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

- define the term ‘economics’;
- explain what an economy is;
- explain the concept of ‘scarcity’ and the inevitability of ‘choice’;
- define ‘opportunity cost’;
- differentiate between ‘opportunity cost’ and ‘money cost’;
- define and illustrate the ‘production possibility frontier’;
- illustrate efficiency using the ‘production possibility frontier’.

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**The nature of economics**

- **economics and the economy**
  - unlimited wants
  - limited resources

- **scarcity**

- **production possibility frontier**

- **choice**
  - opportunity cost
  - money cost

- **economic efficiency**

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**The definition of economics**

As you embark on your study of economics, you will hear the comment that there are as many definitions of economics as there are economists. Here are what some of the great thinkers in this field had to say about the subject matter of economics. The famous eighteenth-century economist Adam Smith declared his work to be ‘an inquiry into the nature and causes of the wealth of nations’. J. S. Mill viewed economics as ‘the practical science of the production and distribution of wealth’. Alfred Marshall declared economics to be ‘the study of mankind in the ordinary business of life’. He further stated that economics examines ‘action … connected with the attainment … of the material requisites of well-being’. Modern economists define economics as the study of how man allocates scarce resources, which have alternative uses, to achieve given ends or goals. The following table explains the meaning of economics based on these definitions.


**Table 1.1  Definitions of economics**

<table>
<thead>
<tr>
<th>Economist</th>
<th>Definition</th>
<th>What economics is</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam Smith 1723–90</td>
<td>‘an inquiry into the nature and causes of the wealth of nations’</td>
<td>the creation of wealth from scarce resources</td>
</tr>
<tr>
<td>J. S. Mill 1806–73</td>
<td>‘the practical science of the production and distribution of wealth’</td>
<td>the production and distribution of goods and services for consumption and further production</td>
</tr>
<tr>
<td>Alfred Marshall 1842–1924</td>
<td>‘action … connected with the attainment … of the material requisites of well-being’</td>
<td>the behaviour and interaction of man to improve his well-being</td>
</tr>
<tr>
<td>Modern economists</td>
<td>the study of how man allocates scarce resources, which have alternative uses, to achieve given goals</td>
<td>the fact that there is a trade-off, or opportunity cost, involved in production and consumption</td>
</tr>
</tbody>
</table>

Economics is a social science. It is a science because it consists of an organised body of knowledge. Also, economists use a set method of inquiry, called ‘the scientific method’, in order to formulate theories and general laws. It is a social science, as it deals with human behaviour in society.

Therefore, we can say that economics is a social science that deals with:
- the creation of wealth from scarce resources;
- the production and distribution of goods and services for consumption;
- the behaviour, interaction and well-being of the groups involved in the above activities;
- the fact that there is a trade-off involved in production and in consumption.

**The scope of economics**

**The economy**

Economics recognises that resources are scarce. The economy is the mechanism through which these scarce resources are organised for the production of goods and services. These goods and services satisfy the needs and wants of the different groups in the economy. The three main groups in the economy are households, firms and the government.

- A **household** is one decision-making unit. In economics, two assumptions are made about households. First, households consume goods and services. Second, households are the owners of the factors of production. A factor of production (factor input) is any resource used to produce goods and services. The four factors of production are land, labour, capital and entrepreneurship. Chapter 3 discusses the factors of production in more detail.
- A **firm** is also a decision-making unit. This is the unit that produces goods and services. To produce these goods and services, firms buy factor services from households.
- The **government** provides the framework of rules and laws for households and firms to operate within; in some economies, the government is also involved in production.

**Needs and wants**

Man has needs and wants. Needs are any goods and services that are essential for life. Wants are goods and services that are desired to improve the quality of life but are not essential. Basic clothing is necessary for life and, as such, is a need. However, a shirt decorated with sequins is not vital to life (as some teenagers would have their parents believe!) and is therefore classified as a want.
In the economy, individuals, firms and government are involved in the creation of wealth from scarce resources. Firms produce goods and services, and distribute these goods and services to consumers in the domestic market and abroad. Economics is the study of how wealth is created, how these goods and services are produced and distributed, and the behaviour and interactions of the three main groups involved. Economics also deals with how the activities of each group affect the welfare of the other groups in the economy.

**Scarcity and choice**

Man’s wants are unlimited. If we were all to write down all the goods and services we desire, our lists would be many pages long! However, economic resources are limited, in that there are not enough resources to produce all the goods and services desired. This imbalance between unlimited wants and limited resources is the basic economic problem. It is not possible for each of us to have all the goods and services we want: there is not enough to go around for all of us. Goods and services, and the resources used to produce them, are scarce. They are scarce relative to our demand for them. Therefore, in any given economy, scarcity exists. Scarcity is the economic condition where all resources and goods and services, though they may be plentiful, are not sufficient for all those who desire them.

Scarcity exists for all the groups in the economy. A householder might want to buy a microwave oven and a toaster oven but have limited savings. The householder will have to choose which appliance he wishes to buy. A Barbadian firm might wish to build one plant in Dominica and another in St Lucia. Since its resources are limited, and it cannot invest in both countries, it will have to choose where to invest. A food-processing firm might wish to produce both juices and milk drinks. However, the firm has to choose what to produce, as it does not have the resources to produce both. The government might wish to build a school and a hospital but its resources are limited. The government will have to choose on which project to embark. In all of the above examples, we see that scarcity exists. The resources of the different groups in the economy are limited. The wants of the groups are unlimited. Wherever scarcity exists, choice is inevitable.

**DEFINITION:** Choice is the range of options available to the individual household, firm or government when making a decision.

**Opportunity cost**

In each of the cases above, a choice has to be made, and some good or service or venture has to be given up. The householder has to do without the toaster...
Basic economic concepts

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What is the opportunity cost in the other three cases based on the choices stated?

Name some of the other inputs used to produce the shirt.

Plot this production possibility frontier in your notebook.

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oBjecTive concepts

oven, if he chooses to buy the microwave oven. The Barbadian firm will have to give up investing in St Lucia, if it chooses to invest in Dominica. The food-processing firm will have to forgo fruit juice production in order to produce milk drinks. The government might choose to build the school and not the hospital. In each of the above cases, a choice has to be made and the alternative or next best option has to be forgone. Opportunity cost is defined as ‘the next best alternative forgone’. As resources are scarce, choices must be made as to what to produce and consume. When making a choice, the producer or consumer has to do without – or forgo – some good or service or course of action. This is the opportunity cost. In purchasing the microwave oven, the householder incurs an opportunity cost. The opportunity cost of the microwave oven is the toaster oven the householder has to forgo. He has to sacrifice the toaster oven. In doing without it, he bears a cost, an opportunity cost.

Economists also deal with another cost concept – money cost. This involves what was actually paid for the inputs used to produce a given good or service. For instance, a garment factory produces a shirt. The money cost of the shirt is the actual cost of the fabric and the labour, among other inputs, used to produce the shirt.

The production possibility frontier

The production possibility frontier (also called a production possibility ‘curve’ or ‘boundary’) is a graph showing the various combinations of two goods that an economy is able to produce with fixed resources. A production possibility frontier is drawn on the following assumptions.

- The economy produces only two goods.
- The amount of resources is fixed.
- Each of the goods can be produced using changing ratios of the factors of production. This is called ‘variable factor proportions’.

Assume that, in a given economy, the only two goods that can be produced are watermelons and wafers. Table 1.2 shows the various combinations of both goods that the economy can produce.

Plotting this data, we get the following production possibility frontier:

Observing the production possibility frontier, we see that it is downward sloping from left to right. This indicates that it is only possible to produce more of one good by giving up some units of the other good. The production possibility frontier is bowed out or concave to the origin. As resources are moved away from wafer production, more and more wafers must be foregone to grow the extra watermelons.

Point B is an attainable combination that the economy can produce. Any combination within the frontier, such as point G, is also attainable. However,
Once an economy is operating inside the boundary, this indicates that there are idle resources, or that resources are being used inefficiently. Points outside the frontier, such as point H, are unattainable. For instance, the economy cannot move from point C to point H, where the economy is producing more of both goods. However, if the production possibility frontier shifts or pivots outwards, the economy can move from point C to point H.

Factors that could cause the production possibility frontier to move outwards are:
- economic growth;
- discovery of new natural resources;
- growth in population;
- technological progress;
- improvements in labour productivity.

Figure 1.2 An outward shift of the production possibility frontier

Production possibility frontiers are sometimes named by labelling the x and y intercepts. In Figure 1.2 the initial production possibility curve is gh. Any of the above factors can cause the production possibility frontier to shift outwards from gh to ij, as shown in Figure 1.2. Figure 1.3 shows a pivot of the production possibility frontier from ab to ac. Assume that the industry for good Y uses a high proportion of labour (labour intensive industry) and the industry for good X uses a high proportion of capital (capital intensive industry). What could have caused a pivot from ab to ac in Figure 1.3? Notice that the industry producing good X can now produce more of good X.

Figure 1.3 A pivot of the production possibility frontier

There is an improvement in technology and this benefits the capital intensive industry more than it does the labour intensive industry.

The production possibility frontier illustrates the concepts of scarcity, choice
Basic economic concepts and opportunity cost. In Figure 1.4, the economy cannot produce more of both goods – say, move from A to D. Therefore, scarcity exists. The economy cannot produce all combinations on the frontier – say, both A and B. It must choose one combination. It can choose A and produce 0i watermelons and 0g wafers.

![Figure 1.4 Scarcity](image)

Now assume that consumers in this economy demand more wafers. To obtain more wafers, the economy must produce fewer watermelons. Production will move from A to B. To gain gh more wafers, ij watermelons have to be given up, assuming that nothing changes. The opportunity cost of obtaining gh more wafers is the ij watermelons that must be forgone.

**Economic efficiency**

When an economy is producing on its production possibility frontier, that economy is said to be efficient. All resources available in the economy are being used to produce one of the maximum possible combinations of goods. In Figure 1.4, whether the economy produces combination A or combination B, it is producing efficiently. However, if it produces combination C, it is not producing efficiently.

**Summary**

- Economics is the scientific study of how man uses scarce resources to produce goods and services to satisfy his wants.
- The economy is the mechanism through which these scarce resources are organised for the production of goods and services.
- Economic activities are conducted in the economy. The main economic agents are households, firms and the government.
- Since resources are scarce and wants are unlimited, scarcity exists. Scarcity necessitates choice, and making a choice involves incurring an opportunity cost.
- Money cost is what is paid to produce a good or a service and is different from opportunity cost, which is the alternative forgone.
- To explain production in the economy, economists use the production possibility frontier. The production possibility frontier can be used to illustrate scarcity, choice and opportunity cost.

**Answers to ITOs**

1. As with the other sciences – for example, chemistry and physics – economics has an organised body of knowledge. Economists also use a fixed scientific method to formulate theories, general laws and principles.

2. Economists study:
   - production of goods by firms;
   - investment by firms;
• purchase of goods and services by households, firms and government;
• other activities of the government;
• production by government.

3 When hungry, a need is food and a want is an ice cream.

4 If there is a growing young population in need of school places, the government will have to build the new school. The government will want to build the hospital if there are more sick people or if there is a need to improve the quality of health care offered to the population.

5 The opportunity costs are:
• Barbadian firm – investing in St Lucia;
• food-processing firm – producing fruit juice;
• government – building the hospital.

6 Some other inputs are thread, buttons and electricity to power the sewing machine.

7 Check your answer against Figure 1.1 in the text.

8 The opportunity cost of producing 20 more wafers as the economy moves from points A to B right down to F is as follows:

<table>
<thead>
<tr>
<th>From</th>
<th>No. of wafers gained</th>
<th>Opportunity cost of wafers (watermelons forgone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A to B</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>B to C</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>C to D</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>D to E</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>E to F</td>
<td>20</td>
<td>50</td>
</tr>
</tbody>
</table>

Notice that as the economy produces 20 more wafers each time, more and more watermelons have to be forgone. The opportunity cost of each additional 20 wafers is increasing. As long as the production possibility frontier is concave to the origin, the opportunity cost increases as we produce more of one good.

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**Examination-style questions**

**Multiple choice questions (answers are on p. 236)**

1. What is the fundamental economic problem faced by any society?
   - a) limited resources and limited wants
   - b) unlimited resources and limited wants
   - c) the alternative forgone
   - d) limited resources and unlimited wants

2. Economics is concerned with all of the following except:
   - a) the allocation of scarce resources to produce goods and services
   - b) explaining what factors influence consumer behaviour
   - c) the construction of buildings in the economy
   - d) the factors that determine the goods that firms produce

3. A man spends $10 to take a chance in a raffle. He wins the first prize of a trip to Tobago, or he can instead choose a cash sum of $500. He chooses the trip. What is the opportunity cost of choosing the trip?
   - a) $10
   - b) $490
   - c) the lunch he had to forgo when he bought the ticket
   - d) $500
4 A factor that may cause the production possibility frontier to move outwards is:
   a efficient use of resources
   b depletion of natural resources
   c fall in population through migration
   d technological progress

5 What is opportunity cost?
   a the alternative foregone
   b the choice made
   c unlimited wants
   d limited resources

6 The production possibility frontier shows:
   a the maximum amount of resources that an economy possesses
   b the maximum amount of two goods that an economy can produce with fixed resources
   c the unlimited resources of an economy
   d all the goods an economy can produce while leaving some resources idle

Structured questions

1 a What is the production possibility frontier? [2]
   b Draw a production possibility frontier and, in the diagram, insert an attainable combination and an unattainable combination. [5]
   c Show a combination that indicates that resources are idle in the economy. [2]
   d State three assumptions made when drawing a production possibility frontier. [6]

2 a Define opportunity cost and give an example. [4]
   b Sketch a production possibility frontier. [4]
   c Show how the production possibility frontier illustrates the concepts of scarcity, choice and opportunity cost. [4]

Essay question [20]

   a Define the term ‘economics’. [2]
   b Show how scarcity leads to choice and opportunity cost within an economy. [4]
   c Explain the assumptions made when drawing a production possibility frontier. [6]
   d With the aid of an example, use the production possibility frontier to illustrate the concepts of opportunity cost and efficiency. [8]