BBM 102/05 Microeconomics course guide

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Unit 1

BBM 102/05

Microeconomics

Introduction to Economics

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the people's university

COURSE TEAM

Course Team Coordinator: Mr. Prakash V. Arumugam
Content Writer: Mr. Prakash V. Arumugam
Instructional Designer: Mr. Khoo Chiew Keen
Academic Member: Dr. Leow Ghin Yin

COURSE COORDINATOR

Mr. Prakash V. Arumugam

EXTERNAL COURSE ASSESSOR

Professor Dr. Cheah Kooi Guan, Kwantlen Polytechic University, Canada

PRODUCTION

Editor: Mr. Khoo Chiew Keen
Graphic Designer: Ms. Chrisvie Ong

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Wawasan Open University
Jalan Sultan Ahmad Shah,
10050 Penang.
Tel: (604) 2180333 Fax: (604) 2279214
Email: enquiry@wou.edu.my
Website: www.wou.edu.my

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Course Overview

BBM 102/05 introduces you to the basics of economics and its two branches: microeconomics and macroeconomics. You will be exposed to ten basic economic principles and they apply to everyday circumstances. You will learn the factors that dictates market behaviour and the roles a market mechanism play in an economy. This course also takes you through the costs and profits of a firm and the behaviour of firms in a competitive market environment. You will also learn the interdependence of labour, capital and land in a factor market environment. You will also be able to examine public goods, externalities and market failure.

By the end of this course, you should be able to:

1. Explain basic economic concepts such as opportunity cost, elasticity, economic profit and marginal analysis through their application to personal and business decision making.

2. Explain the forces/factors that determine the demand for and supply of goods and make predictions about the consequences of economic shocks for particular markets.

3. Conduct an investigation into the effects of government microeconomic policy.

4. Analyse the production and cost functions of firms.

5. Explain the different types of market structure and their implications for a firm's optimal decision on prices and/or quantities.

6. Discuss and illustrate with examples, externalities and public goods in the context of the Malaysian economy.

7. Demonstrate ability to locate, present, interpret and use economic data using a range of economic tools.

Unit Overview

What causes the prices of some goods to rise while the prices of some other goods fall? Price determination is one of the things that we will study in this course. We will also consider factors that lead an economy to fall into a recession — and the attempts to limit it.

While the investigation of these problems surely falls within the province of economics, economics encompasses a far broader range of issues. Ultimately, economics is the study of choice. Because choices range over every imaginable aspect of human experience, so does economics. Economists have investigated the nature of family life, the arts, education, crime, sports, job creation — the list is virtually endless because so much of our lives involve making choices.

How do individuals make choices: Would you like better grades? More time to relax? More time watching movies? Getting better grades probably requires more time studying, and perhaps less relaxation and entertainment. Not only must we make choices as individuals, we must make choices as a society as well. Do we want a cleaner environment or faster economic growth? Both may be desirable, but efforts to clean up the environment may conflict with faster economic growth. Society must make choices.

Economics is defined less by the subjects economists investigate than by the way in which economists investigate them. Economists have a way of looking at the world that differs from the way scholars in other disciplines look at the world. It is the *economic way of thinking*; this unit introduces that way of thinking.

Unit Objectives

By the end of Unit 1, you should be able to:

1. Explain the concept of economics.
2. Distinguish between microeconomics and macroeconomics.
3. Explain the difference between positive and normative statements.
4. Describe the economic way of thinking.
5. Examine opportunity costs and the trade-offs in economics that people face.
6. Discuss factors influencing demand and supply.
7. Elaborate on market equilibrium.

1.1 Defining Economics

Objectives

By the end of this section, you should be able to:

1. Define economics.

2. Explain the concepts of scarcity and opportunity cost and how they relate to the definition of economics.

Introduction

Economics is a social science that examines how people choose among the alternatives available to them. It is social because it involves people and their behaviour. It is a science because it uses, as much as possible, a scientific approach in its investigation of choices.

All choices mean that one alternative is selected over another. Selecting among alternatives involves three ideas central to economics: scarcity, choice and opportunity cost.

Scarcity

Our resources are limited. At any one time, we have only so much land, so many factories, so much oil, so many people. But our wants, our desires for the things that we can produce with those resources, are unlimited. We would always like more and better housing, more and better education — more and better of practically everything.

If our resources were also unlimited, we could say yes to each of our wants — and there would be no economics. Because our resources are limited, we cannot say yes to everything. To say yes to one thing requires that we say no to another. Whether we like it or not, we must make choices.

Our unlimited wants are continually colliding with the limits of our resources, forcing us to pick some activities and to reject others. Scarcity is the condition of having to choose among alternatives. A scarce good is one for which the choice of one alternative requires that another be given up.

Consider a parcel of land. The parcel presents us with several alternative uses. We could build a house on it. We could put a gas station on it. We could create a small park on it. We could leave the land undeveloped in order to be able to make a decision later as to how it should be used.

Suppose we have decided the land should be used for housing. Should it be a large and expensive house or several modest ones? Suppose it is to be a large and expensive house. Who should live in the house? If Lee's family live in it, the Chongs cannot. There are alternative uses of the land both in the sense of the type of use and also in the sense of who gets to use it. The fact that land is scarce means that society must make choices concerning its use.

Virtually everything is scarce. Consider the air we breathe, which is available in huge quantity at no charge to us. Could it possibly be scarce?

The test of whether air is scarce is whether it has alternative uses. What uses can we make of the air? We breathe it. We pollute it when we drive our cars, heat our houses or operate our factories. In effect, one use of the air is as a garbage dump. We certainly need the air to breathe. But just as certainly, we choose to dump garbage in it. Those two uses are clearly alternatives to each other. The more garbage we dump in the air, the less desirable — and healthy — it will be to breathe. If we decide we want to breathe cleaner air, we must limit the activities that generate pollution. Air is a scarce good because it has alternative uses.

Not all goods, however, confront us with such choices. A free good is one for which the choice of one use does not require that we give up another. One example of a free good is gravity. The fact that gravity is holding you to the earth does not mean that your neighbour is forced to drift up into space! One person's use of gravity is not an alternative to another person's use.

There are not many free goods. Outer space, for example, was a free good when the only use we made of it was to gaze at it. But now, our use of space has reached the point where one use can be an alternative to another. Conflicts have already arisen over the allocation of orbital slots for communications satellites. Thus, even parts of outer space are scarce. Space will surely become more scarce as we find new ways to use it. Scarcity characterises virtually everything. Consequently, the scope of economics is wide indeed.

Opportunity cost

It is within the context of scarcity that economists define, perhaps, the most important concept in all of economics; the concept of opportunity cost. Opportunity cost is the value of the best alternative forgone in making any choice.

The opportunity cost to you of reading the remainder of this section will be the value of the best other use to which you could have put your time. If you choose to spend RM20 on a potted plant, you have simultaneously chosen to give up the benefits of spending the RM20 on pizzas or a paperback book or a night at the movies. If the book is the most valuable of those alternatives, then the opportunity cost of the plant is the value of the enjoyment you otherwise expected to receive from the book.

The concept of opportunity cost must not be confused with the purchase price of an item. Consider the cost of a college or university education. That includes the value of the best alternative use of money spent for tuition, fees and books. But the most important cost of a college education is the value of the forgone alternative uses of time spent studying and attending class instead of using the time in some other endeavour. Students sacrifice that time in hopes of even greater earnings in the future or because they place a value on the opportunity to learn. Consider the cost of going to the doctor. Part of that cost is the value of the best alternative use of the money required to see the doctor. But, the cost also includes the value of the best alternative use of the time required to see the doctor. The essential thing to see in the concept of opportunity cost is found in the name of the concept. Opportunity cost is the value of the best opportunity forgone in a particular choice. It is not simply the amount spent on that choice.

The concepts of scarcity, choice and opportunity cost are at the heart of economics. A good is scarce if the choice of one alternative requires that another be given up. The existence of alternative uses forces us to make choices. The opportunity cost of any choice is the value of the best alternative forgone in making it.

Activity 1.1

Identify the elements of scarcity, choice and opportunity cost in each of the following:

1. The Department of Environment is considering an order that a 500-acre area on the outskirts of a large city be preserved in its natural state, because the area is home to a rodent that is considered an endangered species. Developers had planned to build a housing development on the land.

2. The manager of an automobile assembly plant is considering whether to produce cars or sport utility vehicles (SUVs) next month. Assume that the quantities of labour and other materials required would be the same for either type of production.

3. A young man who went to work as a nurses' aide after graduating from high school leaves his job to go to college, where he will obtain training as a registered nurse.

Summary

Economics is a social science that examines how people choose among the alternatives available to them. Scarcity implies that we must give up one alternative in selecting another. A good that is not scarce is a free good. Every choice has an opportunity cost and opportunity costs affect the choices people make. The opportunity cost of any choice is the value of the best alternative that had to be forgone in making that choice.

Suggested answers to activity

Feedback

Activity 1.1

1. The 500-acre area is scarce because it has alternative uses: preservation in its natural state or a site for homes. A choice must be made between these uses. The opportunity cost of preserving the land in its natural state is the forgone value of the land as a housing development. The opportunity cost of using the land as a housing development is the forgone value of preserving the land.

2. The scarce resources are the plant and the labour at the plant. The manager must choose between producing cars and producing SUVs. The opportunity cost of producing cars is the profit that could be earned from producing SUVs; the opportunity cost of producing SUVs is the profit that could be earned from producing cars.

3. The man can devote his time to his current career or to an education; his time is a scarce resource. He must choose between these alternatives. The opportunity cost of continuing as a nurses' aide is the forgone benefit he expects from training as a registered nurse; the opportunity cost of going to college is the forgone income he could have earned working full-time as a nurses' aide.

1.2 The Field of Economics

Objectives

By the end of this section, you should be able to:

1. Explain the distinguishing characteristics of the economic way of thinking.

2. Distinguish between microeconomics and macroeconomics.

Introduction

We have examined the basic concepts of scarcity, choice, and opportunity cost in economics. In this section, we will look at economics as a field of study. We begin with the characteristics that distinguish economics from other social sciences.

The economic way of thinking

Economists study choices that scarcity requires us to make. This fact is not what distinguishes economics from other social sciences; all social scientists are interested in choices. An anthropologist might study the choices of ancient people; a political scientist might study the choices of legislatures; a psychologist might study how people choose a mate; a sociologist might study the factors that have led to a rise in single — parent households. Economists study such questions as well. What is it about the study of choices by economists that makes economics different from these other social sciences?

Three features distinguish the economic approach to choice from the approaches taken in other social sciences:

1. Economists give special emphasis to the role of opportunity costs in their analysis of choices.

2. Economists assume that individuals make choices that seek to maximise the value of some objective, and that they define their objectives in terms of their own self-interest.

3. Individuals maximise by deciding whether to do a little more or a little less of something.

Economists argue that individuals pay attention to the consequences of small changes in the levels of the activities they pursue. The emphasis economists place on opportunity cost, the idea that people make choices that maximise the value of objectives that serve their self-interest, and a focus on the effects of small changes

are ideas of great power. They constitute the core of economic thinking. The next three subsections examine these ideas in greater detail.

Opportunity costs are important

If doing one thing requires giving up another, then the expected benefits of the alternatives we face will affect the ones we choose. Economists argue that an understanding of opportunity cost is crucial to the examination of choices.

As the set of available alternatives changes, we expect that the choices individuals make will change. A rainy day could change the opportunity cost of reading a good book; we might expect more reading to get done in bad than in good weather. A high income can make it very costly to take a day off; we might expect highly paid individuals to work more hours than those who are not paid as well. If individuals are maximising their level of satisfaction and firms are maximising profits, then a change in the set of alternatives they face may affect their choices in a predictable way.

The emphasis on opportunity costs is an emphasis on the examination of alternatives. One benefit of the economic way of thinking is that it pushes us to think about the value of alternatives in each problem involving choice.

Individuals maximise in pursuing self-interest

What motivates people as they make choices? Perhaps more than anything else, it is the economist's answer to this question that distinguishes economics from other fields.

Economists assume that individuals make choices that they expect will create the maximum value of some objective, given the constraints they face. Furthermore, economists assume that people's objectives will be those that serve their own self-interest.

Economists assume, for example, that the owners of business firms seek to maximise profit. Given the assumed goal of profit maximisation, economists can predict how firms in an industry will respond to changes in the markets in which they operate. As labour costs in the United States rise, for example, economists are not surprised to see firms moving some of their manufacturing operations overseas.

Similarly, economists assume that maximising behaviour is at work when they examine the behaviour of consumers. In studying consumers, economists assume that individual consumers make choices aimed at maximising their level of satisfaction. In the next section, we will look at the results of the shift from skiing to snowboarding; that is a shift that reflects the pursuit of self-interest by consumers and by manufacturers.

In assuming that people pursue their self-interest, economists are not assuming people are selfish. People clearly gain satisfaction by helping others, as suggested by the large charitable contributions people make. Pursuing one's own self-interest means pursuing the things that give one satisfaction. It need not imply greed or selfishness.

Choices are made at the margin

Economists argue that most choices are made "at the margin". The margin is the current level of an activity. Think of it as the edge from which a choice is to be made. A choice at the margin is a decision to do a little more or a little less of something.

Assessing choices at the margin can lead to extremely useful insights. Consider, for example, the problem of curtailing water consumption when the amount of water available falls short of the amount people now use. Economists argue that one way to induce people to conserve water is to raise its price. A common response to this recommendation is that a higher price would have no effect on water consumption, because water is a necessity. Many people assert that prices do not affect water consumption because people "need" water.

But choices in water consumption, like virtually all choices, are made at the margin. Individuals do not make choices about whether they should or should not consume water. Rather, they decide whether to consume a little more or a little less water. Household water consumption in the United States totals about 105 gallons per person per day. Think of that starting point as the edge from which a choice at the margin in water consumption is made. Could a higher price cause you to use less water brushing your teeth, take shorter showers, or water your lawn less? Could a higher price cause people to reduce their use, say, to 104 gallons per person per day? To 103? When we examine the choice to consume water at the margin, the notion that a higher price would reduce consumption seems much more plausible. Prices affect our consumption of water because choices in water consumption, like other choices, are made at the margin.

The elements of opportunity cost, maximisation and choices at the margin can be found in each of two broad areas of economic analysis: microeconomics and macroeconomics. Your economics course, for example, may be designated as a "micro" or as a "macro" course. We will look at these two areas of economic thought in the next subsection.

Microeconomics and macroeconomics

The field of economics is typically divided into two broad realms: microeconomics and macroeconomics. It is important to see the distinctions between these broad areas of study.

Microeconomics is the branch of economics that focuses on the choices made by individual decision-making units in the economy — typically consumers and firms — and the impacts those choices have on individual markets.

Macroeconomics is the branch of economics that focuses on the impact of choices on the total, or aggregate, level of economic activity. Why do tickets to the best concerts cost so much? How does the threat of global warming affect real estate prices in coastal areas? Why do women end up doing most of the housework? Why do senior citizens get discounts on public transit systems? These questions are generally regarded as microeconomic because they focus on individual units or markets in the economy.

Is the total level of economic activity rising or falling? Is the rate of inflation increasing or decreasing? What is happening to the unemployment rate? These are questions that deal with aggregates, or totals, in the economy; they are problems of macroeconomics. The question about the level of economic activity, for example, refers to the total value of all goods and services produced in the economy. Inflation is a measure of the rate of change in the average price level for the entire economy; it is a macroeconomic problem. The total levels of employment and unemployment in the economy represent the aggregate of all labour markets; unemployment is also a topic of macroeconomics.

Both microeconomics and macroeconomics give attention to individual markets. But in microeconomics that attention is an end in itself; in macroeconomics it is aimed at explaining the movement of major economic aggregates — the level of total output, the level of employment and the price level.

We have now examined the characteristics that define the economic way of thinking and the two branches of this way of thinking: microeconomics and macroeconomics. In the next subsection, we will have a look at what one can do with training in economics.

Normative and positive statements

Two kinds of assertions in economics can be subjected to testing. One is hypothesis and the other is a statement of fact, such as "It is raining outside" or "Microsoft is the largest producer of operating systems for personal computers in the world." Like hypotheses, such assertions can be demonstrated to be false. Unlike hypotheses, they can also be shown to be correct. A statement of fact or a hypothesis is a positive statement.

Although people often disagree about positive statements, such disagreements can ultimately be resolved through investigation. There is another category of assertions, however, for which investigation can never resolve differences. A normative statement is one that makes a value judgement. Such a judgement is the opinion of the speaker; no one can "prove" that the statement is or is not correct. Here are some examples of normative statements in economics: "We ought to do more to help the poor." "People in Malaysia should save more." "Corporate profits are too high." The statements are based on the values of the person who makes them. They cannot be proven false.

Because people have different values, normative statements often provoke disagreement. An economist whose values lead him or her to conclude that we

should provide more help for the poor will disagree with one whose values lead to a conclusion that we should not. Because no test exists for these values, these two economists will continue to disagree, unless one persuades the other to adopt a different set of values. Many of the disagreements among economists are based on such differences in values and therefore are unlikely to be resolved.

Activity 1.2

The Department of Agriculture estimated that the expenditures a middle-income, husband-wife family of three would incur to raise one additional child from birth in 2005 to age 17 would be RM250,000. In what way does this estimate illustrate the economic way of thinking? Would the Department's estimate be an example of microeconomic or of macroeconomic analysis? Why?

Summary

Economists are said to be a rational lot. They think at the margin because everything has costs and benefits. Hence, economists focus on the opportunity costs of choices, they assume that individuals make choices in a way that maximises the value of an objective defined in terms of their own self-interest, and they assume that individuals make those choices at the margin. Economics is divided into two broad areas: microeconomics and macroeconomics.

Microeconomics deal with smaller units of the economy (such as households) and macroeconomics handles bigger issues pertaining to the national economy. Positive statements are factual and can be tested. Normative statements are value judgments that cannot be tested. Many of the disagreements among economists stem from differences in values.

Suggested answers to activity

Feedback

Activity 1.2

The information given suggests one element of the economic way of thinking: assessing the choice at the margin. The estimate reflects the cost of one more child for a family that already has one. It is not clear from the information given how close the estimate of cost comes to the economic concept of opportunity cost. The Department of Agriculture's estimate included such costs as housing, food, transportation, clothing, health care, child care, and education. An economist would add the value of the best alternative use of the additional time that will be required for the child. If the couple is looking far ahead, it may want to consider the opportunity cost of sending a child to college. And, if it is looking very far ahead, it may want to consider the fact that nearly half of all parents over the age of 50 support at least one child over the age of 21. This is a problem in microeconomic analysis, because it focuses on the choices of individual households.

1.3 Factors of Production

Objectives

By the end of this section, you should be able to:

1. Define the three factors of production: labour, capital and natural resources.

2. Explain the role of technology and entrepreneurs in the utilisation of the economy's factors of production.

Introduction

Choices concerning what goods and services to produce are choices about an economy's use of its factors of production, the resources available to it for the production of goods and services. The value, or satisfaction, that people derive from the goods and services they consume and the activities they pursue is called utility. Ultimately, an economy's factors of production create utility; they serve the interests of people.

The factors of production in an economy are its labour, capital and natural resources. Labour is the human effort that can be applied to the production of goods and services. People who are employed or would like to be are considered part of the labour available to the economy. Capital is a factor of production that has been produced for used in the production of other goods and services. Office buildings, machinery and tools are examples of capital. Natural resources are the resources of nature that can be used for the production of goods and services.

In the next three subsections, we will take a closer look at the factors of production we use to produce the goods and services we consume. The three basic building blocks of labour, capital and natural resources may be used in different ways to produce different goods and services, but they still lie at the core of production. We will then look at the roles played by technology and entrepreneurs in putting these factors of production to work. As economists began to grapple with the problems of scarcity, choice and opportunity cost two centuries ago, they now focused on these concepts..

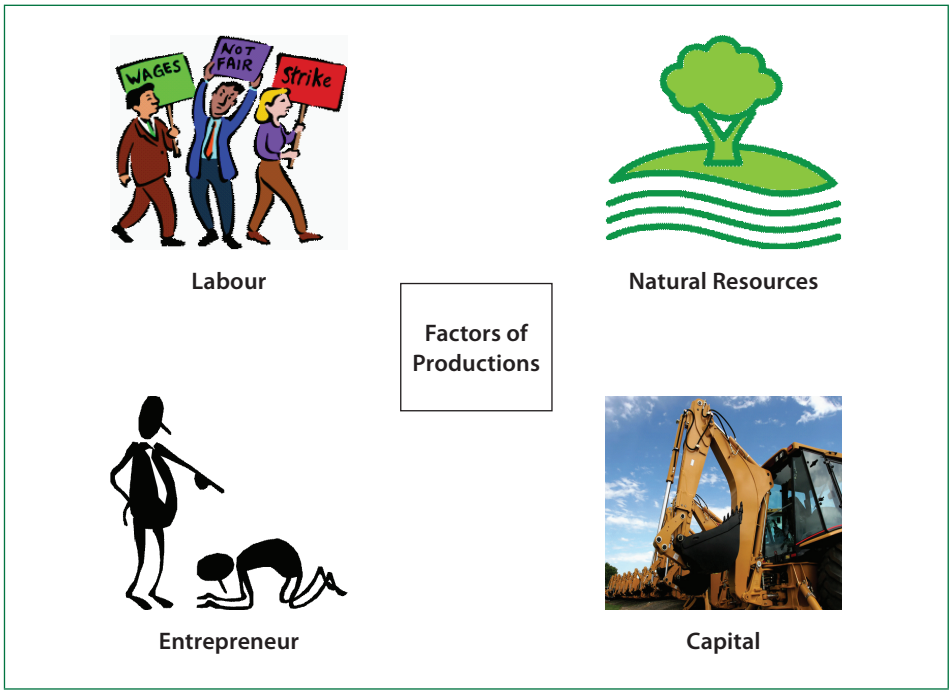


Figure 1.1 Factors of production

Labour

Labour is human effort that can be applied to production. People who work to repair tires, pilot airplanes, teach children or enforce laws are all part of the economy's labour. People who would like to work but have not found employment — who are unemployed — are also considered part of the labour available to the economy.

In some contexts, it is useful to distinguish two forms of labour. The first is the human equivalent of a natural resource. It is the natural ability an untrained, uneducated person brings to a particular production process. But most workers bring far more. The skills a worker has as a result of education, training or experience that can be used in production are called human capital. Students who are attending a college or university are acquiring human capital. Workers who are gaining skills through experience or through training are acquiring human capital. Children who are learning to read are acquiring human capital.

The amount of labour available to an economy can be increased in two ways. One is to increase the total quantity of labour, either by increasing the number of people available to work or by increasing the average number of hours of work per week. The other is to increase the amount of human capital possessed by workers.

Capital

Long ago, when the first human beings walked the earth, they produced food by picking leaves or fruit off a plant or by catching an animal and eating it. We know that very early on, however, they began shaping stones into tools, apparently for use in butchering animals. Those tools were the first capital because they were produced for use in producing other goods — food and clothing.

Modern versions of the first stone tools include saws, meat cleavers, hooks, and grinders; all are used in butchering animals. Tools such as hammers, screwdrivers, and wrenches are also capital. Transportation equipment, such as cars and trucks, is capital. Facilities such as roads, bridges, ports and airports are capital. Buildings, too, are capital; they help us to produce goods and services.

Capital does not consist solely of physical objects. The score for a new symphony is capital because it will be used to produce concerts. Computer software used by business firms or government agencies to produce goods and services is capital. Capital may thus include physical goods and intellectual discoveries. Any resource is capital if it satisfies two criteria:

1. The resource must have been produced.

2. The resource can be used to produce other goods and services.

One thing that is not considered capital is money. A firm cannot use money directly to produce other goods, so money does not satisfy the second criterion for capital. Firms can, however, use money to acquire capital. Money is a form of financial capital. Financial capital includes money and other "paper" assets (such as stocks and bonds) that represent claims on future payments. These financial assets are not capital, but they can be used directly or indirectly to purchase factors of production or goods and services.

Natural resources

There are two essential characteristics of natural resources. The first is that they are found in nature — that no human effort has been used to make or alter them. The second is that they can be used for the production of goods and services. That requires knowledge; we must know how to use the things we find in nature before they become resources.

Consider oil. Oil in the ground is a natural resource because it is found (not manufactured) and can be used to produce goods and services. However, 250 years ago oil was a nuisance, not a natural resource. Pennsylvania farmers in the eighteenth century, who found oil oozing up through their soil were dismayed, not delighted. No one knew what could be done with the oil. It was not until the mid-nineteenth century that a method was found for refining oil into kerosene that could be used to generate energy, transforming oil into a natural resource.

Oil is now used to make all sorts of things, including clothing, drugs, petrol, and plastic. It became a natural resource because people discovered and implemented a way to use it.

Defining something as a natural resource only if it can be used to produce goods and services does not mean that a tree has value only for its wood or that a mountain has value only for its minerals. If people gain utility from the existence of a beautiful wilderness area, then that wilderness provides a service. The wilderness is thus a natural resource.

The natural resources available to us can be expanded in three ways. One is the discovery of new natural resources, such as the discovery of a deposit of ore containing titanium. The second is the discovery of new uses for resources, as happened when new techniques allowed oil to be put to productive use or sand to be used in manufacturing computer chips. The third is the discovery of new ways to extract natural resources in order to use them. New methods of discovering and mapping oil deposits have increased the world's supply of this important natural resource.

Technology and the entrepreneur

Goods and services are produced using the factors of production available to the economy. Two things play a crucial role in putting these factors of production to work. The first is technology, the knowledge that can be applied to the production of goods and services. The second is an individual who plays a key role in a market economy: the entrepreneur. An entrepreneur is a person who, operating within the context of a market economy, seeks to earn profits by finding new ways to organise factors of production. In non-market economies the role of the entrepreneur is played by bureaucrats and other decision makers who respond to incentives other than profit to guide their choices about resource allocation decisions.

The interplay of entrepreneurs and technology affects all our lives. Entrepreneurs put new technologies to work every day, changing the way factors of production are used. Farmers and factory workers, engineers and electricians, technicians and teachers all work differently than they did just a few years ago, using new technologies introduced by entrepreneurs. The music you enjoy, the books you read, the athletic equipment with which you play are produced differently than they were five years ago. The book you are reading was written and manufactured using technologies that did not exist ten years ago. We can dispute whether all the changes have made our lives better. What we cannot dispute is that they have made our lives different.

Activity 1.3

Explain whether each of the following is labour, capital, or a natural resource.

1. An unemployed factory worker
2. A university professor
3. The library building on your campus
4. Taman Negara National Park
5. An untapped deposit of natural gas
6. The Seri Perdana Complex
7. The local power plant

Summary

Factors of production are the resources the economy has available to produce goods and services. Labour is the human effort that can be applied to the production of goods and services. Labour's contribution to an economy's output of goods and services can be increased either by increasing the quantity of labour or by increasing human capital. Capital is a factor of production that has been produced for use in the production of other goods and services. Natural resources are those things found in nature that can be used for the production of goods and services. Two keys to the utilization of an economy's factors of production are technology and, in the case of a market economic system, the efforts of entrepreneurs.

Suggested answers to activity

Feedback

Activity 1.3

1. An unemployed factory worker could be put to work; he or she counts as labour.

2. A university professor is labour.

3. The library building on your campus is part of capital.

4. Those areas of the park left in their natural state are a natural resource. Facilities such as visitors' centres, roads, and campgrounds are capital.

5. An untapped deposit of natural gas is a natural resource. Once extracted and put in a storage tank, natural gas is capital.

6. The Seri Perdana Complex is capital.

7. The local power plant is capital.

1.4 Demand, Supply and Market Equilibrium

Objectives

By the end of this section, you should be able to:

1. Explain what determines the demand for a particular good and service.
2. Explain what determines the supply of a particular good and service.
3. Illustrate how demand and supply together determine the price and quantity of a good sold.
4. Differentiate market demand/supply and individual demand/supply curves.

Introduction

When the durian season begins, you may have to pay from RM6 to RM15 for one durian. As more durians are available in the market, the price of each durian may drop to as low as RM2. During the holiday season, most hotel rooms are fully booked and hotel room prices are at its peak. When it is off-season, prices fall and you can find many empty hotel rooms. When there is a war in the Middle East, the price of petrol rises, and the price of a used 2000cc car falls. All these events have something in common. They all show the workings of demand and supply. Demand and supply are the forces that make the market economies work.

This section introduces the theories of demand and supply. It considers how buyers and sellers behave and interact with one another in markets. A market is a group of buyers and sellers of a particular good or service. When buyers (demand) and sellers (supply) of durians in Penang interact with one another, prices in the durian market will be determined.

To see how the forces of demand and supply work, we will focus on the amount of a particular product that an individual decides to consume within a given period of time.

Demand

How many pizzas will people eat this year? How many doctor visits will people make? How many houses will people buy?

Each good or service has its own special characteristics that determine the quantity people are willing and able to consume. One is the price of the good or service

itself. Other independent variables that are important determinants of demand include consumer preferences, prices of related goods and services, income, demographic characteristics such as population size, and buyer expectations. The number of pizzas people will purchase, for example, depends very much on whether they like pizza. It also depends on the prices for alternatives such as hamburgers or spaghetti. The number of doctor visits is likely to vary with income — people with higher incomes are likely to see a doctor more often than people with lower incomes. The demands for pizza, for doctor visits, and for housing are certainly affected by the age distribution of the population and its size.

While different variables play different roles in influencing the demands for different goods and services, economists pay special attention to one: the price of the good or service. Given the values of all the other variables that affect demand, a higher price tends to reduce the quantity people demand, and a lower price tends to increase it. A medium pizza typically sells for RM5 to RM10. Suppose the price were RM30. Chances are, you would buy fewer pizzas at that price than you do now. Suppose pizzas typically sold for RM2 each. At that price, people would be likely to buy more pizzas than they do now.

We will discuss first how price affects the quantity demanded of a good or service and then how other variables affect demand.

Price and the demand curve

Because people will purchase different quantities of a good or service at different prices, economists must be careful when speaking of the "demand" for something. They have therefore developed some specific terms for expressing the general concept of demand.

The quantity demanded of a good or service is the quantity buyers are willing and able to buy at a particular price during a particular period, all other things unchanged. (We can substitute the Latin phrase "ceteris paribus" for "all other things unchanged.") Suppose, for example, that 100,000 movie tickets are sold each month in a particular town at a price of RM8 per ticket. That quantity — 100,000 — is the quantity of movie admissions demanded per month at a price of RM8. If the price were RM12, we would expect the quantity demanded to be less. If it were RM4, we would expect the quantity demanded to be greater. The quantity demanded at each price would be different if other things that might affect it, such as the population of the town, were to change. That is why we add the qualifier that other things have not changed to the definition of quantity demanded.

A demand schedule is a table that shows the quantities of a good or service demanded at different prices during a particular period, all other things unchanged. To introduce the concept of a demand schedule, let us consider the demand for coffee in Malaysia. We will ignore differences among types of coffee beans and roasts, and speak simply of coffee. The table in **Figure 1.2** shows quantities of coffee that will be demanded each month at prices ranging from RM4 to RM9 per kg; the table is a demand schedule. We see that the higher the price, the lower the quantity demanded.

Price (RM)	9	8	7	6	5	4
Quantity (million kg)	1	2	3	4	5	6

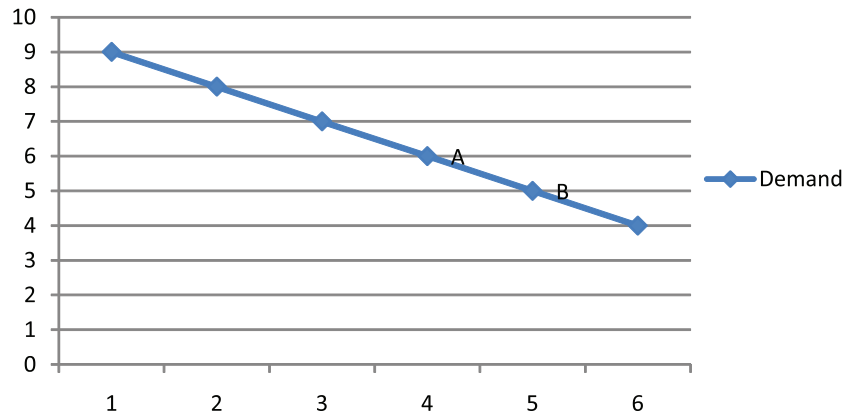


Figure 1.2 Demand schedule and a demand curve

The table is a demand schedule; it shows quantities of coffee demanded per month in the United States at particular prices, all other things unchanged. These data are then plotted on the demand curve. *At point A on the curve, 4 million kg of coffee per month are demanded at a price of RM6 per kg. At point B, 5 million kg of coffee per month are demanded at a price of RM5 per kg.*

The information given in a demand schedule can be presented with a demand curve, which is a graphical representation of a demand schedule. A demand curve thus shows the relationship between the price and quantity demanded of a good or service during a particular period, all other things unchanged. The demand curve in **Figure 1.2** shows the prices and quantities of coffee demanded that are given in the demand schedule. At point A, for example, we see that 4 million kg of coffee per month are demanded at a price of RM6 per kg. By convention, economists graph price on the vertical axis and quantity on the horizontal axis.

Price alone does not determine the quantity of coffee or any other good that people buy. To isolate the effect of changes in price on the quantity of a good or service demanded, however, we show the quantity demanded at each price, assuming that those other variables remain unchanged. We do the same thing in drawing a graph of the relationship between any two variables; we assume that the values of other variables that may affect the variables shown in the graph (such as income or population) remain unchanged for the period under consideration.

A change in price, with no change in any of the other variables that affect demand, results in a movement *along* the demand curve. For example, if the price of coffee falls from RM6 to RM5 per kg, consumption rises from 4 million kg to 5 million kg per month. That is a movement from point A to point B along the demand curve in **Figure 1.2**. A movement along a demand curve that results from a change in price is called a change in quantity demanded. Note that a change in quantity demanded is not a change or shift in the demand curve; it is a movement *along* the demand curve.

The negative slope of the demand curve suggests a key behavioural relationship of economics. All other things unchanged, the law of demand holds that, for virtually all goods and services, a higher price leads to a reduction in quantity demanded and a lower price leads to an increase in quantity demanded.

The law of demand is called a law because the results of countless studies are consistent with it. Undoubtedly, you have observed one manifestation of the law. When a store finds itself with an overstock of some item, such as running shoes or tomatoes, and needs to sell these items quickly, what does it do? It typically has a sale, expecting that a lower price will increase the quantity demanded. In general, we expect the law of demand to hold. Given the values of other variables that influence demand, a higher price reduces the quantity demanded. A lower price increases the quantity demanded. Demand curves, in short, slope downward.

Changes in demand

Of course, price alone does not determine the quantity of a good or service that people consume. Coffee consumption, for example, will be affected by such variables as income and population. Preferences also play a role. Starbucks "turned people on" to coffee. We also expect other prices to affect coffee consumption. People often eat doughnuts or bagels with their coffee, so a reduction in the price of doughnuts or bagels might induce people to drink more coffee. An alternative to coffee is tea, so a reduction in the price of tea might result in the consumption of more tea and less coffee. Thus, a change in any one of the variables held constant in constructing a demand schedule will change the quantities demanded at each price. The result will be a *shift* in the entire demand curve rather than a movement along the demand curve. A *shift* in a demand curve is called a change in demand.

Suppose, for example, that something happens to increase the quantity of coffee demanded at each price. Several events could produce such a change: an increase in incomes, an increase in population, or an increase in the price of tea would each be likely to increase the quantity of coffee demanded at each price. Any such change produces a new demand schedule. **Figure 1.3** shows such a change in the demand schedule for coffee. We see that the quantity of coffee demanded per month is greater at each price than before. We show that graphically as a shift in the demand curve. The original curve, labelled *D*, shifts to the right to *D1*. At a price of RM6 per kg, for example, the quantity demanded rises from 4 million kg per month (point A) to 6 million kg per month (point A').

Price	Quantity Demanded	New Quantity Demanded
9	1	3
8	2	4
7	3	5
6	4	6
5	5	7
4	6	8

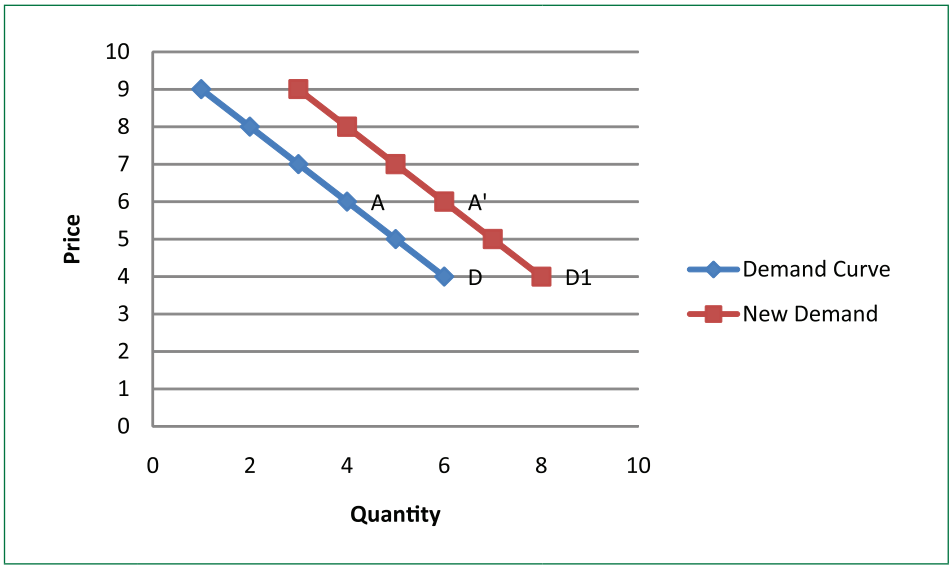


Figure 1.3 Increase in demand

An increase in the quantity of a good or service demanded at each price is shown as an increase in demand. Here, the original demand curve D shifts to D1. Point A on D corresponds to a price of RM6 per kg and a quantity demanded of 4 million kg of coffee per month. On the new demand curve D1, the quantity demanded at this price rises to 6 million kg of coffee per month (point A').

Just as demand can increase, it can decrease. In the case of coffee, demand might fall as a result of events such as a reduction in population, a reduction in the price of tea, or a change in preferences. For example, a definitive finding that the caffeine in coffee contributes to heart disease, which is currently being debated in the scientific community, could change preferences and reduce the demand for coffee. A reduction in the demand for coffee is illustrated in **Figure 1.4**. The demand schedule shows that less coffee is demanded at each price than in **Figure 1.2**. The result is a shift in demand from the original curve *D* to *D2*. The quantity of coffee demanded at a price of RM6 per kg falls from 4 million kg per month (point A) to 3 million kg per month (point A"). Note, again, that a change in quantity demanded, ceteris paribus, refers to a movement *along* the demand curve, while a change in demand refers to a *shift* in the demand curve.

Price	Quantity Demanded	New Quantity Demanded
9	1	0
8	2	1
7	3	2
6	4	3
5	5	4
4	6	5

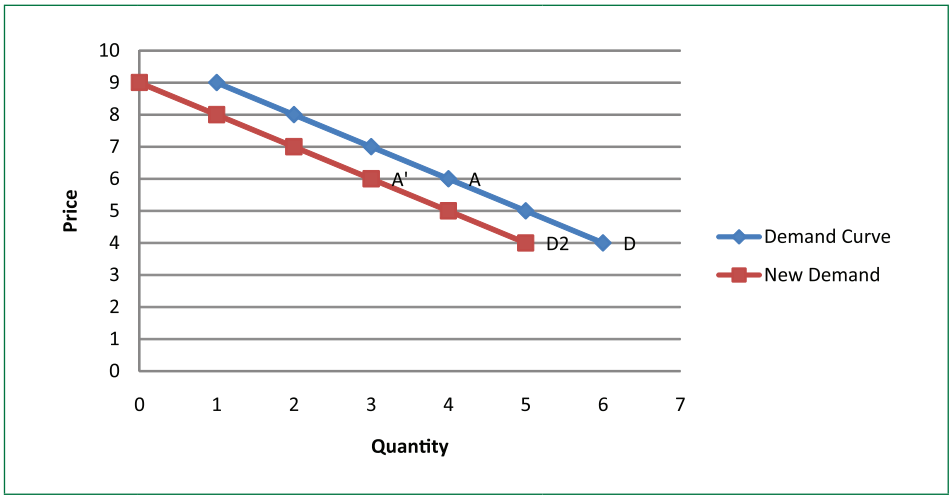


Figure 1.4 Decrease in demand

A reduction in demand occurs when the quantities of a good or service demanded fall at each price. Here, the demand schedule shows a lower quantity of coffee demanded at each price than we had in **Figure 1.2**. *The reduction shifts the demand curve for coffee to D2 from D. The quantity demanded at a price of RM6 per kg, for example, falls from 4 million kg per month (point A) to 3 million kg of coffee per month (point A").*

A variable that can change the quantity of a good or service demanded at each price is called a demand shifter. When these other variables change, the all-other-things-unchanged conditions behind the original demand curve no longer hold. Although different goods and services will have different demand shifters, the demand shifters are likely to include (1) consumer preferences, (2) the prices of related goods and services, (3) income, (4) demographic characteristics, and (5) buyer expectations. Next we look at each of these.

Preferences

Changes in preferences of buyers can have important consequences for demand. We have already seen how Starbucks supposedly increased the demand for coffee. Another example is reduced demand for cigarettes caused by concern about the effect of smoking on health. A change in preferences that makes one good or service more popular will shift the demand curve to the right. A change that makes it less popular will shift the demand curve to the left.

Prices of related goods and services

Suppose the price of doughnuts were to fall. Many people who drink coffee enjoy dunking doughnuts in their coffee; the lower price of doughnuts might therefore increase the demand for coffee, shifting the demand curve for coffee to the right. A lower price for tea, however, would be likely to reduce coffee demand, shifting the demand curve for coffee to the left.

In general, if a reduction in the price of one good increases the demand for another, the two goods are called complements. If a reduction in the price of one good reduces the demand for another, the two goods are called substitutes. These definitions hold in reverse as well: two goods are complements if an increase in the price of one reduces the demand for the other, and they are substitutes if an increase in the price of one increases the demand for the other. Doughnuts and coffee are complements; tea and coffee are substitutes.

Complementary goods are goods used in conjunction with one another. Tennis rackets and tennis balls, eggs and bacon, and stationery and postage stamps are complementary goods. Substitute goods are goods used instead of one another. iPODs, for example, are likely to be substitutes for CD players. Breakfast cereal is a substitute for eggs. A file attachment to an email is a substitute for both a fax machine and postage stamps.

Income

As incomes rise, people increase their consumption of many goods and services, and as incomes fall, their consumption of these goods and services falls. For example, an increase in income is likely to raise the demand for petrol, ski trips, new cars, and jewellery. There are, however, goods and services for which consumption falls as income rises — and rises as income falls. As incomes rise, for example, people tend to consume more fresh fruit but less canned fruit.

A good, for which demand increases when income increases, is called a normal good. A good, for which demand decreases when income increases, is called an inferior good. An increase in income shifts the demand curve for fresh fruit (a normal good) to the right; it shifts the demand curve for canned fruit (an inferior good) to the left.

Demographic characteristics

The number of buyers affects the total quantity of a good or service that will be bought; in general, the greater the population, the greater the demand. Other demographic characteristics can affect demand as well. As the share of the population over age 65 increases, the demand for medical services, retirement homes, basic amenities and even holiday trips increases. The population of Malaysia has been increasing steadily in the past six decades. That increase has raised the demand for such things as infant supplies, school teachers, football coaches, in-line skates, and education. Demand can thus shift as a result of changes in both the number and characteristics of buyers.

Buyer expectations

The consumption of goods that can be easily stored, or whose consumption can be postponed, is strongly affected by buyer expectations. The expectation of newer TV technologies, such as high-definition TV, could slow down sales of regular TVs. If people expect petrol prices to rise tomorrow, they will fill up their tanks today to try to beat the price increase. The same will be true for goods such as automobiles and washing machines: an expectation of higher prices in the futur will lead to more purchases today. If the price of a good is expected to fall, however, people are likely to reduce their purchases today and await tomorrow's lower prices. The expectation that computer prices will fall, for example, can reduce current demand.

Supply

What determines the quantity of a good or service sellers are willing to offer for sale? Price is one factor; ceteris paribus, a higher price is likely to induce sellers to offer a greater quantity of a good or service. Production cost is another determinant of supply. Variables that affect production cost include the prices of factors used to produce the good or service, returns from alternative activities, technology, the expectations of sellers and natural events such as weather changes. Still another factor affecting the quantity of a good that will be offered for sale is the number of sellers — the greater the number of sellers of a particular good or service, the greater will be the quantity offered at any price per time period.

Price and the supply curve

The quantity supplied of a good or service is the quantity sellers are willing to sell at a particular price during a particular period, all other things unchanged. Ceteris paribus, the receipt of a higher price increases profits and induces sellers to increase the quantity they supply.

In general, when there are many sellers of a good, an increase in price results in an increase in quantity supplied, and this relationship is often referred to as the law of supply. We will see, though, through our exploration of microeconomics, that there are a number of exceptions to this relationship. There are cases in which a higher price will not induce an increase in quantity supplied. Goods that cannot be produced, such as additional land on Penang Island and Kuala Lumpur city, are fixed in supply — a higher price cannot induce an increase in the quantity supplied. There are even cases, which we investigate in microeconomic analysis, in which a higher price induces a reduction in the quantity supplied.

Generally speaking, however, when there are many sellers of a good, an increase in price results in a greater quantity supplied. The relationship between price and quantity supplied is suggested in a supply schedule, a table that shows quantities supplied at different prices during a particular period, all other things unchanged. gives a supply schedule for the quantities of coffee that will be supplied per month

at various prices, ceteris paribus. At a price of RM4 per kg, for example, producers are willing to supply 1 million kg of coffee per month. A higher price, say RM6 per kg, induces sellers to supply a greater quantity — 3 million kg of coffee per month.

Price	Quantity Supplied
9	6
8	5
7	4
6	3
5	2
4	1

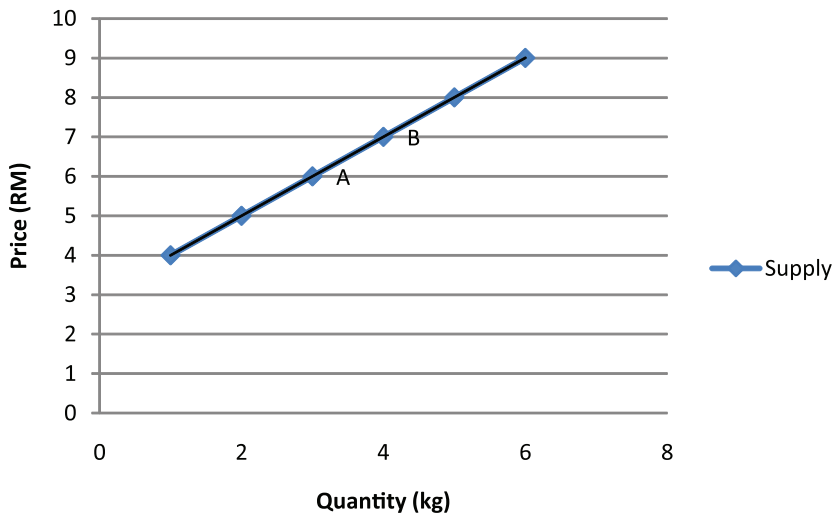


Figure 1.5 Supply schedule and supply curve

The supply schedule shows the quantity of coffee that will be supplied in the United States each month at particular prices, all other things unchanged. The same information is given graphically in the supply curve. The values given here suggest a positive relationship between price and quantity supplied.

A supply curve is a graphical representation of a supply schedule. It shows the relationship between price and quantity supplied during a particular period, all other things unchanged. Because the relationship between price and quantity supplied is generally positive, supply curves are generally upward sloping. The supply curve for coffee in shows graphically the values given in the supply schedule.

A change in price causes a movement along the supply curve; such a movement is called a change in quantity supplied. As is the case with a change in quantity demanded, a change in quantity supplied does not shift the supply curve. By definition, it is a movement along the supply curve. For example, if the price rises from RM6 per kg to RM7 per kg, the quantity supplied rises from 3 million kg

per month to 4 million kg per month. That's a movement from point A to point B along the supply curve.

Changes in supply

When we draw a supply curve, we assume that other variables that affect the willingness of sellers to supply a good or service are unchanged. It follows that a change in any of those variables will cause a change in supply, which is a shift in the supply curve. A change that increases the quantity of a good or service supplied at each price shifts the supply curve to the right. For example, that the price of fertilizer falls. That will reduce the cost of producing coffee and thus increase the quantity of coffee producers will offer for sale at each price. The supply schedule in shows an increase in the quantity of coffee supplied at each price. We show that increase graphically as a shift in the supply curve from *S* to *S1*. We see that the quantity supplied at each price increases by 3 million kg of coffee per month. At point A on the original supply curve S, for example, 3 million kg of coffee per month are supplied at a price of RM6 per kg. After the increase in supply, 6 million kg per month are supplied at the same price (point A' on curve S2).

Price	Quantity Supplied	New Quantity Supplied
9	6	9
8	5	8
7	4	7
6	3	6
5	2	5
4	1	4

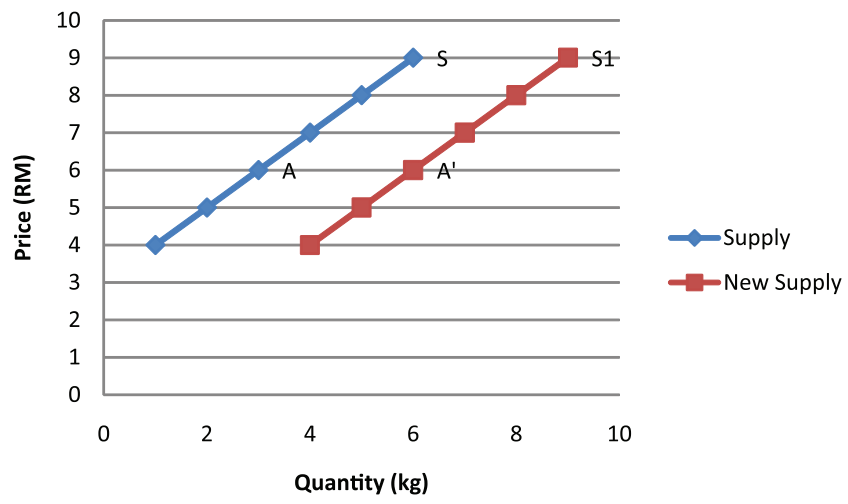


Figure 1.6 Increase supply curve

If there is a change in supply that increases the quantity supplied at each price, as is the case in the supply schedule here, the supply curve shifts to the right. At a price of RM6 per kg, for example, the quantity supplied rises from the previous level of 3 million kg per month on supply curve S (point A) to 6 million kg per month on supply curve S1 (point A').

An event that reduces the quantity supplied at each price shifts the supply curve to the left. An increase in production costs and excessive rain that reduces the yields from coffee plants are examples of events that might reduce supply. **Figure 1.7** shows a reduction in the supply of coffee. We see in the supply schedule that the quantity of coffee supplied falls by 1 million kg of coffee per month at each price. The supply curve thus shifts from *S* to *S2*.

Price	Quantity Supplied	New Quantity Supplied
9	6	5
8	5	4
7	4	3
6	3	2
5	2	1
4	1	0

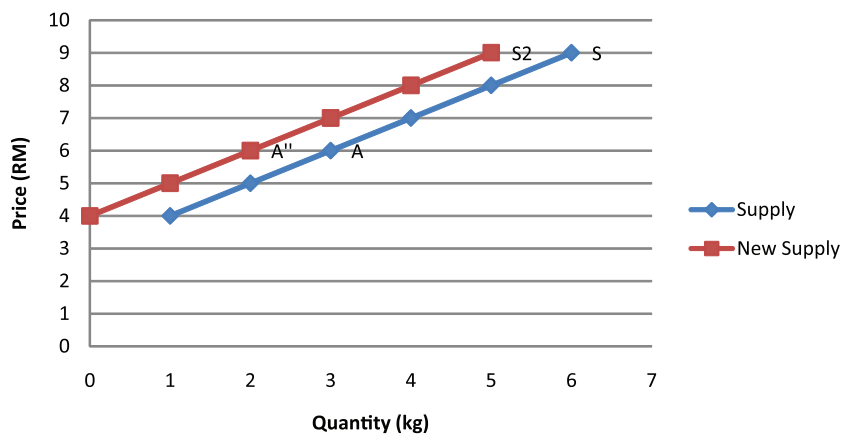


Figure 1.7 Decrease supply curve

A change in supply that reduces the quantity supplied at each price shifts the supply curve to the left. At a price of RM6 per kg, for example, the original quantity supplied was 3 million kg of coffee per month (point A). With a new supply curve S2, the quantity supplied at that price falls to 2 million kg of coffee per month (point A").

A variable that can change the quantity of a good or service supplied at each price is called a supply shifter. Supply shifters include (1) prices of factors of production, (2) returns from alternative activities, (3) technology, (4) seller expectations, (5) natural events, and (6) the number of sellers. When these other variables change, the all-other-things-unchanged conditions behind the original supply curve no longer hold. Let us look at each of the supply shifters.

Prices of factors of production

A change in the price of labour or some other factor of production will change the cost of producing any given quantity of the good or service. This change in the cost of production will change the quantity that suppliers will offer at any price, shifting the supply curve to the left. A reduction in factor prices increases the quantity suppliers will offer at any price, shifting the supply curve to the right.

Suppose coffee growers must pay a higher wage to the workers they hire to harvest coffee or must pay more for fertilizer. Such increases in production cost will cause them to produce a smaller quantity at each price, shifting the supply curve for coffee to the left. A reduction in any of these costs increases supply, shifting the supply curve to the right.

Returns from alternative activities

To produce one good or service means forgoing the production of another. The concept of opportunity cost in economics suggests that the value of the activity forgone is the opportunity cost of the activity chosen; this cost should affect supply. For example, one opportunity cost of producing eggs is not selling chickens. An increase in the price people are willing to pay for fresh chicken would make it more profitable to sell chickens and would thus increase the opportunity cost of producing eggs. It would shift the supply curve for eggs to the left, reflecting a decrease in supply.

Technology

A change in technology alters the combinations of inputs or the types of inputs required in the production process. An improvement in technology usually means that fewer and/or less costly inputs are needed. If the cost of production is lower, the profits available at a given price will increase, and producers will produce more. With more produced at every price, the supply curve will shift to the right, meaning an increase in supply.

Impressive technological changes have occurred in the computer industry in recent years. Computers are much smaller and are far more powerful than they were only a few years ago — and they are much cheaper to produce. The result has been a huge increase in the supply of computers, shifting the supply curve to the right.

While we usually think of technology as enhancing production, declines in production due to problems in technology are also possible. Outlawing the use of certain equipment without pollution-control devices has increased the cost of production for many goods and services, thereby reducing profits available at any price and shifting these supply curves to the left.

Seller expectations

All supply curves are based in part on seller expectations about future market conditions. Many decisions about production and selling are typically made long before a product is ready for sale. Those decisions necessarily depend on expectations. Changes in seller expectations can have important effects on price and quantity.

Consider, for example, the owners of oil deposits. Oil pumped out of the ground and used today will be unavailable in the future. If a change in the international political climate leads many owners to expect that oil prices will rise in the future, they may decide to leave their oil in the ground, planning to sell it later when the price is higher. Thus, there will be a decrease in supply; the supply curve for oil will shift to the left.

Natural events

Storms, insect infestations, and drought affect agricultural production and thus the supply of agricultural goods. If something destroys a substantial part of an agricultural crop, the supply curve will shift to the left. The terrible cyclone that killed more than 50,000 people in Myanmar in 2008 also destroyed some of the country's prime rice growing land. That shifted the supply curve for rice to the left. If there is an unusually good harvest, the supply curve will shift to the right.

The number of sellers

The supply curve for an industry, such as coffee, includes all the sellers in the industry. A change in the number of sellers in an industry changes the quantity available at each price and thus changes supply. An increase in the number of sellers supplying a good or service shifts the supply curve to the right; a reduction in the number of sellers shifts the supply curve to the left.

The market for cellular phone service has been affected by an increase in the number of firms offering the service. Over the past decade, new cellular phone companies emerged, shifting the supply curve for cellular phone service to the right.

Market equilibrium

Markets, the institutions that bring together buyers and sellers, are always responding to events, such as bad harvests and changing consumer tastes that affect the prices and quantities of particular goods. The demand for some goods increases, while the demand for others decreases. The supply of some goods rises, while the supply of others falls. As such events unfold, prices adjust to keep markets in balance. This section explains how the market forces of demand and supply interact to determine equilibrium prices and equilibrium quantities of goods and services. We will see how prices and quantities adjust to changes in demand and supply and how changes in prices serve as signals to buyers and sellers.

The model of demand and supply that we shall develop in this section is one of the most powerful tools in all of economic analysis. You will be using it throughout your study of economics. We will first look at the variables that influence demand. Then we will turn to supply, and finally we will put demand and supply together to explore how the model of demand and supply operates. As we examine the model, bear in mind that demand is a representation of the behaviour of buyers and that supply is a representation of the behaviour of sellers. Buyers may be consumers purchasing groceries or producers purchasing iron ore to make steel. Sellers may be firms selling cars or households selling their labour services. We shall see that the ideas of demand and supply apply, whatever the identity of the buyers or sellers and whatever the good or service being exchanged in the market. In this section, we shall focus on buyers and sellers of goods and services.

In this section, we combine the demand and supply curves we have just studied into a new model. The model of demand and supply uses demand and supply curves to explain the determination of price and quantity in a market.

The determination of price and quantity

The logic of the model of demand and supply is simple. The demand curve shows the quantities of a particular good or service that buyers will be willing and able to purchase at each price during a specified period. The supply curve shows the quantities that sellers will offer for sale at each price during that same period. By putting the two curves together, we should be able to find a price at which the quantity buyers are willing and able to purchase equals the quantity sellers will offer for sale.

Figure 1.8 combines the demand and supply data introduced in **Figure 1.2** and **Figure 1.5**. Notice that the two curves intersect at a price of RM6 per kg — at this price the quantities demanded and supplied are equal. Buyers want to purchase, and sellers are willing to offer for sale, 4 million kg of coffee per month. The market for coffee is in equilibrium. Unless the demand or supply curve shifts, there will be no tendency for price to change. The equilibrium price in any market is the price at which quantity demanded equals quantity supplied. The equilibrium price in the market for coffee is thus RM6 per kg. The equilibrium quantity is the quantity demanded and supplied at the equilibrium price.

Price	Quantity Demanded	Quantity Supplied
9	1	7
8	2	6
7	3	5
6	4	4
5	5	3
4	6	2

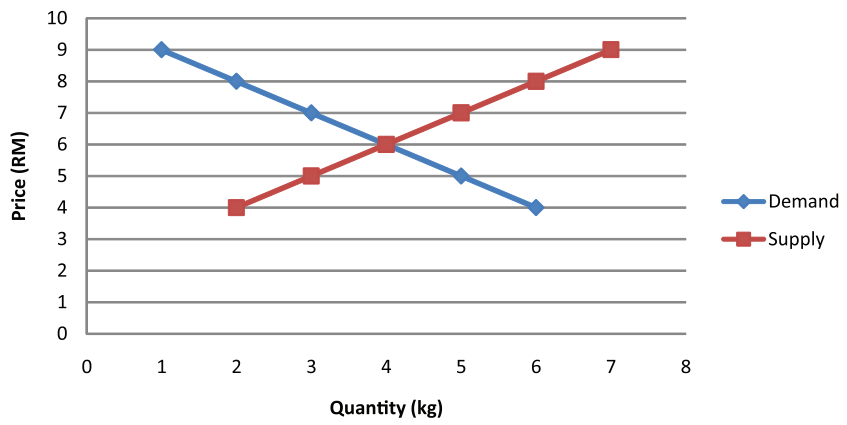


Figure 1.8 Market equilibrium

When we combine the demand and supply curves for a good in a single graph, the point at which they intersect identifies the equilibrium price and equilibrium quantity. Here, the equilibrium price is RM6 per kg. Consumers demand, and suppliers supply, 4 million kg of coffee per month at this price.

With an upward-sloping supply curve and a downward-sloping demand curve, there is only a single price at which the two curves intersect. This means there is only one price at which equilibrium is achieved. It follows that at any price other than the equilibrium price, the market will not be in equilibrium. We next examine what happens at prices other than the equilibrium price.

Surpluses

Figure 1.9 shows the same demand and supply curves we have just examined, but this time the initial price is RM8 per kg of coffee. Because we no longer have a balance between quantity demanded and quantity supplied, this price is not the equilibrium price. At a price of RM8, we read over to the demand curve to determine the quantity of coffee consumers will be willing to buy — 2 million kg per month. The supply curve tells us what sellers will offer for sale — 6 million kg per month. The difference, 4 million kg of coffee per month, is called a surplus. More generally, a surplus is the amount by which the quantity supplied exceeds the quantity demanded at the current price. There is, of course, no surplus at the equilibrium price; a surplus occurs only if the current price exceeds the equilibrium price.

Price	Quantity Demanded	Quantity Supplied
9	1	7
8	2	6
7	3	5
6	4	4
5	5	3
4	6	2

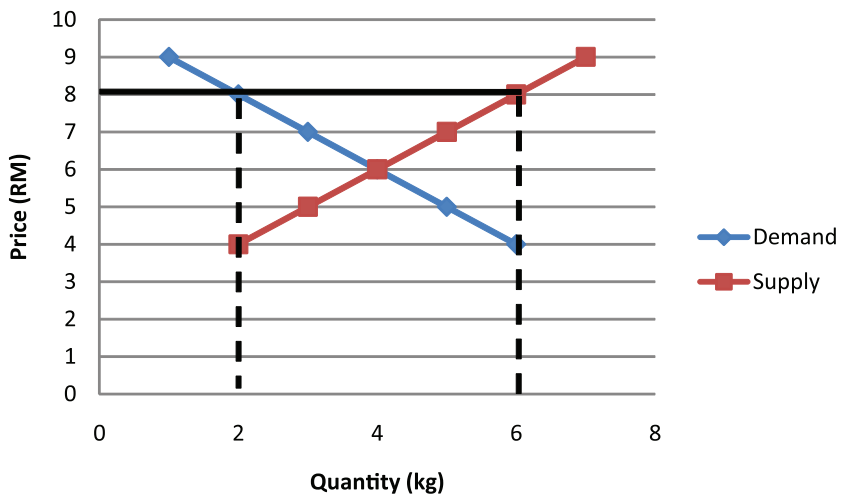


Figure 1.9 Surpluses

At a price of RM8, the quantity supplied is 6 million kg of coffee per month and the quantity demanded is 2 million kg per month; there is a surplus of 4 million kg of coffee per month. Given a surplus, the price will fall quickly toward the equilibrium level of RM6.

A surplus in the market for coffee will not last long. With unsold coffee on the market, sellers will begin to reduce their prices to clear out unsold coffee. As the price of coffee begins to fall, the quantity of coffee supplied begins to decline. At the same time, the quantity of coffee demanded begins to rise. Re member that the reduction in quantity supplied is a movement along the supply curve — the curve itself does not shift in response to a reduction in price. Similarly, the increase in quantity demanded is a movement along the demand curve — the demand curve does not shift in response to a reduction in price. Price will continue to fall until it reaches its equilibrium level, at which the demand and supply curves intersect. At that point, there will be no tendency for price to fall further. In general, surpluses in the marketplace are short-lived. The prices of most goods and services adjust quickly, eliminating the surplus. Later on, we will discuss some markets in which adjustment of price to equilibrium may occur only very slowly or not at all.

Shortages

Just as a price above the equilibrium price will cause a surplus, a price below equilibrium will cause a shortage. A shortage is the amount by which the quantity demanded exceeds the quantity supplied at the current price. **Figure 1.10** shows a shortage in the market for coffee. Suppose the price is RM5 per kg. At that price, 3 million kg of coffee would be supplied per month, and 5 million kg would be demanded per month. When more coffee is demanded than supplied, there is a shortage.

Price	Quantity Demanded	Quantity Supplied
9	1	7
8	2	6
7	3	5
6	4	4
5	5	3
4	6	2

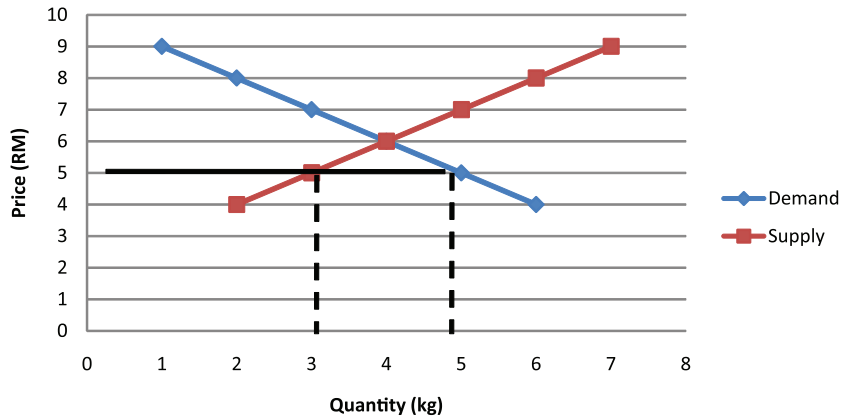


Figure 1.10 Shortages

At a price of RM5 per kg, the quantity of coffee demanded is 5 million kg per month and the quantity supplied is 3 million kg per month. The result is a shortage of 3 million kg of coffee per month.

In the face of a shortage, sellers are likely to begin to raise their prices. As the price rises, there will be an increase in the quantity supplied (but not a change in supply) and a reduction in the quantity demanded (but not a change in demand) until the equilibrium price is achieved.

Shifts in demand and supply

A change in one of the variables (shifters) held constant in any model of demand and supply will create a change in demand or supply. A shift in a demand or supply curve changes the equilibrium price and equilibrium quantity for a good or service. We will start by looking at what happens with an increase in demand, a reduction in demand, an increase in supply, and a reduction in supply. We then look at what happens if both curves shift simultaneously. Each of these possibilities is discussed in turn below.

An increase in demand

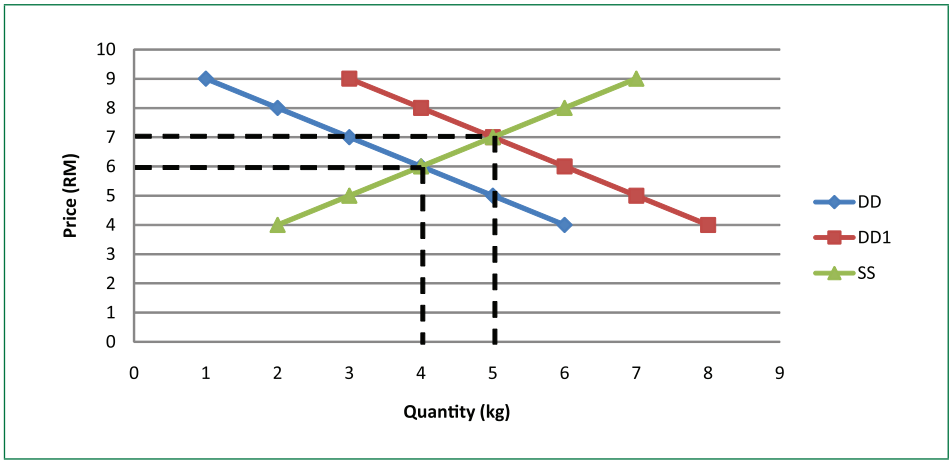


Figure 1.11 Increase in demand

An increase in demand for coffee shifts the demand curve to the right, as shown in in **Figure 1.11**. The equilibrium price rises from RM6 to RM7 per kg. As the price rises to the new equilibrium level, the quantity supplied increases to 5 million kg of coffee per month. Notice that the supply curve does not shift; rather, there is a movement along the supply curve. Demand shifters that could cause an increase in demand include a shift in preferences that leads to greater coffee consumption; a lower price for a complement to coffee, such as doughnuts; a higher price for a substitute for coffee, such as tea; an increase in income; and an increase in population. A change in buyer expectations, perhaps due to predictions of bad weather lowering expected yields on coffee plants and increasing future coffee prices, could also increase current demand.

A decrease in demand

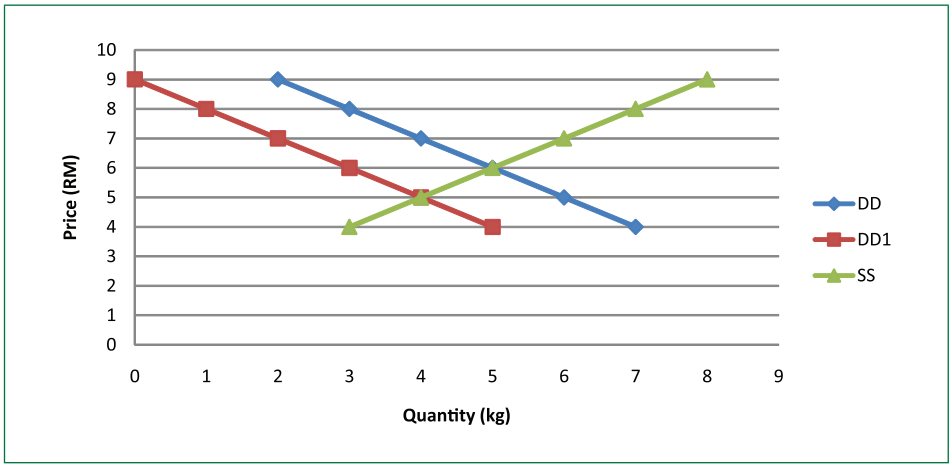


Figure 1.12 Decrease in demand

Figure 1.12 shows that a decrease in demand shifts the demand curve to the left. The original equilibrium price and quantity are RM6 and 5 million kg of coffee, respectively. The equilibrium price falls to RM5 per kg. As the price falls to the new equilibrium level, the quantity supplied decreases to 4 million kg of coffee per month. Demand shifters that could reduce the demand for coffee include a shift in preferences that makes people want to consume less coffee; an increase in the price of a complement, such as doughnuts; a reduction in the price of a substitute, such as tea; a reduction in income; a reduction in population; and a change in buyer expectations that leads people to expect lower prices for coffee in the future.

An increase in supply

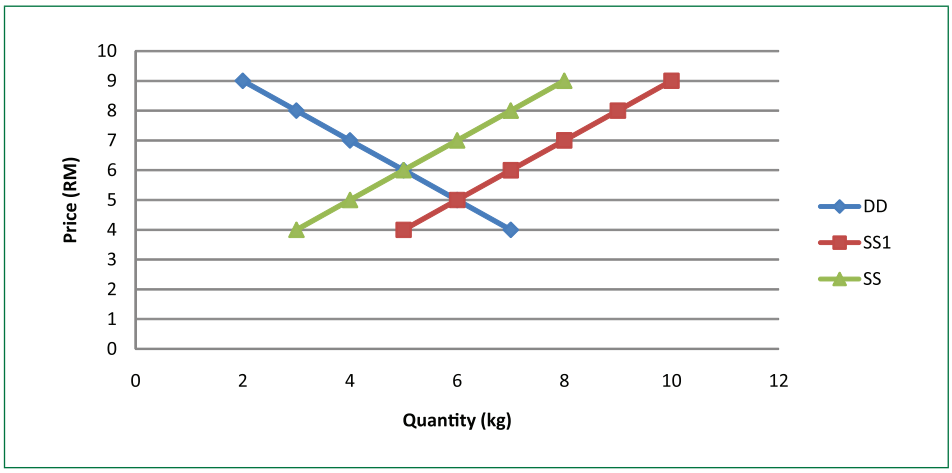


Figure 1.13 Increase in supply

An increase in the supply of coffee shifts the supply curve to the right, as shown in **Figure 1.13**. The equilibrium price falls from RM6 to RM5 per kg. As the price

falls to the new equilibrium level, the quantity of coffee demanded increases to 6 million kg of coffee per month. Notice that the demand curve does not shift; rather, there is movement along the demand curve. Possible supply shifters that could increase supply include a reduction in the price of an input such as labour, a decline in the returns available from alternative uses of the inputs that produce coffee, an improvement in the technology of coffee production, good weather, and an increase in the number of coffee-producing firms.

A decrease in supply

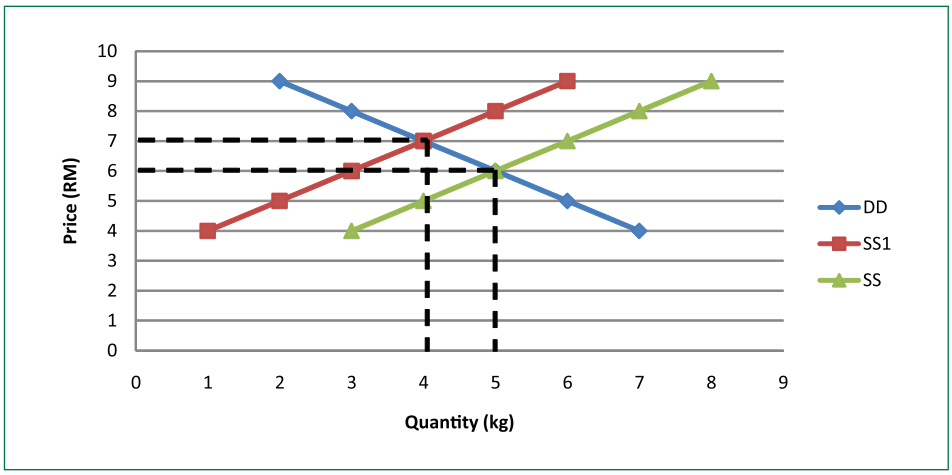


Figure 1.14 Decrease in supply

Figure 1.14 shows that a decrease in supply shifts the supply curve to the left. The equilibrium price rises from RM 6 to RM7 per kg. As the price rises to the new equilibrium level, the quantity demanded decreases to 4 million kg of coffee per month. Possible supply shifters that could reduce supply include an increase in the prices of inputs used in the production of coffee, an increase in the returns available from alternative uses of these inputs, a decline in production because of problems in technology (perhaps caused by a restriction on pesticides used to protect coffee beans), a reduction in the number of coffee-producing firms, or a natural event, such as excessive rain.

Simultaneous shifts

As we have seen, when *either* the demand or the supply curve shifts, the results are unambiguous; that is, we know what will happen to both equilibrium price and equilibrium quantity, so long as we know whether demand or supply increased or decreased. However, in practice, several events may occur at around the same time that cause *both* the demand and supply curves to shift. To figure out what happens to equilibrium price and equilibrium quantity, we must know not only in which direction the demand and supply curves have shifted but also the relative amount by which each curve shifts. Of course, the demand and supply curves could shift in the same direction or in opposite directions, depending on the specific events causing them to shift. The effect on the equilibrium price will be ambiguous. Whether the equilibrium price is higher, lower, or unchanged depends on the extent to which each curve shifts.

P	DD	SS	DD1	SS1
1	14	2	19	3
2	12	4	17	5
3	10	6	15	7
4	8	8	13	9
5	6	10	11	11
6	4	12	9	13
7	2	14	7	15

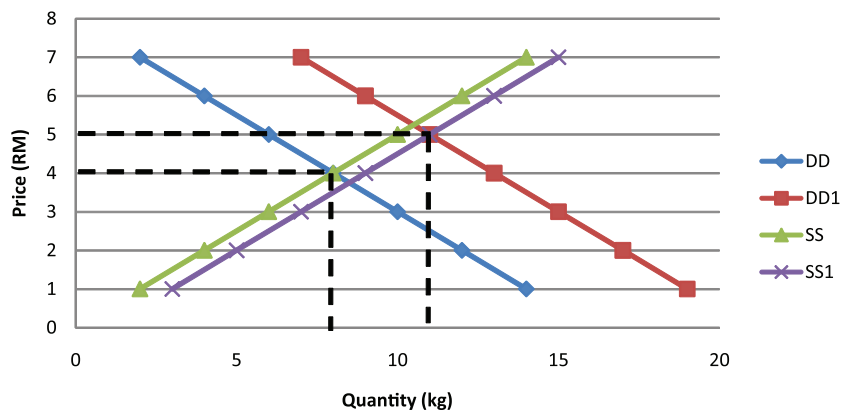


Figure 1.15 Increases in demand more than supply

Figure 1.15 show an increase in the demand for coffee (caused perhaps by a increase in the price of a substitute good, such as tea) and a simultaneous increase in the supply of coffee (caused perhaps by good weather). Since increase in demand and supply, cause the equilibrium quantity to increase, the impact of both curves shifting simultaneously to the right means that the new equilibrium quantity of coffee is more than the old equilibrium quantity. Price has increased from RM4 to RM5 whereas the equilibrium quantity increased from 8 million kg of coffee to 11 million kg. In this example, the demand curve shifts farther to the right than the supply curve.

P	DD	SS	DD1	SS1
1	14	2	19	11
2	12	4	17	13
3	10	6	15	15
4	8	8	13	17
5	6	10	11	19
6	4	12	9	21
7	2	14	7	23

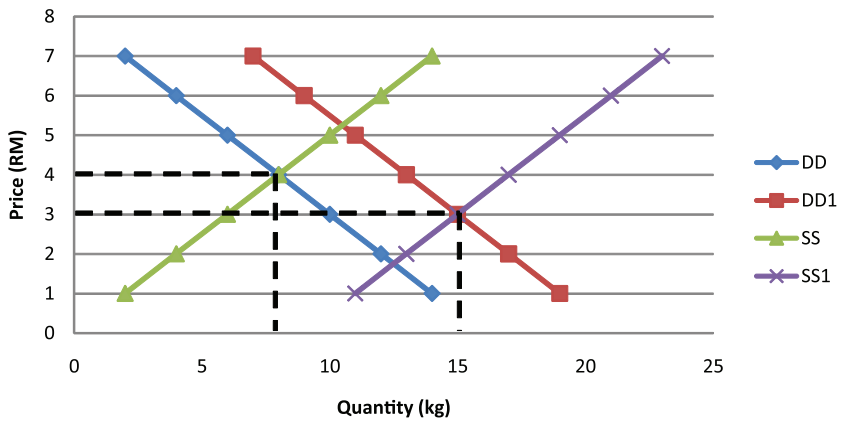


Figure 1.16 Increases in demand less than supply

If the supply curve shifts farther to the right than the demand curve, as shown in **Figure 1.16**, then the equilibrium price will be lower than it was before the curves shifted. In this case, although the equilibrium quantity has increased from 8 million kg of coffee to 15 million kg, the new equilibrium price falls from RM4 per kg to RM3 per kg. The effect on price in this example is the exact opposite of **Figure 1.15**.

P	DD	SS	DD1	SS1
1	14	2	19	7
2	12	4	17	9
3	10	6	15	11
4	8	8	13	13
5	6	10	11	15
6	4	12	9	17
7	2	14	7	19

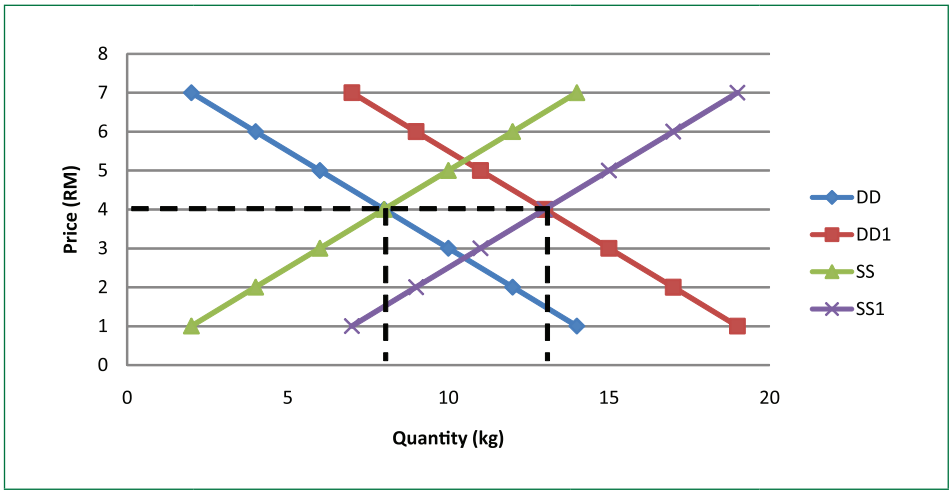


Figure 1.17 Increases in demand equals supply

Figure 1.17 shows the original equilibrium price and quantity to be RM4 and 8 million kg of coffee, respectively. Due to the changes in the determinants of demand and supply, the demand and supply curves shift to the right. In this example, there is an equal shift of the two curves to the right. Although, the quantity increases to 13 million kg, the price remains the same.

Regardless of the scenario, changes in equilibrium price and equilibrium quantity resulting from two different events need to be considered separately. If both events cause equilibrium price or quantity to move in the same direction, then clearly price or quantity can be expected to move in that direction. If one event causes price or quantity to rise while the other causes it to fall, the extent by which each curve shifts is critical to figuring out what happens.

If simultaneous shifts in demand and supply cause equilibrium price or quantity to move in the same direction, then equilibrium price or quantity clearly moves in that direction. If the shift in one of the curves causes equilibrium price or quantity to rise while the shift in the other curve causes equilibrium price or quantity to fall, then the relative amount by which each curve shifts is critical to figuring out what happens to that variable.

As demand and supply curves shift, prices adjust to maintain a balance between the quantity of a good demanded and the quantity supplied. If prices did not adjust, this balance could not be maintained. Notice that the demand and supply curves that we have examined in this section have all been drawn as linear. This simplification of the real world makes the graphs a bit easier to read without sacrificing the essential point: whether the curves are linear or nonlinear, demand curves are downward sloping and supply curves are generally upward sloping. As circumstances that shift the demand curve or the supply curve change, we can analyze what will happen to price and what will happen to quantity.

Activity 1.4

All other things unchanged, what happens to the demand curve for DVD rentals if there is:

1. An increase in the price of movie theatre tickets.

2. A decrease in family income.

3. An increase in the price of DVD rentals.

Note: In answering this, draw and carefully label a set of axes. On the horizontal axis of your graph, show the quantity of DVD rentals. It is necessary to specify the time period to which your quantity pertains (e.g., "per period," "per week," or "per year"). On the vertical axis show the price per DVD rental. Since you do not have specific data on prices and quantities demanded, make a "free-hand" drawing of the curve or curves you are asked to examine. Focus on the general shape and position of the curve(s) before and after events occur. Draw new curve(s) to show what happens in each of the circumstances given. The curves could shift to the left or to the right, or stay where they are.

Activity 1.5

If all other things are unchanged, what happens to the supply curve for DVD rentals if there is:

1. An increase in wages paid to DVD rental store clerks.

2. An increase in the price of DVD rentals.

3. An increase in the number of DVD rental stores.

Draw a graph that shows what happens to the supply curve in each circumstance. The supply curve can shift to the left or to the right, or stay where it is. Remember to label the axes and curves, and remember to specify the time period (e.g., "DVDs rented per week").

Summary

The most fundamental study of economics starts with demand and supply analysis. Demand shows the wants and needs of consumers whereas supply demonstrates the reactions of the producer. The merging of these two tools of economics produces the market equilibrium. The equilibrium price is the price at which the quantity demanded equals the quantity supplied. It is determined by the intersection of the demand and supply curves. A surplus exists if the quantity of a good or service supplied exceeds the quantity demanded at the current price; it causes downward pressure on price. A shortage exists if the quantity of a good or service demanded exceeds the quantity supplied at the current price; it causes upward pressure on price. An increase in demand, all other things unchanged, will cause the equilibrium price to rise; quantity supplied will increase. A decrease in demand will cause the equilibrium price to fall; quantity supplied will decrease. An increase in supply, all other things unchanged, will cause the equilibrium price to fall; quantity demanded will increase. A decrease in supply will cause the equilibrium price to rise; quantity demanded will decrease. To determine what happens to equilibrium price and equilibrium quantity when both the supply and demand curves shift, you must know in which direction each of the curves shifts and the extent to which each curve shifts.

Suggested answers to activities

Feedback

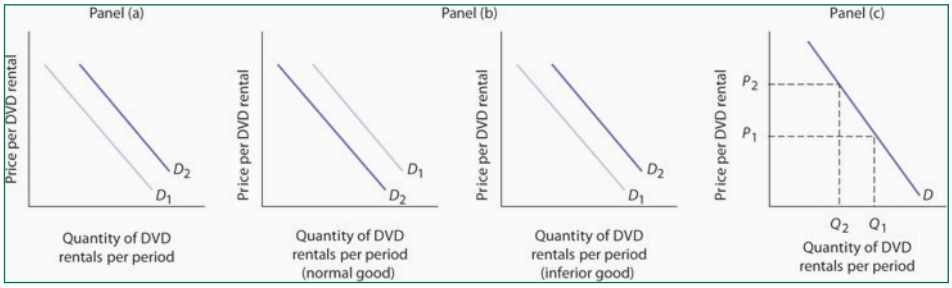
Activity 1.4

Since going to the movies is a substitute for watching a DVD at home, an increase in the price of going to the movies should cause more people to switch from going to the movies to staying at home and renting DVDs. Thus, the demand curve for DVD rentals will shift to the right when the price of movie theatre tickets increases [Panel (a)].

A decrease in family income will cause the demand curve to shift to the left if DVD rentals are a normal good but to the right if DVD rentals are an inferior good. The latter may be the case for some families, since staying at home and watching DVDs is a cheaper form of entertainment than taking the family to the

movies. For most others, however, DVD rentals are probably a normal good [Panel (b)].

An increase in the price of DVD rentals does not shift the demand curve for DVD rentals at all; rather, an increase in price, say from *P*1 to *P*2, is a movement upward to the left along the demand curve. At a higher price, people will rent fewer DVDs, say *Q*2 instead of *Q*1, ceteris paribus [Panel (c)].

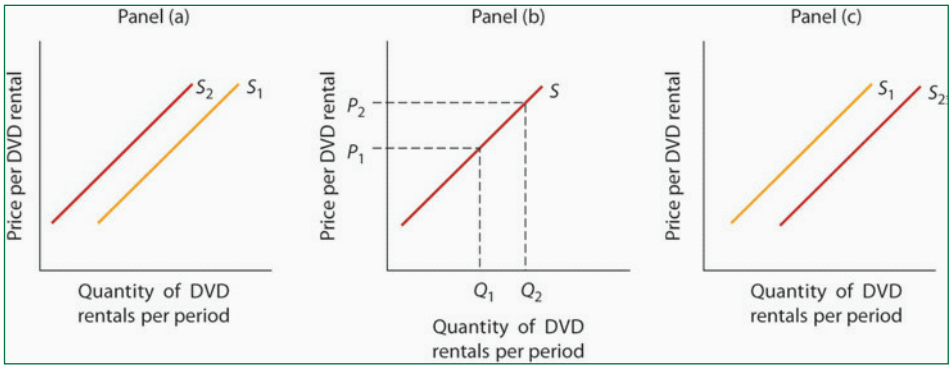


Activity 1.5

DVD rental store clerks are a factor of production in the DVD rental market. An increase in their wages raises the cost of production, thereby causing the supply curve of DVD rentals to shift to the left [Panel (a)].

(*Caution*: It is possible that you thought of the wage increase as an increase in income, a demand shifter that would lead to an increase in demand, but this would be incorrect. The question refers only to wages of DVD rental store clerks. They may rent some DVD, but their impact on total demand would be negligible. Besides, we have no information on what has happened overall to incomes of people who rent DVDs. We do know, however, that the cost of a factor of production, which is a supply shifter, increased.)

An increase in the price of DVD rentals does not shift the supply curve at all; rather, it corresponds to a movement upward to the right along the supply curve. At a higher price of *P*2 instead of *P*1, a greater quantity of DVD rentals, say *Q*2 instead of *Q*1, will be supplied [Panel (b)]. An increase in the number of stores renting DVDs will cause the supply curve to shift to the right [Panel (c)].


Panel (a)
Price per DVD rental
S_2
S_1
Quantity of DVD rentals per period
Panel (b)
Price per DVD rental
P_2
P_1
S
Q_1
Q_2
Quantity of DVD rentals per period
Panel (c)
Price per DVD rental
S_1
S_2
Quantity of DVD rentals per period

Summary of Unit 1

Summary

Economics is the study of human behaviour. There are many factors that influence behaviour. Unit 1 looked at how humans balance their unlimited wants with the scarce resources that are available. Scarcity forces people to make choices as we cannot have everything we want in life. People should focus more on their needs that wants. This is something that is easier said than done.

With the choices made, opportunity cost arises. Opportunity costs are the second best alternative that one has to forego to get the best. In making choices, people would look at the benefits received from goods. That is the economic way of thinking. People will generally look at maximising their self-interest in pursuing their wants. That is why choices are always made at the margin.

The behaviour of human beings is readily observable in a market environment. Demand and supply curves are used in analysing consumer and producer's behaviour in a market orientation. Changes in price and quantity in the market are reflective of the reactions both parties have on the changes in the markets as well as its determinants.