CHAPTER 1
THE ECONOMIC SYSTEM

LEARNING OUTCOMES

By the end of this chapter you should be able to:

✪ Define what is meant by an economic system.
✪ Describe the roles played by the main players in the system including individuals, firms and countries.
✪ Describe how and why:
  • the principle of exchange;
  • the existence of markets; and
  • the role of prices
  are central to understanding how an economic system functions.
✪ Clarify the role played by concepts, theories and models in economic analysis.
✪ Explain how rules and laws facilitate and govern decisions within the economic system.
✪ Illustrate how each of the following concepts:
  • scarcity;
  • opportunity cost; and
  • economic efficiency
  underpins economic analysis.

1.1 INTRODUCING THE ECONOMIC SYSTEM

This chapter provides an introduction to the economic system to illustrate the interconnectedness between the different participants in and features of an economy, which contribute to economic decisions and outcomes. An economy can aptly be described as a ‘system’ as it relates to the following definitions of what a system entails:

• a group of interacting interrelated or interdependent elements forming a complex whole;
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- an organized set of interrelated ideas or principles;
- a functionally related group of elements;
- an organized and coordinated method; a procedure.

The main participants and features of an economy are outlined in the chapters that follow. The study of economics focuses on identifying and trying to understand the patterns and relationships between these elements.

To begin it is useful to define what a study of the economic system entails. It involves understanding how:

- the production of goods and services is organized and influenced by individuals, organizations (including companies – both publicly and privately owned, trades unions, employer groups, etc.) and governments;
- products and services are used to satisfy the requirements of these same individuals, households, organizations and government.

Analysis of production includes the consideration of decisions regarding what is produced and how production decisions are made, which inputs to use in production (factors of production) and the way in which they are organized together to produce output. How production meets the demands of buyers is a central factor in analysis of the economic system.

Factors of production: the resources necessary for production. They include:

- land – all natural resources (including minerals and other raw materials);
- labour – all human resources;
- capital – all man-made aids to production that have been produced (e.g. machines, factories, tools). It is used with labour to produce and/or market more goods and services;
- entrepreneurship in business organization and willingness to take business risks.

1.2 ECONOMIC RESOURCES AND MARKETS

A key focus of economists’ attention is the relationship between an economy’s resources, both in quantity and quality, and what it can produce again in quantity and quality. The concept of efficiency helps in the analysis of this relationship.
Economic efficiency: optimum production given the quantity and quality of available factors of production and their cost.

An economy is efficient if it is maximizing the output it can produce within the constraints of its available inputs or resources. These constraints may take the form of rules or laws governing how inputs may be used, such as limits to the hours people are permitted to work per week.

Economists’ focus on output and production is driven by an inherent interest in trying to understand how society could be better off and this is evident as far back as 1776 in *An Inquiry into the Nature and Causes of the Wealth of Nations* by Adam Smith, the acknowledged ‘father’ of economics. What is produced in an economy has a direct bearing on the income – the flow of money earned – and wealth – the stock of money held – of people in that economy.

When an economy increases the quantity of goods and services it produces and can sell the output, economic growth occurs.

Economic growth: an expansion in the quantity of goods/services produced and sold.

Once economic growth is faster than population growth, material living standards can rise.

Living standards: the level of material well-being of a citizen. It is generally measured as the value of a country’s production per person, e.g. UK national output divided by the population of the UK for a particular period of time.

Some data on international living standards are presented in Figure 1.1 for 20 countries with the highest living standards in 2002 (as reported by the OECD, the Organization for Economic Cooperation and Development). To ensure the data reported in Figure 1.1 can be compared, each country’s output was initially converted to the same exchange rate – here all values are in dollars.

Because of the different international prices of goods, a further adjustment was made to the data to take account of these purchasing power differences. This is called the purchasing power parity adjustment as explained in the text box. Figure A.1 in Chapter 1 Appendix contains living standards data for 2000 over a broader selection of counties.

Purchasing power parity (PPP) is a measure of the relative purchasing power of different currencies. PPP is the exchange rate that equates the price of a basket
of identical traded goods and services in two countries. PPP is often very different from the current market exchange rate.

Since 1986 *The Economist* magazine has published a regular Big Mac Index. It indicates how many Big Macs dollars buy internationally when exchanged for local currencies. The Big Mac PPP is the exchange rate that would leave the Big Mac costing the same in the United States as elsewhere.

The logic underlying conversions using PPPs and not just standard exchange rates is that prices tend to be lower in poor economies, so a dollar of spending in a poor country buys more than a dollar in America. Using purchasing power parities takes account of these price differences. Comparing actual exchange rates with PPP often reveals differences. Some studies have found that the Big Mac Index is often a better predictor of currency movements than other more ‘theoretically rigorous’ currency models.

Since January 2004, *The Economist* also provides a Tall Latte Index where the focus is not on burgers but a cup of Starbucks coffee, another internationally available product.
Economists are interested in understanding the reasons behind economies’ growth experiences and the reasons underlying the cross-country disparity of living standards. Several explanations as to why such disparities arise are offered and in our study of the economic system we will touch on some of these.

To fully appreciate how an economy functions also involves an understanding of the political context within which economies work as this too has an influence on the output produced and the available resources.

**Political economy** is the term given to the study of how the rules, regulations, laws, institutions and practices of a country (or a state, region, province) have an influence on the economic system and its features.

Rules and laws on how resources and production can be organized and used influence the incentives for individuals and firms to conduct business and hence the output of an economy. One example would be rules on setting up new businesses and the time this takes.

Research indicates time needed for setting up a new business varies considerably internationally, taking only two days in Canada and costing US$280, and 62 days in Italy, costing US$3946 (Djankov, *et al.*, 2001).

Rules and laws on how resources are shared or distributed among citizens also influence their income and wealth – if only a few receive most of the production (because of corruption or a caste system, for example) the income and wealth of the majority suffers.

How the value of output produced is distributed among an economy’s stakeholders depends on the configuration of each economic system and the choices on distribution that are made. Stakeholders in the economic system are the individuals and groups that depend on the system to fulfil their own goals (be it to meet demands, generate income, create employment, provide wages or salaries, provide goods and services . . . ) and on whom the economic system depends for its continued survival.

According to the above description of what an economy is, it is possible to interpret individual countries as economic systems, each with its individual economy, but it may also be useful, depending on some issues of interest to economists, to consider provinces, regions or cities as economies in their own right.

It is also often useful to examine an economy by focusing on sub-sections of organized resources within an economy, which are described as markets, e.g. the
market for cars, apples, or labour. Knowledge of how the economic system functions based on analysis of markets, production and expenditure decisions and how economies grow will help to enhance understanding of why economies perform so differently.

**Markets**: situations where exchange occurs between buyers and sellers or where a potential for exchange exists. Markets cover the full spectrum from physical locations where buyers and sellers meet to electronic markets (such as auction websites) facilitated by the Internet.

The familiar notion of a market where people come together in a particular location to buy and sell goods or services is the most straightforward definition of a market. The economist’s definition is broader and does not limit a market to a specific time and place.

For example, we can refer to the market for apples, which covers the opportunities that exist for buying and selling apples between individuals and firms. Markets for products or services can usually be examined by considering the price at which producers or sellers are willing to supply and sell – the supply or production side of a market – and the price buyers are willing to pay – the demand or consumption side of a market. Depending on the price of a product (amongst other factors) sellers and buyers make their economic decisions about which products to produce/buy and the quantities to produce/buy. The model of demand and supply presented in Chapters 2, 3 and 4 and again in Chapter 6 develop these two elements of the economic system further.

The basic elements of the economic system therefore, involve, the organization of production and supply, consumption and demand, markets, exchange, prices, and the rules or laws that facilitate and govern decisions by individuals, households and firms relating to all of these elements.

**1.3 THE ECONOMICS APPROACH: THEORY-BASED ANALYSIS**

In recent years the scope of economics has expanded considerably due to the breadth of applications that are possible based on the concepts, theories and models that constitute the foundations of the discipline.

**Concepts, theories and models** are simplified representations of phenomena, which are intended to serve as tools to aid thinking about complex entities or processes.
What constitutes what economists do is as much governed by the approach to analysis they use as by the issues they examine. Table 1.1 provides a framework illustrating how theory guides economic analysis.

An economic method of analysis involves using concepts, theories and models (that are transferable to a multitude of issues), which serve to structure thinking and clarify the fundamental features of interest in addressing an economic issue or answering an economic question. This method helps economists identify and organize the main features causing an economic phenomenon and perhaps rank the most important causes and effects and essentially to understand the most important features that explain how economies actually work. It is not sufficient to identify correlations between economic phenomena – high standards of living and education – because correlation is not causation! Overly focusing on data relationships without an underlying logical theory of causation is bad economics and does not give rise to valid conclusions. In relation to the example in Table 1.1
the essence of the issue is whether living standards in Luxembourg would be higher or lower at a particular time with different levels of education (or investment).

Models are sometimes criticized because of how they simplify reality but they are constructed in order to take into account the most important features of the economic system relevant to analysing a specific issue. For example, the standard economic model of supply and demand abstracts from all the various factors that feed into the determination of supply and demand to focus on the relationship between the price of a product and

- producers’ decisions of how much to supply at different prices (supply);
- buyers’ decisions of how much to purchase at different prices (demand).

**Supply:** the quantity of output sellers are willing to sell over a range of possible prices.

**Demand:** the quantity of output buyers are willing to buy over a range of possible prices.

The demand/supply model is the cornerstone of economic analysis (and is described in detail in Chapter 2) and is used throughout this book. We can acknowledge that a number of different factors feed into the decisions that suppliers (producers) make regarding what to produce, in what quantity and what price to charge. These decisions would take into account producers’ available resources of money, machinery, production technology and know-how.

In their theories and models, economists abstract from all other factors to consider the essence of how economic units or phenomena are related. In focusing on the relationship between price and demand, for example, we consider how demand relates to price and price alone. The approach treats all the other potentially intervening factors as if they were unchanging, allowing one relationship to be considered in isolation. This method followed by economists is described as the *ceteris paribus* assumption.

**The ceteris paribus assumption:** from the Latin the direct meaning of this term is all things being equal or unchanged.

This could be rephrased as the ‘economists are not stupid’ assumption! Economists know all things do not remain equal or unchanging. The power of the assumption allows them to construct models that highlight the fundamental nature of a relationship they are trying to describe and understand. Subsequently they use their models to incorporate other factors of most relevance to that relationship.
Economic analysis of demand can be extended to consider, for example, the effect that a general rise in income would have on a people’s decision regarding demand. In the case where consumers’ incomes rise, *ceteris paribus*, we would expect rational consumers to buy more apples, or beans or CDs for example – more on this in Chapter 2! The objective of the model of demand is, therefore, not to simplify reality and assume that price is the only factor that feeds into consumers’ decisions but to create a model whereby the analysis of any factor that is relevant can be considered in a clear and concise framework.

Many models are used in economics, which serve similar purposes of allowing the complexity of an economic issue to be understood and sometimes future behaviour (e.g. of suppliers or buyers, or economies) to be predicted. Clearly, despite their models and concepts, economists do not always predict future behaviour or outcomes correctly. Just like weather prediction, the models do not always allow for all relevant factors that affect the outcome to be considered or in some cases probabilities of occurrences are under/overestimated. This is due to the inherent uncertainty in trying to predict economic outcomes that arise due to individual behaviour and decision-making. It is precisely because the future is uncertain that economists try to argue logically which potential outcomes are most likely or not.

### 1.4 Describing and Interpreting Economic Relationships

In attempting to draw sound conclusions, economists often use facts and figures to test their economic arguments. They compute percentages, they use index numbers, draw and manipulate diagrams and they analyse trends in data over time. If you are comfortable with such activities, you should skip this section.

To compute a percentage we are interested in the proportionate change in a quantity or value. Saying that employment increased by 10 000 jobs does not provide as much information as if you know what the initial level of employment was.

Consider an economy where 125 000 people are employed. Increasing jobs by 10 000 represents a percentage increase of 8% which is found by:

\[
\text{Percentage change} = \frac{\text{Change}}{\text{initial value}} \times 100
\]

In this example the relevant figures are \( \frac{10 000}{125 000} \times 100 = 8\% \)
With data on changes in employment produced monthly and quarterly in many economies it would be possible to compute percentage changes over these periods and examine whether the general trend were up or down, or whether any patterns emerged such as seasonal increases – temporary summer workers are usually employed for a few months and then are laid off, students return to college, etc. – and this affects employment figures.

Alternatively, quantities or values can be expressed in index number form allowing them to be presented relative to one base point in time. Consider UK employment statistics. Table 1.2 shows employment between 1999 and 2003 based to 1999 = 100. By setting a base year value (1999 = 100) it is easy to read off the relative percentage changes in employment, which declined for both women and men across manufacturing industries. The total figure is the weighted average of men and women.

In 1999 men represented 72% of the workers while women accounted for the other 28%. Taking a weighted average of 72% of the 1999 value for men and 28% of the value for women gives 100 overall \((0.72 \times 100 + 0.28 \times 100 = 100)\). The same weights apply for 2000 and 2001 and changed to 73% and 27% for the final two years.

Index numbers are commonly used in describing trends in prices and in weighted averages of prices, such as the retail price index, consumer price index, wholesale price index. Assessing changes in prices is important for all economic analyses of any variables measured in money terms over time – income, output, wages and so

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on. To see why this is so take the example of a car firm that produced £500m worth of output in 1990 and £800m in 2000. These amounts are in nominal or current terms which means they are the actual value of production not adjusted for price changes. Without further investigation you might consider that the economic activity of the firm increased over time since its output expanded by £300m or 60%. However, if you knew that over the same period average output prices increased too then without further information it is impossible to know what proportion of the extra 60% is due to rising prices or to any additional quantity of output. If prices rose by 60% then the firm’s quantity of output would not have changed at all – only its monetary value.

It is possible to disentangle the two separate effects of price and quantity if we know the extent of the price rise over time. Assume it is 25% relative to prices in 1990. Essentially what is required is to quote output values in real terms so that the effect of price changes is removed and only quantity or real effects remain, as explained in the text box.

### Nominal and real amounts: price and quantity effects

Changes in nominal amounts are made up of price and quantity effects. Economists are concerned with quantity effects.

e.g. Nominal change in value of output = change in price * change in quantity

In the above example the nominal change in the value of output is £300m. Using 1990 as a base year we can compute the following:

Nominal output index 1990 = 100 2000 = 160  [1990 = 500 2000 = 800]
Price index 1990 = 100 2000 = 125

A corresponding quantity index is found by dividing the nominal output index by the price index, i.e. (160/125)*100.

Quantity index 1990 = 100 2000 = 128  [1990 = 500 2000 = 640]

To double-check this is correct, the product of the volume and price indices should equal the total change in the nominal index (128*125)/100 = 160.

The real value of output in 2000 expressed in 1990 prices was £640m, representing a 28% increase in the quantity or volume of output.
Diagrams provide some indication of whether relationships exist between variables. For example, using data on average household size and electricity consumption indicates if and how both are related. Sample data are shown in Figure 1.2 and were taken from Statistics Norway. Such data are known as cross-section data as they provide information on different variables for one point in time (Figure 1.1 also shows cross-section data).

If data on electricity consumption were available over a number of time periods they would be called time-series data. For different household sizes (number of persons in the household) we see that smaller households had lower electricity consumption (measured in kilowatts per hour).

Linear relationships apply between many economic variables. In practice relationships are approximately linear as shown by the trend line added to the data points in Figure 1.2. The trend line approximately describes the relationship since only one data point actually sits on the line (a standard spreadsheet package was used to construct the line). For any linear relationship if the causal variable (X) changes it always brings about the same or constant effect on the variable it affects. Usually in mathematics, the causal or independent variable is put on the horizontal or X-axis while the dependent variable is on the Y-axis.

To draw a line we need:

1. The value of the dependent variable irrespective of the value of the causal or independent variable. This is called the intercept of the line.
2. A measure of how one variable reacts to changes in the causal variable. This is called the slope of the line.

A standard general expression for a line is presented and explained in the text box.

**General expression for a line:** \( Y = c + mX \) where

- \( Y \) denotes one variable, e.g. electricity consumption;
- \( c \) denotes the intercept, i.e. the value of \( Y \) irrespective of the value of \( X \);
- \( m \) denotes the extent to which \( Y \) changes as \( X \) changes, i.e. how electricity consumption varies with household size;
- \( X \) denotes the variable causing changes to \( Y \), e.g. household size.

The specific line described in Figure 1.1 is \( Y = 10759 + 3220.5X \). Electricity consumption is 10 759 kWh irrespective of household size and increases by 3220.5 with each additional one-person increase in household size.

From this relationship it is possible to predict what electricity consumption would be if household size were seven (ceteris paribus!).

\[
Y = 10759 + 3220.5 \times 7 = 10759 + 22543.5 = 33302.5
\]

Figure 1.2 is an example of a positive relationship because both variables move in the same direction and it is reflected in an upward sloping line. For negative relationships \( Y \) would fall if \( X \) rises, and rise if \( X \) falls, for example the relationship between the quantity of hours of sunshine per day and the quantity of umbrellas purchased.

Not all economic relationships are linear. For example, the price you pay for apples might be lower if buying in bulk from a grower. The more bought, the lower the unit price the grower quotes – why might a grower behave in this way? The reaction of quantity bought to changes in price may not be in constant proportion so that for each extra 10% decline in the price the quantity purchased increases at an increasing rate as shown in Figure 1.3.

Here, the 10% drop in price from 30p to 27p increases purchases by 10 apples while the 10% drop from 15.94p (to 14.35p) increases purchases by an extra 40 apples. Why might a buyer behave in this way?

Although mathematicians usually place the causal (independent) variable on the horizontal axis, economists by convention place quantity purchased on this axis. This goes back to Alfred Marshall’s treatment of price as the dependent variable.
and although most economists agree that price is the independent variable, and quantity purchased depends on price, they follow this convention. Alfred Marshall (1842–1924) was Professor of Political Economy at the University of Cambridge from 1885 to 1908. He founded the Cambridge School of Economics and taught renowned economists including Pigou and Keynes. Marshall’s great work was *Principles of Economics* (1890), published in eight editions in his lifetime and considered the ‘Bible’ of British economics, introducing and explaining concepts still conventionally used.

A trend line has been added to Figure 1.3 to indicate how it would approximate the nonlinear relationship. The curved (nonlinear) trend is also included to show how it better describes the general pattern of the data.

Further nonlinear relationships are observed between economic variables and will be met and considered later on in the text.

## 1.5 Microeconomics and Macroeconomics

A distinction is made in most economics textbooks between the areas of microeconomics and macroeconomics.
Microeconomics: study of the causes and effects of the behaviour of individual economic units within the economic system (or groups with broadly similar interests and goals) such as consumers, producers, trades unions, firms and their impact on the markets in which they interact – e.g. the car, apple or labour markets.

Consumer theory assumes consumers wish to maximize their benefit or utility.
The theory of the firm assumes producers wish to maximize profits.

Many microeconomic decisions are based on prices, such as consumers’ buying more apples if price falls, more people trying to work in the IT sector if wages (the price of labour) rises and so on. Hence microeconomics is also referred to as price theory. In considering economic units economists attempt to model and understand how the unit or related group of people behaves. Economic units are assumed to behave rationally, in the sense that they try to achieve the greatest amount of benefit, or utility, from their actions. With the assumption of rational behaviour the consideration of constraints on choices can be modelled in an attempt to estimate an optimal or most efficient outcome. For example, in attempting to increase utility by buying something I value, I am constrained by my income. I will try to maximize the utility I get from consumption, given my limited income. Many microeconomic issues are dealt with according to this ‘optimal solution’ method using the supply and demand model.

Once an analysis of individuals and units can be undertaken, it is possible to consider how all economic choices fit together and we can move to an analysis of economic aggregates such as aggregate production – not just of apples but of all goods and services. It is not always possible or feasible to consider the impact of an economic event across each of the individual units or markets that it may affect. Macroeconomic analysis is useful instead.

Macroeconomics is the study of:

- The relationships between aggregate or combined elements in the economic system such as national production and employment, for example.
- Causes of changes in aggregate economic performance including economic structure and economic institutions.

A model of the macroeconomy based on consumer, producer and government action is presented in Chapter 5.

National exchange rates reflect the price of one country’s currency in terms of other currencies, and inflation rates indicate how average national prices
change over time and these are also examined as macroeconomic issues that affect economies. Furthermore, from a government’s perspective macroeconomic policies constitute a key element in their attempts to maximize the performance of their economies to achieve policy goals such as high employment and rising incomes and living standards for their citizens. Hence, macroeconomics also focuses on the impact of government policies on output, employment, inflation or exchange rates.

Although there has been a traditional division of economics into micro- and macroeconomics, an understanding of economics requires the appreciation that they are not independent of each other. Individuals’ decisions feed into demand and supply in different markets. Aggregate or overall economic activity is clearly dependent on what happens in different markets, which is based on the choices and behaviour of individuals, firms and economic units regarding what buyers wish to buy and what producers wish to sell, for example.

A key focus of this text is on highlighting the relationships between micro-economic and macroeconomic analysis in a way that contributes to a better understanding of their intrinsic relationships and to a better appreciation of how the economic system works.

Hence, elements of both microeconomics and macroeconomics that provide useful frameworks for considering related issues are provided throughout the book.

### 1.5.1 THE ENVIRONMENT FOR ECONOMIC DECISIONS

Rules and laws also impinge on economic choices as rational people react to incentives with which they are faced. For example, interactions between consumers and firms are not independent of such rules because of the regulatory environment that exists, i.e. the rules and regulations, including laws, set down by governments in both national and international contexts which describe how citizens and businesses should operate.

Trade agreements are established by the international organization called the World Trade Organization (WTO) (see [www.wto.org](http://www.wto.org)). Following prolonged discussions between government officials, the agreements are signed by governments. Firms in signatory countries must abide by the set rules and regulations or face penalties.
Various governments have appointed regulators of competition in attempts to promote greater competition in economies by tackling anti-competitive practices, and so contributing to an improvement in economic welfare. (Alternative market structures and their implications for competition, among other issues, are examined in Chapter 6.) Such practices might include firms:

- agreeing to ‘fix’ prices – not allowing prices to be determined freely in the economic system by demand and supply;
- limiting output to create artificial scarcity and keep prices high;
- dividing business between them or abusing their market position with no benefits to consumers.

Recently the issue of corporate governance has made the headlines because a number of big companies (e.g. Enron, WorldCom, Parmalat) have revealed poor and/or illegal methods of administration or accounting that resulted in a reduction of confidence in their financial reporting procedures, hence their reported earnings and most importantly their future performance. This impacts on people’s willingness to invest in companies and may weaken their confidence in the ability of the economic system to operate efficiently or fairly.

Confidence and expectations can play an extremely important role in economic success – many surveys and ‘barometers’ of consumer confidence are reported and are considered to be key leading indicators of future economic performance. For one example, check out [http://www.conference-board.org/economics/consumer-confidence/index.cfm](http://www.conference-board.org/economics/consumer-confidence/index.cfm). Why is consumer confidence so important? If consumers are not confident about the future, if they are fearful for their jobs they may prefer not to make purchases of goods and services in the immediate future, opting to save their money rather than spending it on consumer goods.

**Consumer confidence:** the degree of optimism that consumers express (in surveys, for example) about the state of their economy through their saving and spending patterns.

A worker who thinks their job may be cut will probably put off upgrading their car until such time as they feel more secure about their prospects. If consumers are not in the ‘mood’ to buy, firms cannot sell as much of their output as they expected and so production might fall, leading to lay-offs and in worst-case scenarios slow economic growth (or even negative growth) for a period of time.

Appreciating the role played by each of the different components of the economic system and how interactions between the components all impact on the outcomes
within the system itself is a key goal that guides this book. A good student manages to understand the workings of the components within the economic system. An excellent student manages to appreciate the broader picture of the system with all its complexity of networks, interrelationships and organization. This requires an ability to understand economic models and their role in supporting analysis of economic issues plus an appreciation of their usefulness when we attempt to understand economic phenomena at a particular point in time, within their specific, and often complicated, context.

1.6 RESOURCE SCARCITY AND PRICES IN THE ECONOMIC SYSTEM

A key issue that motivates the study of economics is how to resolve the discrepancy between scarce resources and the numerous potential uses for them (and how this is actually ordered and organized via the economic system). Resources are clearly scarce in the sense that we, the world’s citizens, cannot fulfil all our economic desires, given our share of available resources. This arises to an extent because of difficult-to-defend policies on the distribution of income in some economies (which is discussed in Chapter 9). It arises also since some resources are finite – such as oil, gas, etc. – although new inventions and innovations allow new products to be developed constantly thus pushing out the boundaries we see for many resources (as Julian Simon explains in his article at http://www.cato.org/dailys/3-04-97.html).

We make choices based on preferences regarding how and when we use our available resources to satisfy not simply our needs but our desires, and more generally throughout the economic system, choices are made based on subjective desires of individuals, companies and governments.

Choice inevitably involves precluding alternatives. Using resources in a particular way means those resources are unavailable for simultaneous use in another way since an opportunity cost is incurred. If I use all income on food I cannot buy clothes, or if I establish a manufacturing plant for tables it is not suitable for making chemicals.

**Opportunity cost**: This is the cost of what is given up in following one course of action such that other choices are no longer possible. It is subjective and can be estimated in terms of the cost of the next-best preferred alternative but only when the choice made cannot be reversed.

It is via the economic system that decisions about how resources are used are made by the many buyers and sellers in markets. While we can view the economy as a system,
the economic decisions made within that system are based on human behaviour and preferences. At the heart of economic decision-making is the necessity to select between alternatives. In making a choice, decision-makers should be aware of the costs of their actions in terms of what they cannot do once they make one particular choice, i.e. the opportunity cost of their decision to ensure the best – most efficient – use of scarce resources.

Consumers decide what to buy with their available income, and how much should be saved rather than spent, based on available information. For example, consumers’ decisions about what to buy depend on the prices and availability of various products, their personal tastes, needs and available income (in no specific order). Employment choices depend on the jobs that are available, on individuals’ qualifications and abilities and the wage rate. Firms also make economic decisions as they attempt to produce and sell their products or services (at prices that consumers are willing to pay) basing their decisions on perceptions of what is happening in their market, which is affected by consumers’ demands, the available production technologies, the firm’s know-how, and how competing firms behave. A firm’s choices are, therefore, bound up in the network of decisions that result in what potential buyers want and what other firms are doing to compete.

Decision-making by individuals and firms is facilitated by the prices they observe in most markets. This means that prices play a central role by signalling information to consumers regarding how best they should use their available resources (including monetary, entrepreneurial, land and labour resources). Prices also act as a signal to producers of the price they can expect to earn for their products which will lead them to make particular decisions about what inputs to use (employees, machines, computers, etc.) how much they can afford to pay for inputs and so on. Hence, the price mechanism provides a means for coordinating the goals and choices of the various decision-makers in a market-based economic system.

Interestingly, from an objective point of view, not all economic outcomes might be considered to enhance the overall well-being of society. Take for instance the fashions that lead to rising expenditure on mobile phones and their accessories that might, arguably, be better spent on improving education or health. Instead of allowing the market system to organize the use of resources and what is produced based on the price mechanism and individuals’ and companies’ responses to prices, it would be possible to consider handing over total control for such choices to an ultimate decision-maker who ‘knows best’. But this would not necessarily lead to a better overall outcome. Economists
consider that it is through the dispersed decision-making by individuals and organizations in the economic system that the best use of dispersed economic knowledge regarding demands, supplies and markets is facilitated which allows prices to act as signals to all participants in the system. This highlights one issue at the heart of economic debate – the costs and benefits of centralized versus dispersed decision-making.

Economists argue that centralized decision-making about how resources should be used and what products should be produced leads to inefficient resource use where surpluses of some goods and shortages of others would be created (as in many former centrally planned economies). Furthermore, such systems take away individuals’ freedom of choice. In fact, the dependence of a substantial proportion of our market-based economic system on the price mechanism actually means that individuals’ choices are affected by the choices and decisions of other members of the system. This happens because the sum total of all individual choices (by producers on the supply side of the economy and buyers on the demand side) feed into the economic system to generate the market prices we observe (analysed in detail in Chapter 2). Hence, subsequent decisions by buyers and sellers are disciplined and organized by the price mechanism. This is what Adam Smith alluded to in his discussion of the invisible hand that guides the economy – a guiding mechanism that is no one individual’s responsibility, desire or goal, but is the outcome of myriad decisions taken by buyers and sellers.

In the decisions made by governments, opportunity costs also apply to choices taken regarding how to use resources, e.g. how to divide up spending between building hospitals or schools or to build roads; choice between competing alternatives must be made. Clearly, however, political decisions relate not only to how best to use available resources but also to preferences made by governments and ministers with the knowledge that decisions may impact on their future election prospects. Thus, political economy concerns introduce additional complexity into the economic system.

1.6.1 USING RESOURCES AND CENTRALIZED DECISION-MAKING

In the case of centrally planned (or command) economies, it is possible to examine how resources were centrally controlled and allocated, guided by a ‘visible hand’ of the central planner that focused mostly on the supply side of the economy and the organization of production.
The prevailing economic system in such economies was not based on markets driven by prices to guide decision-making. The price mechanism was not influenced by consumers’ competing demands for various goods as prices were set by central government. Neither were prices used as signals to where profitable opportunities lay for entrepreneurs and where they should best direct their resources. In most cases private property was not prevalent. Hence, free markets did not underpin how the economy was organized.

A further implication of command economies is in terms of innovation incentives. Innovation plays an important role in improving the processes used and the types and quality of goods produced within firms and industries that feed into improving national labour productivity and living standards.

**Labour productivity**: the average output of a citizen. It is generally measured as the value of a country’s production per worker, e.g. UK national output divided by the employed workforce of the UK for a particular period of time.

Yet in economies where goods are provided based on central planning, and resources are largely centrally owned, individuals do not enjoy rights to own private property and hence lack the incentives of their counterparts in ‘market economies’ to be as innovative or enterprising. The *self-interested* (not selfish!) desire to improve individual well-being that translates into broader benefits for the larger community (via creating employment or better technology) is more difficult to operationalize in a society where property and resources are owned centrally because individuals see fewer of the direct benefits.

It is true, however, that the world’s economic system does not rely solely on the market system and price mechanism to provide all goods and services. A considerable portion of economic activity involves public provision of some goods and services where government ministers (and civil servants) are responsible for allocating resources to meet targets for street lighting, flood controls or defence, which are known as public goods. A public good is not provided by a private citizen or private company but by the government.

**Public goods**: goods that would not be provided in a free-market system. They are goods that

- if consumed by one person can still be consumed by others; non-rival in consumption. Private goods once consumed are not available to others.
- if provided, cannot be excluded from the consumption of anyone who desires the good, even if they do not wish to pay for it. Public goods are non-excludable in consumption.
The benefits of a public good are available to all citizens who consume it and those benefits cannot be withheld from any individual in the economy. Governments supply public goods because of the free-rider problem.

The free-rider problem exists due to the non-rival and non-excludable nature of public goods. There is no incentive to supply or pay privately for goods with public-good characteristics. Such goods, if desired, are provided by governments and paid for collectively through taxes.

The free-rider problem is one example of market failure, a reason why the market requires government intervention to change what would otherwise be produced.

Some economies, such as the French and Swedish, display greater public provision based on national preferences than other economies such as the US or Japanese.

Some goods have some public characteristics such as rail and road networks. Both networks are not fully non-rival since a completely full train does not permit further consumption. Toll costs and ticket prices are methods of excluding some potential consumers so the condition of non-excludability is not necessarily met either. However, it would be difficult to envisage either network being fully privately supplied, and collective preference and choice means they are publicly provided, for the most part.

The price mechanism has traditionally played a less important role in governments’ decisions about how government-controlled resources should be allocated between competing uses.

Governments internationally are increasingly examining both the provision of public (and other) goods and services and the processes by which they are provided in order to adopt more efficient provision. Indeed, the issue of the extent to which governments should provide goods is debated in many countries – consider the complexity of the UK government’s U-turn on owning and running the rail system, where they initially organized and ran the rail transportation system then privatized it only to take over its running once again.

1.7 RESOURCE USE, OPPORTUNITY COSTS AND EFFICIENCY

The concept of opportunity cost is a powerful and useful concept for considering how scarce resources are used in an economy and it can be considered
FIGURE 1.4 PRODUCTION POSSIBILITY FRONTIER: EFFICIENCY, SCARCITY AND OPPORTUNITY COST

using a production possibility frontier (PPF) shown in Figure 1.4. The main productive resources or factors of production in an economy are land, labour, entrepreneurship and capital. Land and labour resources contribute to production and their quantities and qualities vary across economies. Entrepreneurship refers to the organization, management and assumption of risks of a business or enterprise and often implies an element of change or challenge and a new opportunity to exploit in a market. Sometimes entrepreneurship is successful, sometimes not. While it is possible to measure and compare the land and labour resources to some extent across economies, entrepreneurship is more difficult to measure. It may be reflected in estimates of the number of new companies established, new products launched, or the development or adoption of new technologies in an economy but is a complex concept which serves to explain some of the reasons why some economies perform better than others.

Capital goods are not used for consumption. Capital includes the factories that produce saleable output, apple trees grown to produce apples sold in the apple market, the machinery in factories or the computers in offices used to produce further products and services (but not those home computers used for leisure rather than productive purposes!). Inventories held by shops and factories are also classified as capital goods and only become consumption goods when households buy the goods for consumption purposes – the function served by the goods implies whether they can be classified as capital or consumption. Furthermore, when people engage in education, training or any activity that increases their personal productivity (how much they can produce with the factors of production at their disposal), they increase their human capital that can also contribute to producing further goods and services.
Human capital includes all the skills, knowledge and expertise that people accumulate over time that allow them to increase their productive capacity as individuals, members of firms and within society more broadly.

The production possibility frontier is a model useful for considering the maximum feasible combinations of goods an economy can produce. The differences between efficient and inefficient production can be considered via the PPF. The PPF is not an attempt to describe the complexity of decisions that feed into national production, instead just two products are considered, but the points illustrated by the model reveal its appropriateness for its purpose.

Figure 1.4 presents a PPF showing all possible outputs of food and films that could be produced by an economy. Production at points lying on the PPF indicate efficient production.

Efficient production: all available resources are used to produce a maximum combination of goods/services with no resources unemployed. Resources are used in their most productive way, in Figure 1.4 in either food or film production.

An example of inefficient production would be if 4 films and 4 food were produced since this point lies inside the PPF and would leave some resources unemployed in the economy. Any points outside (north-east) of the PPF cannot be produced given the economy’s scarce resources.

Of all the possible output combinations that could be produced, the actual output choice will depend not only on production possibilities of the economy (what the economy can supply) but also on the demand that exists for films and food. If the economy’s citizens prefer more films than food output might occur at a point such as b. Where production takes place matters from the citizens’ perspective because they will be better off if resources are not left unemployed but are fully used to meet their needs and demands.

The concept of opportunity cost can also be illustrated using the PPF. Specifically, the opportunity costs associated with changing the output combination in the economy can be analysed. At Figure 1.4 point a output of 8 films and 0 food is a feasible output combination: a unit of food can be thought of as a basket of various food items. At point b 7.8 films are produced as well as 1 unit of food and at c 7.5 films and 2 food are produced. The opportunity cost of food in terms of films can be calculated based on the example. In changing output of the economy from a to b, less films but more food can be produced as some resources are switched from films to food.
production. Film production drops by 0.2 film (from 8 to 7.8) while food production increases by 1 (from 0 at point \( a \)). Therefore, the opportunity cost of switching from point \( a \) to \( b \) is the amount of films that can no longer be made, hence the opportunity cost of films in terms of food is 0.2 films ‘lost’ for 1 unit of food ‘gained’.

If production changed from \( b \) to \( c \), film production would decline further from 7.8 to 7.5 films while food production would increase from 1 to 2 units. Here, the opportunity cost is the decline of 0.3 of a film for a 1 unit increase in food.

The reduction in film production releases sufficient resources to allow food production to increase by 1 unit. A further decline in film production by 1 unit would move output from point \( c \) to \( d \), allowing an additional unit of food to be produced. Hence, the opportunity cost changes over the range of the PPF: when no food is initially produced (Figure 1.4 point \( a \)) switching some resources best suited to food production out of film production allows more food to be produced than if the economy was already using a lot of its resources to produce food and wanted to produce more (points \( b \) or \( c \) or \( d \)). As more food is produced, the amount of films that must be ‘sacrificed’ to produce each additional unit of food increases. Therefore, the opportunity cost of films in terms of food increases as more food is produced (moving from \( a \) towards \( d \)). The same analysis can be conducted for the opportunity cost of food in terms of films beginning at point \( e \) where only food is produced and moving back to points \( d \), \( c \), \( b \) and \( a \). Again, the opportunity cost of food in terms of films increases as more films are produced in the economy.

**Increasing opportunity costs of production** that underlie the curved shape of the PPF occur since not all of an economy’s resources are equally suited to the production of different goods. Rational producers use the resources most suitable to their output, where possible.

Another way of thinking about this change in opportunity cost is to consider the marginal cost of producing goods.

**Marginal cost** is the opportunity cost of producing one additional unit of a good.

The marginal cost is different depending on how much of a good is already produced. Initially, resources least suited to producing films would be transferred to produce food, but as more and more food is produced, the resources transferred from films to food will be less and less productive in producing food. Hence, as
additional units of food are produced, the marginal cost of producing each extra unit (measured in terms of films) increases, because more films must be ‘sacrificed’ to release sufficient resources to make additional food. Rising marginal cost is shown in Figure 1.5.

If all resources are devoted to film production (a panel A), no food and 8 films are produced. If 1 unit of food is produced – moving from point a to point b – the output of films falls by 0.2. This provides a measure of the opportunity cost of this first unit of food (shown in panel B). Moving production from b to c involves a further increase in food production of 1 unit and a decline in film production of 0.3; producing the second unit of food requires a greater reduction in film production than the first unit. The marginal cost of each additional unit of food production is computed as 0.5, 1, 1.25 and 4.75 units of films.

Two further economic concepts are illustrated using the PPF. Points on the PPF represent static efficiency where each point reflects one state of efficiency for the economy – moving from any point on the frontier to any other point means that the economy uses its resources at their maximum efficiency albeit to produce a different combination of goods. Over a short time period it is possible that an economy faces limits to its productive capacity because resources do not usually increase significantly over short periods (unless there’s an oil strike or gas is found, for example). However, over longer time periods it is possible that an economy’s productive capacity increases.

Dynamic efficiency (economic growth): the outward expansion of the PPF.

Economic growth or dynamic efficiency would be possible with:

- *Increased quantity of labour*: if more people were available for work and could find employment so more output could be produced.
• *Improved quality of labour:* if people’s skills and education improved sufficiently for them to be more productive – i.e. get more out of the resources they use.

• *Improved technology:* due to domestic or imported innovations technical progress occurs where more output could be produced from available resources.

• *Ease of start-ups:* if new businesses can easily be set up by entrepreneurs new products can be introduced to markets (or old products provided in new ways).

• *Increased capital resources:* if firms’ investment in new capital grows, workers have more capital to work with and could produce more output.

Importantly, however, growth would only occur if demand for the additional output also existed so firms could sell their extra production (the issue of economic growth is addressed explicitly in Chapter 9).

Substantial challenges exist for economies regarding how to move closer to static efficiency and encourage dynamic efficiency. Economies do not necessarily produce to the maximum of their productive capacity – some labour may be unemployed, machines and factories may be idle, entrepreneurs may not wish to engage in risky ventures – so actual output might lie inside an economy’s potential production possibilities. The trick is to strike the right balance to maximize potential possibilities and actual output, while also taking account of environmental and any other social costs.

It is worth noting that the PPF is not an attempt to describe reality but a model to help think about issues of interest to economists. Economists consider that most economic activity should be left to a market-based economic system for an economy to achieve an efficient state rather than via central planning. However, economists differ regarding the role they consider governments should play in the economic system and the quantity of public goods that should be provided.

### 1.8 ALLIANCE OF ECONOMIC PERSPECTIVES

There is a tradition in economics that emphasizes the need for government or government agencies to oversee the activities of the business community in order to protect consumers from being deceived or exploited by firms – to protect what is referred to as the ‘public interest’. Using economic theories and concepts to make such arguments could be called a public policy perspective and holders of this view often consider that governments should enact policies that ‘police’ the business sector and regulate the economy to ensure consumers are shielded from
any negative or undesirable effects of business activities. Government regulation might take the form of competition policy and it may try to ensure that the rights of consumers are protected.

This perspective acknowledges the role that governments can play in economic life. The actions of government can influence an economy in many ways, not only through the regulation function, and have an impact on the general performance of the economy and its competitiveness over time.

**Competitiveness:** A range of factors from measures of income and prosperity to economic creativity and innovative ability that describe the performance of one economy relative to others.

The purpose of examining economic competitiveness is to get closer to understanding the process by which countries and economies (local or regional) can enjoy rising living standards. Policies relating to taxation, government spending, labour, education, business creation, technology, environmental protection and many other areas have direct and indirect effects on the ability of an economy to generate income to support its citizens over time and allow them to enjoy rising living standards.

Viewing the business sector with mistrust or suspicion, however, ignores the critical role played by companies in generating wealth and employment and in leading and facilitating economic development. Businesses clearly play an active and contributory role in competition and the market process in economies; hence, the need to understand the economic system from a ‘business’ perspective also. Applying economic theories and concepts to the business environment increases understanding of the role played by business firms in improving competitiveness and generating rising living standards in economies on a sustainable basis.

In fact, an appreciation of both perspectives by economists is essential in order to understand the complex interplay that goes on between businesses and government sectors and how they both affect the outcomes in any economy. For example, economic efficiency as presented in the production possibility frontier model clearly depends on what decisions are made by firms (e.g. what to produce) and the environment in which firms operate which, in turn, is affected by the policies followed by government.

Participants in an economy need to be aware that both business and government sectors have a contributory role to play in developing the factors that allow economies to achieve their potential and raise the living standards for their
citizens. This means that all participants need to work towards developing processes within the economic system so that citizens/clients receive high standards of goods and services from private businesses, public organizations and bodies and public representatives. This could mean that ethics and standards should be set and followed by both policy-makers and business people and that the actions of individuals, organizations and public representatives are transparent and open to scrutiny and that accountability for actions is enshrined. This would mean that citizens could have trust in their economic and political systems. These are admirable goals but they are certainly not always met in practice.

1.9 POSITIVE/NORMATIVE ECONOMICS

Economic analysis based on objective facts is called positive economics.

Various reasons behind strong growth in the Irish economy have been proposed including a young well-educated English-speaking workforce, sound management of the government finances, moderate wage increases, and attracting investment by multinational companies. Although it is difficult to distinguish which factor is most important, economists generally agree that each of these reasons provides part of the explanation, offering analysis based on positive economics that attempts to get at how the economic system works.

When economists make judgements about what should occur – making statements such as education spending should increase, government spending should be reduced – they move from objective analysis of facts to a more subjective analysis based on personal beliefs, values, norms or political persuasion. Such analysis is known as normative economics.

The distinction between positive and normative economics matters because economists often differ regarding opinions on what should be done because of their personal opinions, which are based on factors including their education, background, culture, etc. Decision-makers in companies, government organizations and elsewhere, who rely on economists for advice, need to know the basis and reasoning underlying the advocation of a particular opinion or policy and sound objective analysis is a more reliable basis for selecting a policy than one based solely on personal beliefs.
This does not mean that normative issues are ignored by the economics discipline. Such topics are studied in welfare economics. The focus of this stream of study is on assessing:

- how efficiently resources are used;
- the fairness of how the economic system functions from the perspective of various stakeholders.

Efficiency can be examined adopting a positive economics approach based on objective analysis. The fairness issue, however, is rather more problematic and one on which people hold alternative normative positions.

### 1.10 SUMMARY

- The economic system is a web of interactions between individuals, economic units and institutions that determine how resources are best used to satisfy competing demands.
- Choices about how resources are used, which goods are produced and in what quantities, are made via the economic system.
- Choices are made dependent on what is demanded and the factors of production and technology available, supported by the operation of markets where prices provide information on how best resources may be used. Political considerations also feed into the economic decisions as laws and regulations govern the activities and behaviour of the stakeholders within economies.
- Studying economics is useful for understanding and improving how the best economic choices possible are made based on individual and/or organizational preferences and the available usually limited resources.
- An economics approach follows a logical method of analysis based on assessing, and sometimes estimating, causal relationships.
- The participants and features of the economic system are further discussed in the chapters that follow. Both macroeconomic and microeconomic concepts, principles and models are used to explain how the features interrelate within the economic system.
**Chapter 1 Appendix**

**Figure A.1 Living Standards, $, 2002**

Source: Excerpted from the Penn World Table 6.1 (Heston et al., 2002).

Note: The Penn World Table is a great source of comparable data on 168 countries going back to 1950 in many cases. To see the range of information presented in the tables visit [http://pwt.econ.upenn.edu/](http://pwt.econ.upenn.edu/)

**Review Problems and Questions**

1. How would you define the economic system? Describe the role played by each of the following in the economic system: individuals, firms, countries.

2. What role is played by theory in economics? Does this mean we already as good as know the answer to a question before we begin analysis?

3. What differentiates microeconomics from macroeconomics?

4. What are the main differences between market-based and centrally planned economies? Refer to the principle of exchange, the existence of markets and the role of prices in your answer.

5. What is the relationship between resource scarcity and prices in economics? Refer to the signalling function of prices in your answer.

6. Draw a production possibility frontier for two goods, housing and entertainment. The maximum amount of entertainment and shelter that could be produced is 100 and 80 units respectively.

   a. Based on your drawing, what is the opportunity cost of producing 20 units of entertainment? 40 units? 80 units?
b. Why does the opportunity cost change for different outputs of entertainment and shelter?

7. Which individuals in the economic system are most likely to have a public policy approach to economics? Which individuals in the economic system are most likely to have a business economics approach to economics? Why? Is it of any importance which perspective people hold?

8. Leaf through some good newspapers. Provide three examples of normative economic statements and three examples of positive statements they contain.

FURTHER READING AND RESEARCH

- To put some context behind the data provided in Figures 1.1 and A.1 the OECD’s Economic Survey publications provide comprehensive economic assessments of nations and recommendations for their future development. These contain information on some topics that will be new to you as you start out in economics, but by the end of the course should become substantially more comprehensible. The OECD also provides a range of specific articles from its research departments as well as free access to much of its data.
- For daily economics-related features and articles, the Financial Times provides timely national and international information and can be used to answer some of the review questions in this chapter.
- The weekly Economist magazine also presents accessible descriptions and analyses of current and topical national and international issues. Search through past editions and see how long it takes you to find 10 articles that touch on issues discussed in this chapter!
- For those with an interest in finding out more about the European Union and its economy, see El-Agraa, 2001.

REFERENCES

