use **money**, which is simply a convenient social invention for facilitating the exchange of goods and services. Historically, cattle, cigarettes, shells, stones, pieces of metal and many other diverse commodities have been used, with varying degrees of success, as mediums for facilitating exchange. To be considered as money, an item needs to pass only one important test—it must be generally acceptable to buyers and sellers in exchange. Money is socially defined; it is whatever society accepts as a medium of exchange.

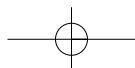
Most modern economies find it convenient to use pieces of paper (or paper-like plastic) as money. This is the case with the Queensland–Western Australia–New South Wales economy; they use currency they call 'dollars' as money. Can the use of dollars as a medium of exchange overcome the stalemate we have posed?

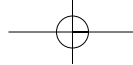
Indeed it can, with trade occurring as follows:

- Western Australia can exchange money for some of Queensland's sugar.
- Queensland can take the money realised from the sale of sugar and exchange it for some of New South Wales's manufactured goods.
- New South Wales can then exchange the money received from the sale of manufactured goods for some of Western Australia's surplus of iron.

The willingness to accept paper money (or any other kind of money, for that matter) as a medium of exchange has permitted a three-way trade that allows each state to specialise in one product and obtain the other product or products its residents desire, despite a non-coincidence of wants. Barter, resting as it does on a coincidence of wants, would have frustrated this exchange and in so doing would have induced the three states not to specialise. Of course, the efficiencies of specialisation would then have been lost to those states.

Strange as it may at first seem, two exchanges—surplus product for money and then money for wanted product—are simpler than the single product-for-product exchange that bartering entails. Indeed, in this example, product-for-product exchange would not be likely to occur at all. Examples such as this demonstrate that money is one of the great social inventions of civilisation.





The role of markets and prices

The basic coordinating mechanism of a pure capitalist economy is the market or price system. However, this system is used, to a greater or lesser extent, to coordinate some proportion of economic activity in all advanced economies.

Decisions made by the buyers and sellers of products and resources are made effective through a system of markets. The **market system** is an elaborate communication system through which innumerable individual free choices are recorded, summarised and balanced against one another. By definition, a **market** is simply a mechanism or arrangement that brings buyers ('demanders') and sellers ('suppliers') of a good or service in contact with one another. The preferences of sellers and buyers are registered on the supply and demand sides of various markets, and the outcome of these choices is a set of product and resource prices. These prices are guideposts at which resource owners, entrepreneurs and consumers make and revise their choices in furthering their self-interests. Those who obey the dictates of the price system are rewarded; those who ignore it are penalised by the system.

Just as competition is the controlling mechanism, a system of markets and prices provides a basic organising force. Through this communication system, society can make some or all of its decisions concerning the five fundamental economic questions posed earlier. In particular, it can decide what the economy should produce, how production can be efficiently organised, and how the fruits of productive endeavour will be distributed among the individual economic units that make up society.

Market: a mechanism or arrangement that brings buyers ('demanders') and sellers ('suppliers') of a good or service in contact with one another.

The institutions and practices that are characteristic of all relatively advanced economies are:

- the use of advanced technologies and large amounts of capital goods to enhance the productivity of non-capital resources and to reduce the cost of production
- a high level of specialisation of resources, particularly in the division of labour

between activities so as to increase productive efficiency

- the use of money as a medium of exchange, which facilitates specialisation by avoiding the need for a mutual coincidence of wants in order for trade to occur
- at least a limited reliance on the market mechanism for the allocation of resources and to guide production decisions.

**CHECK
POINT**

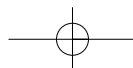
Present choices and future possibilities

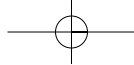
We may use the production possibilities model in this chapter to examine the implications of an important idea in economics: the rate at which society should choose to invest in its productive capacity versus satisfying its current consumption objectives.

Given the basic nature of the economising problem, it is evident that, for an economy operating on its production possibilities curve, resources must be diverted from the production of consumer goods in order to be used in the production of capital goods. Society cannot consume all output in any given year if its members wish to consume in the future. We may use the production possibilities model to illustrate the importance of society's choice between current and future consumption for the future wellbeing of its citizens. In this, we highlight the importance of investing for the future.

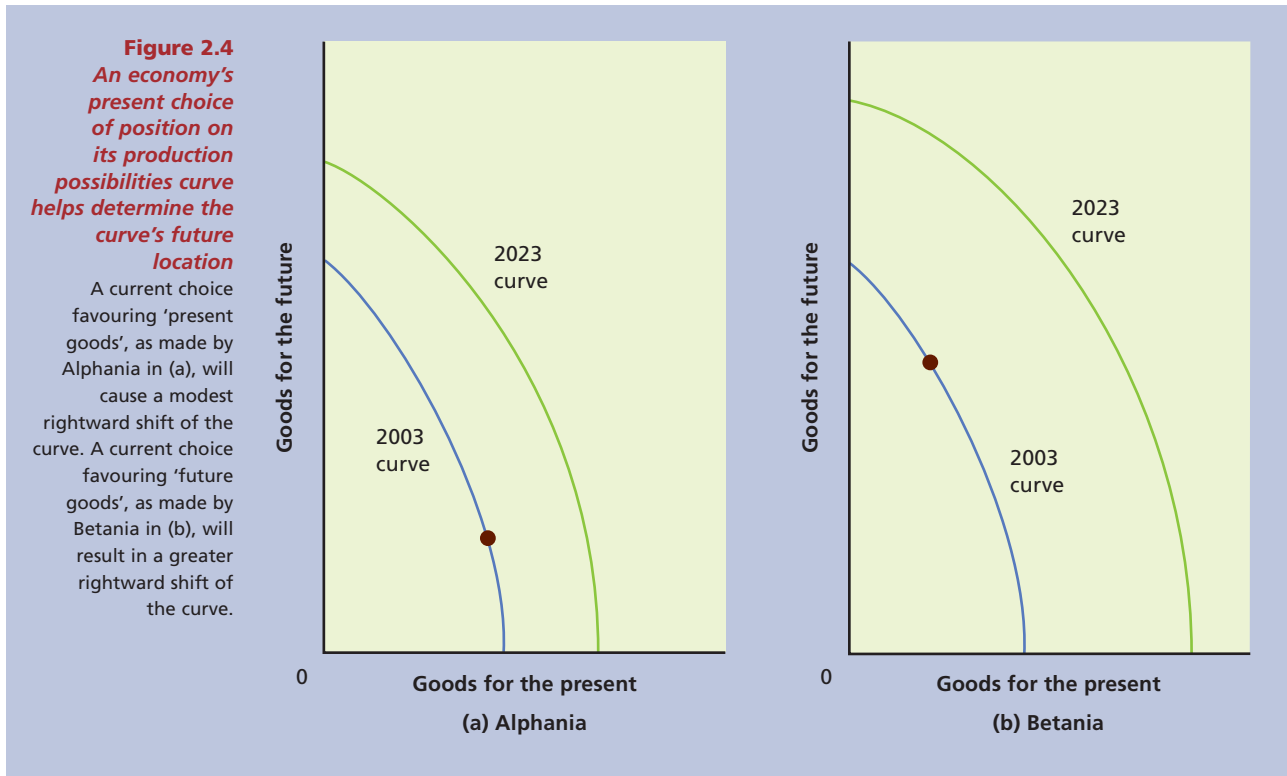
An economy's current choice of position on its production possibilities curve is a basic determinant of the future location of that curve. Let us designate the two axes of the production possibilities curve as 'goods for the future', or investment goods, and 'goods for the present', as in Figures 2.4(a) and (b) (page 54).

By 'goods for the future' we refer to such things as capital goods, research and education, and preventive medicine. An 'investment' in these goods and services leads to an increase in



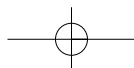


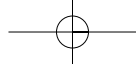
the quantity and quality of property resources, enlarges the stock of technological information and improves the quality of human resources. As we have already seen, these 'goods for the future' are the ingredients of economic growth. By 'goods for the present' we mean pure consumer goods and services in the form of food, clothing, transport and so on.



Now suppose there are two economies, Alphania and Betania, which at the moment are identical in every respect except that Alphania's current (2003) choice of position on its production possibilities curve strongly favours 'present goods' as opposed to 'future goods'. The dot in Figure 2.4(a) indicates this choice. Betania, on the other hand, makes a current (2003) choice that stresses large amounts of 'future goods' and lesser amounts of 'present goods' (Figure 2.4(b)).

Now, all other things being the same, we can expect the future (2023) production possibilities curve of Betania to be further to the right than that of Alphania. By currently choosing an output that is more conducive to technological advance and to increases in the quantity and quality of property and human resources, Betania will tend to achieve greater economic growth than will Alphania. Alphania's current choice of output places less emphasis on those goods and services that cause the production possibilities curve to shift rightward, thus reducing its growth potential. Thinking solely in terms of capital goods, Betania is choosing to make larger current additions to its 'national factory', that is, to invest more of its current output than Alphania is. The pay-off or benefit from this choice is more rapid growth and greater future productive capacity for Betania. Freeing resources for the production of capital goods has increased Betania's productive efficiency substantially over that of Alphania, and permits its society to have a greater output of consumer goods in the future. The cost, of course, is fewer consumer goods and lower levels of consumption for Betania's society in the present.





The economic basis for trade

Why do nations trade? What is the basis for trade between nations? Each of these is an important question that requires our attention. In answering these questions we will use the concepts of opportunity cost and the production possibilities model to demonstrate the concept of comparative advantage. It is this concept that provides an economic basis for trade between nations.

The general case for trade

Stated most generally, international trade is a means by which nations can specialise and thus increase the productivity of their resources. Through such specialisation, nations that trade realise a larger total output than they would otherwise. Sovereign nations, like individuals and regions of a nation, can gain by specialising in those products they can produce with relative efficiency, and trading for those goods and services that they produce relatively inefficiently.

Although this rationale for world trade is quite correct, a more sophisticated answer to the question ‘Why do nations trade?’ hinges on two points. First, the distribution of economic resources—natural, human and capital—among the nations of the world is uneven; nations differ substantially in their endowments of economic resources. Second, the efficient production of various goods and services requires different technologies, or combinations of resources.

The character and interaction of these two points can be readily illustrated. South Korea, for example, has a large and relatively well-educated labour force and moderate amounts of capital equipment, but little land; skilled labour is *relatively* abundant. Hence, South Korea can produce efficiently (at a relatively low cost) a variety of goods whose production requires much skilled labour—cameras, video recorders and compact disc players are some examples of such *labour-intensive* commodities.

In contrast, Australia has vast amounts of land resources in comparison with its human and capital resources, and hence can produce such *land-intensive* commodities as wheat, wool and meat at a relatively low cost. Similarly, Japan, the United States and other industrially advanced nations are in a strategic position which enables them to produce cheaply a variety of *capital-intensive* goods, such as cars and machinery.

It is important to emphasise that as national economies evolve, the relative efficiency with which a nation can produce various goods will also change. The size and quality of the national economy’s labour force may change, the volume and composition of its capital stocks may shift, new technologies may develop, and even the quantity and quality of land and natural resources may be altered (see Chapter 16 of *Macroeconomics*). As the international distribution of both resources and technology changes, so too will the relative efficiency with which goods and services can be produced, altering the international pattern of production specialisation.

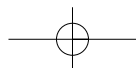
Specialisation and comparative advantage

We will now introduce the concept of **comparative advantage**, and use it in analysing the basis for international specialisation and trade. We use a highly simplified trade model to reveal most clearly the basic principles involved.

Two isolated nations

Suppose the world economy is composed of just two nations, say, Australia and Taiwan. Assume, further, that each is capable of producing both cereals and clothing, but at differing levels of economic efficiency. To be specific, let us suppose that Australia’s and Taiwan’s domestic production possibilities curves for cereals and clothing are as shown in Figures 2.5(a) and (b) (page 56). Cereals are measured in *C* units and clothing in *K* units. Two characteristics of these production possibilities curves must be stressed—constant costs and different opportunity costs.

Comparative advantage: the ability to produce a commodity at relatively low opportunity cost in terms of the amount of the alternative commodity forgone.



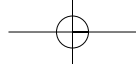
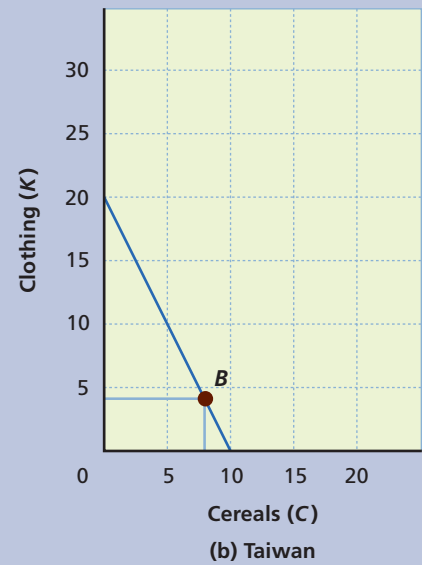
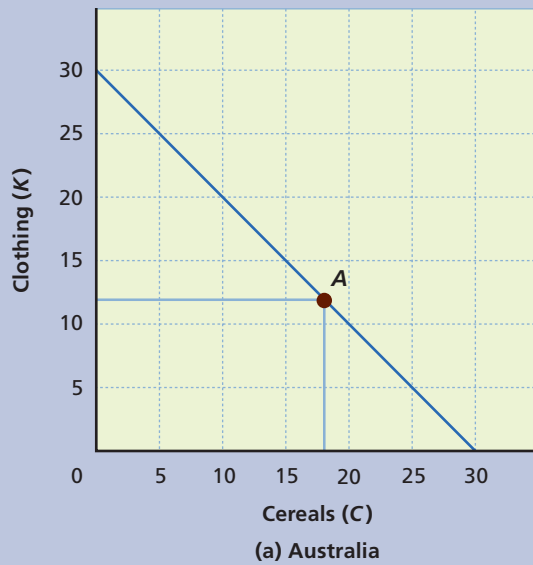


Figure 2.5
Production possibilities for Australia and Taiwan

The two production possibilities lines show the amounts of clothing and cereal that Australia, in (a), and Taiwan, in (b), can produce domestically. The production possibilities for both countries are straight lines because we are assuming constant costs. The different cost ratios $1K = 1C$ for Australia and $1C = 2K$ for Taiwan are reflected in the different slopes of the two lines.



Constant costs

For simplicity we have drawn the production possibility ‘curves’ as straight lines, in contrast to the concave-from-the-origin type of production possibilities boundaries introduced earlier in this chapter. That is, we have in effect replaced the law of increasing costs with the assumption of constant costs.

This simplification will greatly facilitate our discussion. With increasing costs, the comparative costs of the two nations involved in producing cereals and clothing would now vary with the amounts produced, and comparative advantages might even change.

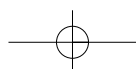
The assumption of constant cost permits us to complete our entire analysis without having to shift to different opportunity-cost ratios with every variation in output. The constant-cost assumption will not seriously impair the validity of our analysis and conclusions. We shall look later in our discussion at the effect of the more realistic assumption of increasing costs.

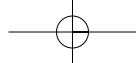
Different opportunity costs

The production possibilities lines of Australia and Taiwan are obviously different, reflecting different resource mixes and differing levels of technological advance. More specifically, the opportunity costs of producing clothing and cereals differ between the two nations. We note in Figure 2.5(a) that, under full-employment conditions, Australia can increase output of clothing by 1K when 1C of cereal output is forgone. That is to say, in Australia the domestic exchange ratio, or **cost ratio**, for the two products is 1K of clothing for 1C of cereal, or simply $1C = 1K$. Australia, in effect, can ‘exchange’ 1K of clothing for 1C of cereal domestically by shifting resources from cereals to clothing.

Our constant-cost assumption means that this exchange or cost ratio prevails for all possible shifts on Australia’s production possibilities curve. Taiwan’s production possibilities line in Figure 2.5(b) reveals a different exchange or cost ratio. In Taiwan the domestic cost ratio for the two goods is 1C of cereal for 2K of clothing, or $1C = 2K$.

Cost ratio: the rate, due to movements in resources between sectors, at which the production of additional units of one commodity reduces the production of another; the opportunity cost of production.





Self-sufficiency

If Australia and Taiwan are isolated and therefore self-sufficient, each must choose some output mix on its production possibilities line.

Let us assume that point A in Figure 2.5(a), the combination of 18C of cereal and 12K of clothing, is regarded as the optimum output mix in Australia. Suppose Taiwan's optimum product mix is 8C of cereal and 4K of clothing, as indicated by point B in Figure 2.5(b). These choices are also reflected in column 2 of Table 2.4.

Table 2.4

International specialisation according to comparative advantage and the gains from trade (hypothetical data, in physical units)

Country	Outputs before specialisation	Outputs after specialisation	Amounts exported (-) and imported (+)	Outputs available after trade	Gains from specialisation and trade
Australia	18 cereal 12 clothes	30 cereal 0 clothes	- 10 cereal + 15 clothes	20 cereal 15 clothes	2 cereal 3 clothes
Taiwan	8 cereal 4 clothes	0 cereal 20 clothes	+ 10 cereal - 15 clothes	10 cereal 5 clothes	2 cereal 1 clothes

Specialisation according to comparative advantage

Principle of comparative advantage: that nations should specialise in the production of those goods and services in which they have a comparative advantage, allowing an increase in consumption possibilities through trade and specialisation.

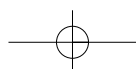
Given these different opportunity-cost ratios, is there any rule that tells us in which products Australia and Taiwan should specialise? Yes—the **principle of comparative advantage** says that total output will be greatest when each good is produced by that nation that has the lower opportunity cost.

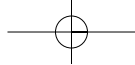
For our illustration, Australia's opportunity cost is lower for cereal; that is, Australia need forgo only 1K of clothing to produce 1C of cereal, whereas Taiwan must forgo 2K of clothing for 1C of cereal. Australia, therefore, has a *comparative (cost) advantage* in cereal, and it should specialise in cereal production. The 'world' (Australia and Taiwan) is obviously not economising in the use of its resources if a given product (cereal) is produced by a high-cost producer (Taiwan) when it could have been produced by a low-cost producer (Australia). To have Taiwan produce cereal would mean that the world economy would have to give up more clothing than is necessary to obtain cereal.

Conversely, Taiwan's opportunity cost is lower for clothing; that is, Taiwan must sacrifice only 0.5C of cereal in producing 1K of clothing, whereas Australia must forgo 1C of cereal in producing 1K of clothing. Taiwan has a *comparative advantage* in clothing, and therefore it should specialise in clothing production. Again, the world would not be employing its resources economically if clothes were produced by a high-cost producer (Australia) rather than a low-cost producer (Taiwan). If Australia produced clothing, the world would be giving up more cereal than would be necessary to obtain 1K of clothing.

Economising—using given quantities of scarce resources so as to obtain the greatest total output—requires any particular good to be produced by that nation that has the lower opportunity cost, that is, the comparative advantage. In our illustration, Australia should produce cereal and Taiwan should produce clothing.

By looking at column 2 of Table 2.4, we can quickly verify that specialised production in accordance with the principle of comparative advantage does, indeed, allow the world to get more output from given amounts of resources. By specialising completely in cereals, Australia can produce 30C of cereal and no clothes. Similarly, by specialising completely in clothing, Taiwan produces 20K of clothing and no cereal. We note that the world has more cereal (30C,





as compared with 26C, that is, 18C + 8C) and more clothing (20K, as compared with 16K, that is, 12K + 4K) than in the case of self-sufficiency of unspecialised production.

The terms of trade

The consumers of each nation want both cereals and clothing. Specialisation implies the need to trade or exchange the two products. What will be the **commodity terms of trade**? That is, at what exchange ratio will Australia and Taiwan trade cereal and clothing?

We know that because $1C = 1K$ in Australia, Australia must obtain *more than 1K* of clothing for each 1C of cereal exported, or it will not be worthwhile for Australia to export cereals in exchange for Taiwanese clothing. That is, Australia must receive a better price (more clothing) for its cereals in the world market than it can obtain domestically, or else trade is not advantageous. Similarly, because $1C = 2K$ in Taiwan, we know that Taiwan must be able to obtain 1C of cereal by exporting an amount of *less than 2K* of clothing. Taiwan must be able to pay a lower price for cereal in the world market than it must pay domestically, or it will not wish to engage in international trade. Thus we can be certain that the international exchange ratio or commodity terms of trade must lie somewhere between

$$1C = 1K$$

and

$$1C = 2K$$

But where will the actual world exchange ratio fall between the $1C = 1K$ limit (determined by cost conditions in Australia) and the $1C = 2K$ limit (determined by cost conditions in Taiwan)? This question is crucial because the exchange ratio determines how the gains from international specialisation and trade are divided among the two nations. Obviously, Australia prefers a rate close to $1C = 2K$, say $1C = 1.75K$. Australia wants to receive a great deal of clothing for each 1C of cereal it exports. Similarly, Taiwan desires a rate of approximately $1C = 1K$, say $1C = 1.25K$. Therefore, Taiwan wants to export as little clothing as possible for each 1C of cereal it receives in exchange.

The actual exchange ratio that will materialise between the two limits depends largely on the world supply and demand conditions for the two products. The preferences of consumers in Australia and Taiwan determine demand for each product, and the production constraints imposed by the production possibility frontiers of the two countries determine the supply of each product. If the overall demand for clothing is weak relative to its supply, and the demand for cereal is strong relative to its supply, the price of clothing will be low and that of cereal high. The exchange ratio will settle near the $1C = 2K$ figure preferred by Australia. Under the opposite supply and demand conditions, the ratio will settle near the $1C = 1K$ level more favourable to Taiwan.

The gains from trade

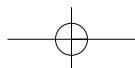
Let us arbitrarily suppose that the international exchange ratio or commodity terms of trade is actually $1C = 1.5K$. The possibility of trading on these terms permits each nation to supplement its domestic production possibilities line with a **trading possibilities line**. This can be seen in Figure 2.6. Just as a production possibilities line shows the options that a full-employment economy has in producing one product by shifting resources from the production of another, so a trading possibilities line shows the options that a nation has by specialising in one product and trading (exporting) its speciality to obtain the other product.

The trading possibilities lines in Figures 2.6(a) and 2.6(b) are drawn on the assumption that both nations specialise in accordance with comparative advantage and that Australia therefore specialises completely in cereals (point *S* in Figure 2.6(a)) and Taiwan completely in clothing (point *d* in Figure 2.6(b)).

Commodity terms of trade: the rate at which one commodity can be exchanged for another expressed in physical units of each commodity.

Gains from trade: increases in consumption of goods and services allowed through the efficient allocation of resources and international exchange.

Trading possibilities line: a line showing the rate at which one commodity can be exchanged for another during international trade. The slope reflects the international commodity terms of trade.



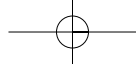
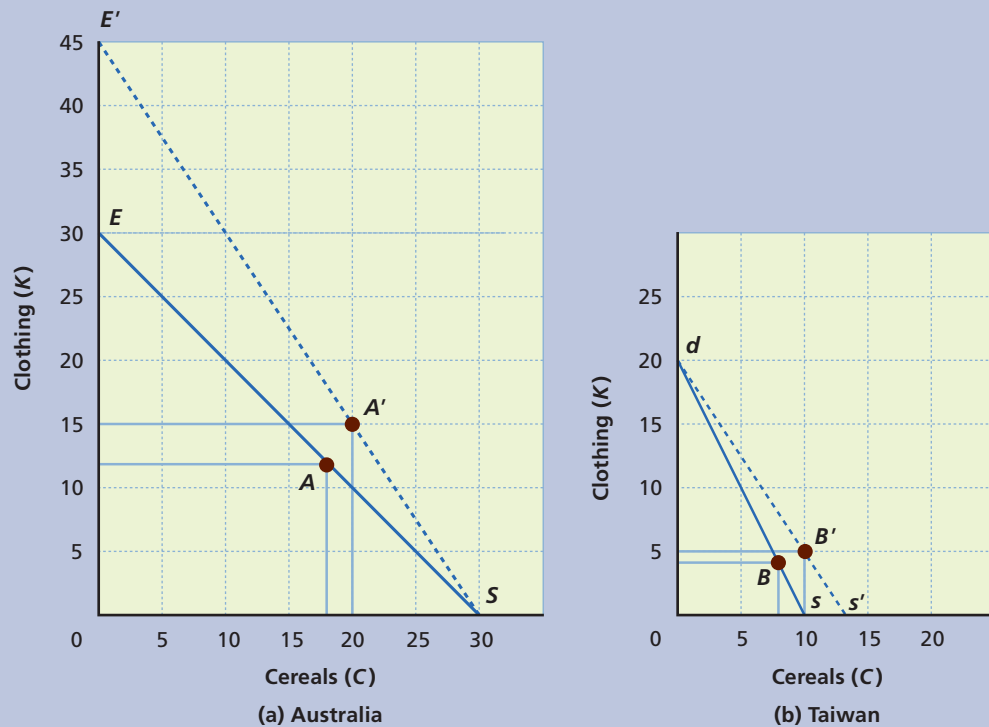


Figure 2.6
Trading possibilities
lines and the gains
from trade

As a result of international specialisation and trade, Australia and Taiwan can both realise levels of output superior to those attainable on their domestic production possibilities curves. For example, Australia, in (a), can move from point A on its domestic production possibilities line to point A' on its trading possibilities line; similarly, Taiwan, in (b), can move from B to B'.



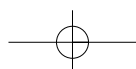
Now Australia is no longer constrained by its domestic production possibilities line. It does not have to give up 1C of cereal for every 1K of clothing it wants (by moving up its domestic production possibilities line from point S). Instead it can, through trade with Taiwan, get 1.5K of clothing for every 1C of cereal it exports to Taiwan (it moves up the trading line SE').

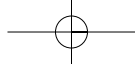
Similarly, we can think of Taiwan as starting at point d. Instead of having to move down its domestic production possibilities line, thereby having to give up 2K of clothing for each 1C of cereal it wants, it can now export just 1.5K of clothing for each 1C of cereal it wants (moving down its ds' trading possibilities line).

Specialisation and trade give rise to a new exchange ratio between cereals and clothing that is reflected in a nation's trading possibilities line. This new exchange ratio is superior, for both nations, to the self-sufficiency exchange ratio embodied in each nation's production possibilities line. By specialising in cereals, and trading for Taiwan's clothing, Australia can obtain more than 1K of clothing for 1C of cereal. Similarly, by specialising in clothing, and trading for Australia's cereals, Taiwan can obtain 1C of cereal for less than 2K of clothing.

The crucial fact to note is that, by specialising according to comparative advantage and trading for those goods that they can produce at home with relatively less efficiency, both Australia and Taiwan can realise combinations of cereals and clothing that lie beyond their production possibilities boundaries. Specialisation according to comparative advantage results in a more efficient allocation of world resources, and larger outputs of both cereals and clothing are therefore available to Australia and Taiwan.

To be more specific, suppose that, at the 1C = 1.5K commodity terms of trade, Australia exports 10C of cereals to Taiwan and Taiwan in return exports 15K of clothing to Australia. How do the new quantities of cereals and clothing available to the two nations compare with the optimum product mixes that existed before specialisation and trade?





Point A in Figure 2.6(a) reminds us that Australia originally chose 18C of cereals and 12K of clothing. Now, by producing 30C of cereals and no clothing, and by trading 10C of cereals for 15K of clothing, Australia can enjoy 20C of cereals and 15K of clothing. This new, superior combination of cereals and clothing is shown by point A' in Figure 2.6(a). Compared with the non-trading figures of 18C of cereals and 12K of clothing, Australia's gains from trade are 2C of cereal and 3K of clothing.

Similarly, we assumed that Taiwan's optimum product mix was 4K of clothing and 8C of cereals (point B) before specialisation and trade. Now, by specialising in clothing and thereby producing 20K of clothing and no cereals, Taiwan can realise a combination of 5K of clothing and 10C of cereals by exporting 15K of its clothing in exchange for 10C of Australian cereals. This new position is shown by point B' in Figure 2.6(b). Taiwan's gains from trade are 1K of clothing and 2C of cereals. As a result of specialisation and trade, both countries have more of both products. Table 2.4 is a summary statement of all these figures and merits your careful study.

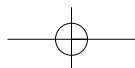
The fact that points A' and B' are positions superior to A and B is extremely important. We have now discovered a third means—international trade—by which a nation can circumvent the output constraints imposed by its production possibilities curve. The effects of international specialisation and trade are equivalent to having more and better resources, or discovering improved production techniques.

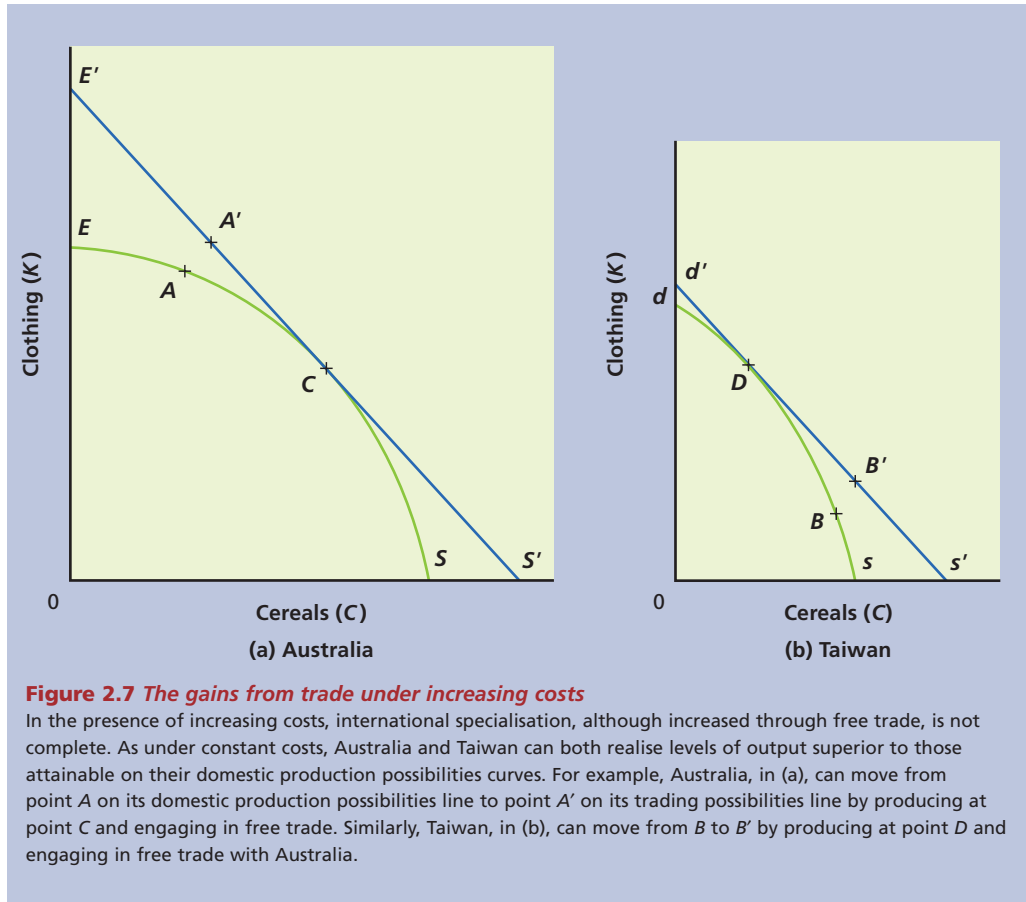
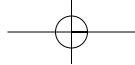
Increasing costs

In formulating a straightforward statement of the principles underlying international trade, we have used a number of simplifying assumptions. Our discussion was purposely limited to two products and two nations in order to minimise the length of our argument; however, multi-nation and multi-product examples would yield similar conclusions. The assumption of constant costs, on the other hand, is a more substantive simplification. Let us therefore pause to consider the significance of increasing costs (concave-from-the-origin production possibility curves) for our analysis. Figure 2.7 illustrates this case.

Suppose that Australia and Taiwan are at positions on their production possibilities curves where their cost ratios are initially $1C = 1K$ and $1C = 2K$ respectively (points A and B in Figures 2.7(a) and 2.7(b)). Recall that the slope of the production possibilities curve is the same as that of the tangent to the curve at the particular point of interest (see the appendix to Chapter 1). As before, comparative advantage indicates that Australia should specialise in cereals and Taiwan in clothing. But now, as Australia begins to expand its cereal production, its $1C = 1K$ cost ratio rises as it moves from left to right around its production possibilities curve; that is, it has to sacrifice more than 1K of clothing to get an additional 1C of cereals. Resources are no longer perfectly shiftable between alternative uses, as the constant-cost assumption implied. Resources less and less suitable to cereal production must be allocated to the Australian cereal industry to expand cereal output, and this means increasing costs, that is, the sacrifice of larger and larger amounts of clothing for each additional gram of cereals. Similarly, Taiwan, starting from its $1C = 2K$ cost ratio position, expands clothing production. But as it does, it finds that its $1C = 2K$ cost ratio begins to fall as it moves from right to left around its production possibilities curve. Sacrificing 1C of cereal frees resources that are only capable of producing something less than 2K of clothing, because the transferred resources are less suitable to clothing production.

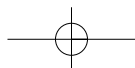
Hence, as the Australian cost ratio rises from $1C = 1K$ and Taiwan's falls from $1C = 2K$, a point may be reached at which the cost ratios are equal in the two nations, for example at $1C = 1.5K$ (points C and D in Figures 2.7(a) and 2.7(b)). At this point, the underlying basis for further specialisation and trade—*differing opportunity cost ratios*—has obviously disappeared, and further specialisation is uneconomic. And, most importantly, this point of equal cost ratios is realised where Australia is still producing some clothing along with its cereals (point C in Figure 2.7(a)) and Taiwan is still producing some cereal along with its clothing (point D in Figure 2.7(b)). The main effect of increasing costs is to make specialisation less than complete.

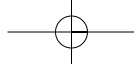




- Society's choice as to the composition of current output is a determinant of the future location of its production possibilities curve.
- A choice of a greater amount of 'goods for the future', or investment goods and services, will lead to a production possibility curve that is further to the right in the future; a greater rate of economic growth will have occurred.
- Choosing to produce relatively more 'goods for the present', or consumption goods and services, will lead to a lower level of economic growth over a given period.
- World trade is ultimately based on two considerations—the uneven distribution of economic resources among nations; and the fact that the efficient production of various goods requires particular techniques or combinations of resources.
- Mutually advantageous specialisation and trade are possible between any two nations as long as the opportunity cost ratios for any two products differ. By specialising according to comparative advantage, nations can realise larger real incomes with fixed amounts of resources.
- The commodity terms of trade determine how any increase in world output brought about by specialisation is shared by the trading nations.
- Increasing costs impose limits on the gains from specialisation and trade.

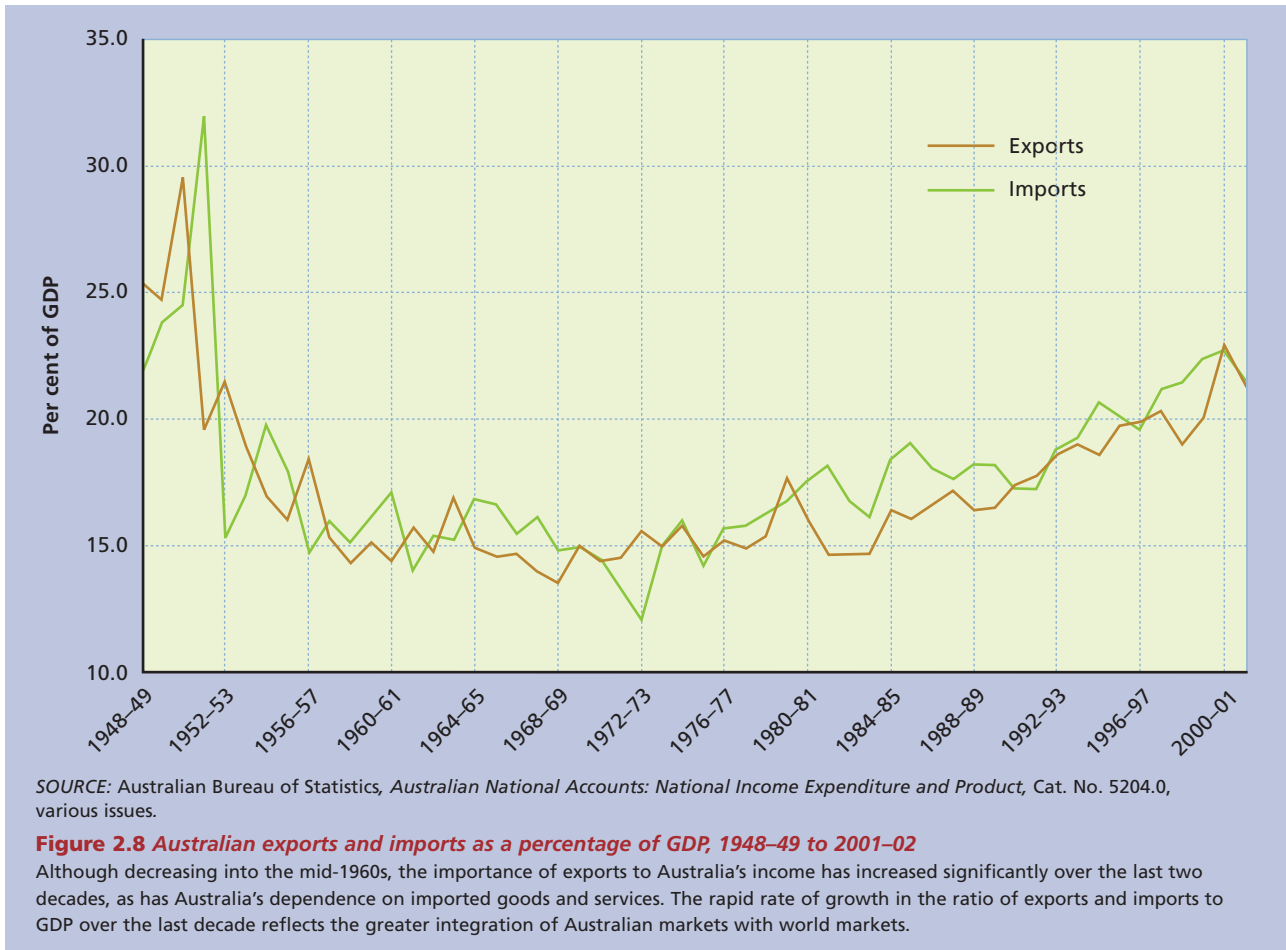
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Australia's international trade

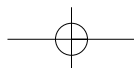
Figure 2.8 gives a rough picture of the macroeconomic importance of Australia's trade. Our measures are the ratio of exports and imports to GDP, that is, the value of the goods and services that Australia sells overseas (exports) and buys from overseas (imports), relative to the total value of the final goods and services produced in the economy (GDP). Australia, like many countries with restricted resource bases and limited domestic markets, cannot efficiently produce all the goods and services its residents want to consume. Exports provide income to purchase imports of those goods and services that cannot be produced domestically.

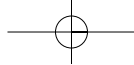


In the case of Australia's trade, several detailed points are worth noting.

Volume

Australia produced export goods and services worth around \$152 219 million during 2001-02, roughly equal to 21.3 per cent of its GDP of \$715 973 million. In the same year Australian imports cost around \$154 194 million, roughly equal to 21.5 per cent of its GDP. On this basis, Australia can be considered a relatively **open economy**, although it can be argued that other factors—such as a low level of barriers to trade in goods and services and freedom of entry of international capital flows—are better indicators (see Chapter 19).





Although Australia is now a relatively open economy, this has not always been the case. Figure 2.8 shows the changing level of exports and imports as a percentage of GDP from 1948–49 to 2001–02. After World War II, a severe decline in the importance of both imports and exports as a share of GDP occurred until well into the 1960s. It needs to be remembered that this partly reflects structural changes in the Australian economy, particularly the rapid growth and development of the services sector of the economy. Most importantly, however, it reflects Australia's use of trade barriers to encourage the growth and development of local industry over the period into the early 1970s (see Chapter 19).

More recently, both exports and imports have become increasingly important relative to total output, with their faster growth over the last decade reflecting the increasing 'internationalisation' of the Australian economy. The more recent dips in Australia's exports reflect, respectively, the economic impacts of the 'Asian Crisis' and the 11 September 2001 terrorist attacks in the United States on both the commodity markets and Australia's tourism industry.

Interdependence

Despite the versatility of Australian capitalism, we are almost entirely dependent on other countries for supplies of specific commodities, such as coffee, tea, cocoa and crude fertilisers. Traditionally, Australia has relied heavily on imports for supplies of machinery of various kinds, including transport equipment. We have also imported considerable quantities of manufactured goods, chemicals and mineral fuels (see Table 2.5).

On the export side, Australia has been largely a primary goods exporter. As Table 2.5 illustrates, the mining industry has produced major export items such as metal ores and coal. The Australian agricultural sector produces meat, cereals, wool and sugar for export markets. Australia's reliance on its primary sector for exports has meant that sudden changes in world primary prices have often led to booms or recessions within the country.

Table 2.5

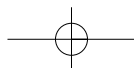
Main merchandise exports and imports of Australia (selected categories), 2001–02

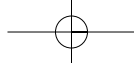
Export	% of total	Import	% of total
<i>Rural</i>		Machinery and transport equipment	44.8
Meat and meat preparations	5.2	<i>Transport equipment</i>	15.4
Cereals and cereal preparations	4.9	Automatic data processing and telecommunications equipment	12.4
Wool	2.4	Chemicals and related products	12.2
<i>Non-rural</i>			
Metaliferous ores and metal scrap	11.8		
Coal	11.1		
Other mineral fuels and lubricants	9.1		
Gold (excl. ores and concentrates)	4.3		
Other metals	4.3		
Transport equipment	5.1		
Total (\$121 166 million)	100.0	Total (\$119 665 million)	100.0

SOURCE: Australian Bureau of Statistics, *International Merchandise Exports*, Cat. No. 5432.0, and *International Merchandise Imports*, Cat. No. 5439.0.

Trade patterns

Australia's complex trading relationships involve over 70 other countries. Some of these, such as the United States and Japan, are major purchasers of Australian exports and suppliers of Australian imports. Others, such as Myanmar and Nepal, engage in relatively minor amounts





of trade with Australia. The involved pattern of Australia's trading relationships leads to a complex process of international financing of Australia's transactions.

Table 2.6 lists those countries that were Australia's major export markets and import sources for merchandise in 2001–02. Several observations can be drawn from Tables 2.5 and 2.6. First, the value of our imports of goods was exceeded by the value of our exports of goods. Second, the bulk of our export and import trade is with other developed nations, not with the less industrially advanced nations or the countries of Eastern Europe. Third, there are sizeable imbalances in our trade with the United States, the European Union, Japan and South Korea. Our imports from the United States and the European Union greatly exceeded our exports to these areas, and our exports to Japan and South Korea greatly exceeded our imports.

Table 2.6

Main trade partners of Australia (merchandise), 2001–02

Australian merchandise exports		Australian merchandise imports	
Recipient country or region	Percentage of total	Source country or region	Percentage of total
<i>Country</i>		<i>Country</i>	
China	6.45	China	9.42
Japan	18.82	Japan	12.93
South Korea	8.11	South Korea	3.95
New Zealand	6.32	New Zealand	3.96
Singapore	4.08	Singapore	3.32
Taiwan	4.00	Taiwan	2.62
United Kingdom	4.29	United Kingdom	5.20
United States of America	9.92	United States of America	17.96
Germany	1.11	Germany	5.63
Hong Kong	3.31	Hong Kong	1.18
<i>Trade associations</i>		<i>Trade associations</i>	
Association of South East Asian Nations (ASEAN) ^a	12.24	Association of South East Asian Nations (ASEAN) ^a	14.74
European Union (EU) ^b	11.94	European Union (EU) ^b	22.67
<i>Others^c</i>	<i>18.89</i>	<i>Others^c</i>	<i>10.58</i>
Total (\$121 166 million)	100.00	Total (\$119 665 million)	100.00

Notes

(a) ASEAN comprises Brunei, Indonesia, Malaysia, the Philippines, Singapore, Myanmar, Laos, Thailand, Vietnam, and Cambodia.

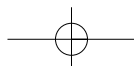
(b) EU comprises Austria, Belgium, Denmark, Finland, France, Germany, Greece, Holland, Ireland, Italy, Luxembourg, Portugal, Spain, Sweden and the United Kingdom.

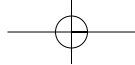
(c) 'Others' includes over 50 countries.

SOURCE: Australian Bureau of Statistics, *International Merchandise Exports*, Cat. No. 5432.0, and *International Merchandise Imports*, Cat. No. 5439.0.

Unique aspects

Apart from essentially quantitative considerations, world trade also has certain unique characteristics that require our special attention.





Mobility differences

Though the difference is a matter of degree, the mobility of resources is considerably less between nations than it is within nations. Australian workers, for example, are relatively free to move from Western Australia to Victoria, or from Melbourne to Sydney. If workers want to move, they may do so. Crossing international boundaries is a different story. Immigration laws and language and cultural barriers put severe restrictions on the migration of labour between nations. Different tax laws, government regulations and business practices, and a host of other institutional barriers, limit the migration of real capital over international boundaries.

International trade provides a substitute for the international mobility of resources. If human and property resources do not move readily among nations, the movement of goods and services is an effective substitute.

Currency differences

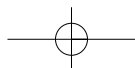
Each nation uses a different currency. This poses complications. For example, an Australian firm distributing Japanese goods in Australia must buy yen to pay the Japanese manufacturers.

- International trade is important, quantitatively and otherwise, to most nations. World trade is vital to Australia in several respects:
 - Australia is completely dependent on trade for certain commodities and materials that cannot be obtained domestically.
 - Australia has traditionally exported primary products and imported large amounts of machinery and manufactured goods.
- International trade and domestic trade differ in that resources are less mobile internationally than domestically; each nation uses a different currency; and international trade is subject to more political controls.

**CHECK
POINT**

Politics

International trade is subject to political interference and controls that differ markedly in degree and kind from those applying to domestic trade.





summary

MaxMARK

Max your marks!

Thirty interactive questions on the economising problem are available now at the Online Learning Centre that accompanies this book: www.mhhe.com.au/jackson7e_micro (for access to MaxMark, please refer to the front of this text).

- 1** Economics centres on two basic facts. First, human material wants are virtually unlimited; they can never be completely satisfied in total. Second, economic resources are scarce, in that their supplies are limited (finite).
- 2** Economic resources may be classified as property resources (raw materials and capital) or as human resources (labour and entrepreneurial ability).
- 3** Economics is concerned with the problem of administering scarce resources in the production of goods and services for the fulfilment of the material wants of society. Both the full employment and the full production of available resources are essential if this administration is to be efficient.
- 4** Full production involves productive efficiency (least-cost production) and allocative efficiency (the production of society's most desired output combination).
- 5** At any time, a full-employment, full-production economy must sacrifice the output of some types of goods and services to achieve the increased production of others. Because resources are not equally productive in all possible uses, the shifting of resources from one use to another is subject to the law of increasing opportunity costs; in other words, the production of additional units of product X entails the sacrifice of increasing amounts of product Y.
- 6** Allocative efficiency means obtaining the optimal (most desired) point on the production possibilities curve.
- 7** Over time, technological advance and increases in the quantity and quality of human and property resources permit the economy to produce more of all goods and services. Society's choice as to the composition of current output is a determinant of the future location of the production possibilities curve.
- 8** The five fundamental questions are an elaboration of the economising problem:
 - (a) How much total output should society produce?
 - (b) What combination of outputs is to be produced?
 - (c) How are these outputs to be produced?
 - (d) Who is to receive and consume these outputs?
 - (e) How can the system adapt to change?
- 9** The various economic systems of the world differ in their ideologies and in their response to the economising problem. Critical differences centre on:
 - (a) private versus public ownership of resources
 - (b) the use of the market system versus central planning as a coordinating mechanism.
- 10** Specialisation, advanced technologies based on the extensive use of capital goods, the use of money and use of the market mechanism to coordinate at least some part of the economic allocation of resources are features common to all modern economies.
- 11** Functioning as a medium of exchange, money overcomes the problems entailed in bartering and, therefore, permits greater specialisation.
- 12** World trade is ultimately based on two considerations—the uneven distribution of economic resources among nations, and the fact that the efficient production of various goods requires particular techniques or combinations of resources.
- 13** Mutually advantageous specialisation and trade are possible between any two nations as long as the cost ratios for any two products differ. By specialising according to comparative advantage, nations can realise larger real incomes with fixed amounts of resources.
- 14** The commodity terms of trade determine how this increase in world output brought about through specialisation and trade is shared by the trading nations.
- 15** Increasing costs impose limits on the gains from specialisation and trade, leading to incomplete specialisation in production.



- 16** International trade is important, quantitatively and otherwise, to most nations. World trade is important to Australia in two respects:
- (a) Australia is completely dependent on trade for certain commodities and materials that cannot be obtained domestically.
 - (b) Australia has traditionally exported primary products, providing it with export incomes, which has allowed it to import large amounts of machinery and other manufactured goods.



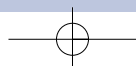
Key terms and concepts

allocative efficiency	37	investment	34
authoritarian capitalism	49	labour	35
bartering	52	labour-intensive commodity	36
capital	34	laissez-faire capitalism (pure capitalism)	48
capital goods	38	land	34
capital-intensive commodity	36	land-intensive commodity	36
coincidence of wants	52	law of increasing opportunity costs	41
command economy (communism)	48	market	53
commodity terms of trade	58	market socialism	49
comparative advantage	55	market system	53
consumer goods	38	material wants	33
cost ratio	56	money	52
division of labour	37	open economy	63
economic growth	44	opportunity cost	40
economic resources	34	principle of comparative advantage	57
economising problem	33	production possibilities table (curve)	39
efficiency	37	productive efficiency	37
entrepreneurial ability	35	specialisation	51
five fundamental questions	45	trading possibilities line	58
full employment	37	traditional (customary) economy	49
full production	37	utility	33
gains from trade	58		



review questions

- 1** What facts constitute the economising problem?
- 2** 'Economics is the study of the principles governing the allocation of scarce means among competing ends when the objective of the allocation is to maximise the attainment of the ends.' Explain.
- 3** What are economic resources? Give some examples of each type of economic resource.
- 4** What are the major characteristics of the entrepreneur?
- 5** Distinguish between allocative efficiency and productive efficiency. Give an illustration of:
 - (a) achieving allocative, but not productive, efficiency
 - (b) achieving productive, but not allocative, efficiency.
- 6** On what assumptions is the production possibility curve based?
- 7** What do the points on the production possibility curve indicate? What do the points inside the production possibility curve indicate?
- 8** How does the production possibility curve reflect the law of increasing opportunity costs?
- 9** Why is the problem of unemployment a part of the subject matter of economics?



- 10 Describe the different means by which pure capitalism, market socialism and a command economy attempt to confront the economising problem.
- 11 What are the advantages of specialisation in the use of human and material resources? (Be specific.)
- 12 What problems does barter involve?
- 13 What is the economic significance of money as a medium of exchange?
- 14 What is the opportunity cost of attending university?
- 15 'The present choice of position on the production possibilities curve is a major factor in economic growth.' Explain.
- 16 What is an open economy? Is Australia an open economy? Explain briefly.
- 17 In what ways are domestic and foreign trade similar? In what ways do they differ? Discuss.



problem-solving exercises

Here is a production possibilities table for war goods and civilian goods.

Type of product	Production alternatives				
	A	B	C	D	E
Cars (in millions)	0	2	4	6	8
Guided missiles (in thousands)	30	27	21	12	0

- 1 Graph the data in the table. Are there constant or increasing opportunity costs for the production of missiles?
- 2 If the economy is currently at point C:
 - (a) what is the cost of one million more cars?
 - (b) what is the cost of one thousand more guided missiles?
- 3 Label a point G inside the curve in question 1. What does it indicate?
- 4 Label a point H that lies outside the production possibilities curve of question 1.
 - (a) What does this point indicate?
 - (b) What must occur before the economy can attain the level of production indicated by point H?
- 5 Suppose improvement occurs in the technology of producing guided missiles but not in the production of cars.
 - (a) Draw the new production possibilities curve on the diagram that you created in answering question 1.
 - (b) Now draw a curve that reflects technological improvement in the production of both products.
- 6 (a) Create a three-dimensional production possibilities surface using the data in the following table (a computer spreadsheet will be useful).

Type of product	Production alternatives						
	A	B	C	D	E	F	G
Robots (in hundreds)	0	2	0	1	3	5	7
CD players (in thousands)	0	20	35	30	20	10	0
Industrial diamonds (in thousands)	30	16	0	12	15	11	0

- (b) What is the significance of points A, C and G? Explain this in terms of the 'economising problem'.



- 7** Assume that, by using all its resources to produce X, nation A can produce 80 units of X; by devoting all its resources to Y, it can produce 40 units of Y. Comparable figures for nation B are 60 units of X and 60 units of Y.
- (a) Assuming constant costs, in which product should each nation specialise? Why?
 (b) Indicate the limits of the terms of trade.
- 8** The following are production possibilities tables for Japan and Hawaii. Assume that, prior to specialisation and trade, the optimum product mix for Japan is alternative B and for Hawaii alternative D.

Japan's production alternatives

	A	B	C	D	E	F
Radios (in thousands)	30	24	18	12	6	0
Pineapples (in tonnes)	0	6	12	18	24	30

Hawaii's production alternatives

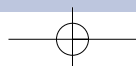
	A	B	C	D	E	F
Radios (in thousands)	10	8	6	4	2	0
Pineapples (in tonnes)	0	4	8	12	16	20

- (a) Are comparative-cost conditions such that the two nations should specialise? If so, what product should each produce?
 (b) What is the total gain in radio and pineapple output that results from specialisation?
 (c) What are the limits of trade?
 (d) Suppose that the actual terms of trade are 1 unit of radios for 1.5 units of pineapples, and that 4 units of radios are exchanged for 6 units of pineapples. What are the gains from specialisation and trade for each nation?
 (e) Can you conclude from this illustration that specialisation according to comparative advantage results in the more efficient use of world resources? Explain.



application questions

- 1** Critically analyse and explain the following statements:
- (a) 'Wants aren't insatiable. I can prove it. I get all the coffee I want to drink every morning at breakfast.'
 (b) 'Goods and services are scarce because resources are scarce.'
 (c) 'It is the nature of all economic problems that absolute solutions are denied us.'
- 2** Comment on the following statement from a newspaper: 'Our secondary school serves a splendid hot meal for a dollar without costing the taxpayers anything, thanks in part to a government subsidy.'
- 3** Explain this statement: 'Money is the only commodity that is good for nothing but to be gotten rid of. It will not feed you, clothe you, shelter you, or amuse you unless you spend or invest it. It imparts value only in parting.'¹
- 4** To gain an idea of the importance of government in the total economy, visit the World Bank website and check the data on government expenditures relative to GDP (the value of national output of goods and services). You can find the site at:
www.worldbank.org/





Economics in reality

Giants shake up the markets

In the 1990s, Russia and China started to break away from state-run development on their way to embracing the market economy and the benefits of trade. The latest manifestation of change is China's entry to the World Trade Organisation and the accelerating efforts Russia is making to achieve membership.

For Australia and other commodity exporters, the emergence of Russia and China as fast-growing, market-oriented economic behemoths is a two-edged sword. Higher world economic growth is generally favourable for world commodity demand and prices—and, therefore, for export returns. Russia and China, however, have enormous potential as commodity exporters in their own right and, in recent years, their actions in many markets have eroded Australia's export market share and commodity prices. Russia and China are taking different approaches to develop their new market-driven economies. In China, the once-dominant state-run sector is declining more or less gracefully and has been overtaken by massive growth in the private sector. This has been facilitated, in part, by rapid increases in foreign direct investment and a growing web of trade relations. China is now the world's second-largest economy on a purchasing-power parity basis.

In Russia, the old system was swept away in a single stroke. Economic collapse followed and the progress of market forces was constrained by poor institutional structures. Many commentators continue to point to weak institutional structures as the key limit to Russia's growth, particularly where attracting foreign investment is involved. Despite this problem and a long run of economic reversals, Russia recorded positive economic growth in 1999 for the first time in a decade. Forecasts now indicate annual growth of 3–5% for the next five years.

A demand for foreign exchange in Russia and a desire to promote development in the least advanced provinces of China are among the biggest pressures behind the aggressive push of the two countries into some commodity markets. Future changes in these rapidly evolving economies are difficult to predict,

which increases the underlying uncertainty about the effect on world markets of economic development in Russia and China.

In China, coal provides a good example of the uncertainties of prediction. In the 1990s, many commentators assumed that China's rapidly increasing demand for electricity would make it a large importer of thermal coal for power generation. But last year China became the world's second largest exporter of thermal coal, behind Australia. Chinese coal has crowded out some Australian exports to many of Australia's longstanding Asian markets. And now China has usurped Australia as number-one supplier of thermal coal to South Korea. The impetus for this export push is, in large part, related to a strategy to support growth and employment in China's less economically advanced northern provinces. Chinese demand for thermal coal declined in the second half of the 1990s as power stations became more efficient in using coal, and many inefficient, energy-intensive state-owned enterprises were closed. Coal enterprises were big employers in the north of China, and coal exports were encouraged to avert the risk that reduced domestic demand would seriously dislocate the economy. China's coal export support has been conservatively valued at \$US1.5 billion a year, but some commentators claim that support levels could be as high as \$US5 billion.

Russia's disruption of world aluminium markets in the early 1990s illustrates its potential to depress commodity markets by earning foreign exchange and propping up production to maintain employment. The same effect has been evident more recently in the nickel markets, but nowhere is Russia's influence felt more than in world oil markets. In 2001, Russia accounted for almost one-third of total oil production increases outside the Organisation of Petroleum Exporting Countries (OPEC), and it now seems to be well on the way to regaining its position as the world's largest oil producer. The focus of capital spending and development drilling is expected to shift away from the enhancement of existing reservoirs, to be

realigned on commissioning new oil fields and reservoirs in the Caspian Sea region and in Siberia. OPEC's aim is to maintain or raise prices without eroding its share of the world oil market, but Russia's aggressive expansion in output is constraining OPEC's ability to achieve that goal. For Australia, a lower oil price would be a boon for consumers, but would

create a threat to the returns of exporters and to investment in Australian oil production capacity.

The long-term effect of Russia and China on world commodity markets is hard to predict, except to say that there will be a surprise or two.

SOURCE: B. Fisher, *Business Review Weekly*, 27 June 2002, p. 28.

Questions

- 1 Where have Australia, China and Russia traditionally been located in Table 2.3 (p. 49) with respect to ownership of economic resources and the coordinating mechanism? In what directions are they moving over time within this table?
- 2 What changes in specialisation are occurring within China and Russia as they become more involved in world trade?
- 3 What gains from trade do you think this involvement is bringing to each country? Explain.
- 4 How are the changes in international trade suggested in the article likely to affect world commodity prices and what is the likely impact on Australia?



Search for more on the economising problem on PowerWeb, available from the Online Learning Centre that accompanies this book: www.mhhe.com.au/jackson7e_micro (for access to PowerWeb, please refer to the front of this text).

notes

- 1 Federal Reserve Bank of Philadelphia, 'Creeping Inflation', *Business Review*, August 1957, p. 3.