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Economics 1A

Study guide 1 for ECS1501

University of South Africa, Pretoria

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Introduction

Welcome to Economics 1A the first part of the introduction to Economics. We hope that you will find this module mentally stimulating and worthwhile.

PURPOSE OF THE MODULE

The purpose of this module is to gain insight into how a market system addresses the economic problem of scarcity.

This module will prepare you to analyse, interpret and apply knowledge relating to basic microeconomic concepts and principles and prepare you for further studies in the field of economics and management sciences.

MODULE OUTCOMES

After you have studied this module, you should have a fundamental understanding of what economics is all about. You should be able to

- demonstrate your understanding of basic economic concepts
- analyse how market system addresses the economic problem of scarcity through the forces of demand and supply

CRITICAL CROSS- FIELD OUTCOMES

As a student enrolled for a tertiary qualification, you will be exposed to a formative learning experience that should not only educate you in the chosen discipline but also form your character.

The formative nature of the qualification is described in the critical cross-field outcomes that all tertiary qualifications aim to achieve. Critical cross-field outcomes refer to broad generic outcomes encompassing various areas, which all qualifications and standards should aim to promote.

After you have completed this tertiary qualification, you should be able to

- identify and solve problems in such a way that you display responsible decision making using critical and creative thinking
- work effectively with others as a member of a team, group, organisation or community
- organise and manage yourself and your activities responsibly and effectively
- collect, analyse, organise and critically evaluate information
- communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written persuasion
- use science and technology effectively and critically, showing responsibility towards the environment and health of others
- demonstrate an understanding of the world as a set of related systems by recognising that problem solving does not happen in isolation

In order to contribute to your full personal development as a student (and to that of every other student) as well as the social and economic development of society as a whole, any programme of learning should have the underlying intention of making an individual aware of the importance of

- reflecting on and exploring a variety of strategies to learn more effectively
- participating as responsible citizens in the life of local, national and global communities
- being culturally and aesthetically sensitive across a range of social contexts
- exploring education and career opportunities
- developing entrepreneurial opportunities

THE STUDY GUIDES

For many of you, this is probably your first encounter with the formal study of economics. Economics is an interesting, challenging and topical subject, and we trust that you will find it worthwhile and stimulating. We are going to introduce you to fifteen topics in this module. Without letting the cat out of the bag, all these topics deal in some way with the question how markets form prices. Topics 1 to 8 is dealt with in this guide (Study Guide 1), and topics 9 to 15 form part of Study Guide 2.

Study guide 1:

	Topic
1	The study field of economics
2	The economist's toolkit
3	Economic systems
4	Production possibilities curve
5	Circular flow
6	Demand, supply and prices
7	Consumer and producer surplus
8	Changes in demand and supply

Study guide 2:

	Topic
9	Government intervention
10	Price elasticity
11	Other elasticities
12	Theory of demand: Marginal utility analysis
13	Theory of supply: Cost of production
14	Perfect and imperfect competition
15	Labour market

When paging through the study guides, some of you may be alarmed to see symbols, equations and graphs. However, this module requires no specialised knowledge of mathematics. Apart from drawing and interpreting simple graphs, all that is required is addition, subtraction, multiplication and division. Each time you come across equations or calculations you are shown in detail how to obtain the answer.

The main requirements for the study of economics are a willingness to think and an active approach to learning. Economics is not a subject that can simply be memorised – it has to be understood. This means that you will always have to think about what you are studying and that you must try to understand the work.

The solution is to study actively. Use a pen and paper to work out each argument by drawing diagrams, doing calculations, and writing down the logic of the argument. It is not sufficient simply to read the study guide and underline or highlight the key concepts. Do not omit any of the topics. These topics follow a logical pattern and if you skip some topics, you will not be able to follow or understand the reasoning in the module as a whole.

This study guides has two basic functions:

- It provides the content of the module. There is no prescribed book for the module.
- It provides a series of activities you must do to assess your progress and to prepare for the examination. It has been designed in such a way as to guide you through the content in a systematic and informative way and to help you get to know the economist's analytical toolkit.

In each topic you will find the following:

■ **Overview**

In this section, we introduce the topics and discuss how we encounter them in newspapers, in discussions on the bus or in the taxi, or in debates with friends, for example, on the latest change in the petrol price. In this way, you should try to contextualise the topic(s) covered in the learning unit. We also show how each topic fits into and supports the module outcomes.

■ **Outcomes**

Pay close attention to the outcomes of each topic. Remember one of the main functions of the examinations is to evaluate whether you have mastered the outcomes of the module. (Also see the Checklist bullet below).

■ **Activities**

A distinction can be made between two categories of activities namely inline activities and self-assessment activities.

Inline activities form part of the content flow and is an important component of the learning process. It is used to emphasise important points in the content, to check whether you understand the concept, graph or table you are working with, to highlight certain problems areas, to make you aware of the pre-knowledge you might require for a particular section and to make you think a bit deeper and wider about the content. These activities are marked by a vertical line next to it and the answer, guide lines or hints are provided directly after the activity.

Self-assessment activities on the other hand follows once a particular section of the content has been completed. The purpose of these self-assessment activities is not only to provide you with a means to check your understanding of the content but it is also a crucial component of the learning process itself. Teaching and learning are embedded in these self-assessment activities and it is important that you

make use of these self-assessment activities to help you find an understanding of the content. Take to heart the comment by a former student that more learning takes place in these self-assessment activities than in studying the content. The explanations and feedback on the self-assessment activities are provided at the end of each topic.

■ Checklist

The checklist is based on the topic outcomes and, as such, it indicates the things you should be able to do. The outcomes are divided into different categories: Concepts, Explanations, Diagrams and Calculations. These should give you a good indication of the kind of questions you can expect from each learning unit.

Next to the items in the checklist are a number of check boxes: "Well", "Satisfactory" and "Must redo". If you think you are able to do something really well, for instance, explaining the role of prices in a market economy, mark the "Well" box. If you think you are able to explain it but are unsure about certain aspects or find it a bit difficult, mark "Satisfactory". If you are a bit lost but know something about the topic and will benefit from spending more time on it, mark "Must redo". In so doing you will get an indication of what you know well, what you are coping with and on which of the sections you need to spend more time. Do not hesitate to contact one of the lecturers should you need help. See Tutorial Letter 101 for the contact details of the lecturers. (Do not leave this until the evening before the examination.)

IMPORTANT VERBS

As a student you should know exactly what is expected when certain verbs are mentioned in an activity or examination question. The verbs generally used in economics are as follows:

compare	Identify the similarities or differences between facts, viewpoints, concepts or ideas
contrast/distinguish/what is the difference between?	Point out the differences between certain objects or concepts
define	Give a short and concise definition of a subject or topic
describe	Name the characteristics of an object or topic
discuss	Discuss a topic by examining its various aspects
explain	Explain and clarify to ensure that the reader clearly understands you
explain with the aid of (a) diagram(s)	Draw a fully annotated diagram. Make sure all the axes and curves are labelled. Then explain the diagram in such a manner that the reader can follow and understand it, in other words, tell the reader what is happening in the diagram
give/identify/list/name	Give only the facts without any discussion
illustrate	(Usually) explain your answer with the aid of a diagram (or figure)
summarise	State the main points in a brief account

USING DIAGRAMS

To be able to use a diagram (or figure) correctly you must learn to read, to draw and to explain a diagram:

Read: This means you have to understand the determinants (or factors) of each curve and how they affect the specific curve.

Draw: Each diagram, and all its axes and curves, must be labelled. The initial point of equilibrium must be indicated. If it changes, this must also be noted on the diagram.

Explain: You should be able to explain the diagram in words.

The study field of economics

1

OVERVIEW

Every student probably has a vague idea about the subject or contents of economics. The newspapers, radio, television and internet regularly provide information on economic growth, the gold price, the interest rate, the rand-dollar exchange rate, the inflation rate, balance of payments, strikes, unemployment, poverty, and many other aspects of economics. These concepts should become a great deal clearer to you through your studies in economics.

Economics is also about everyday things. It is about the things that affect you, your family, your town, your country and your planet. All of us participate daily as consumers (i.e. buyers of goods and services) and often as employees and employers. The subject of economics is therefore neither unknown nor foreign to you.

Economics is also about how we make choices as individuals and as a society. And our lives are full of choices. Think of all the choices you have made today. Some of these choices are fun to make, such as deciding between having a hamburger or a pizza for lunch. Some are hard choices, such as between buying bread or milk since you do not have income to buy both.

TOPIC OUTCOME

After you have worked through the learning unit, you should be able to

- explain the economic problem of scarcity
- explain the meaning of unlimited needs and wants and scarce resources
- distinguish between scarce goods and free goods
- explain the three fundamental questions
- describe and distinguish between the factors of production and give examples of each
- explain the concept opportunity cost

1.1 The economic problem of scarcity

After you have worked through this section of the learning unit, you should be able to

- explain the economic problem of scarcity

The reason we have to make choices is the existence of scarcity. There is simply not enough time in a day to do all the things you need or want to do. So you are forced to choose between alternatives. Or it might be that you do not have enough income to purchase the goods and services you need and want.

If one looks at different definitions of economics you will see that a central theme is the issue of scarcity. Here are some of the well-known definitions of the field of study of economics:

"Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses" (Lionel Robbins).

"Economics is concerned with wants and resources" (Robert Mundell).

"Economics is the study of scarcity, which results when people want more than can be produced" (Ferguson & Maurice).

"Economics is the study of the use of scarce resources to satisfy unlimited wants" (Richard Lipsey).

"Economics is the study of how people use their limited resources to try to satisfy unlimited wants" (Michael Parkin).

According to these definitions, the economic problem, also referred to as the scarcity problem, arises because the resources that we have available for the production of goods and services are **limited**, while our needs and wants for goods and services are **unlimited**. It is this fundamental problem of scarcity that is the common thread that binds all the topics that are studied in economics.

Let's now explore what unlimited needs and wants and scarce resources actually mean.

1.2 Unlimited needs and wants and scarce resources

After you have worked through this section of the learning unit, you should be able to

- describe unlimited means and wants and scarce resources

Every day we are confronted with many messages telling us that we need certain things. However, we do not really need all of these things – many of them are things we merely want. Needs are things we really require to survive, such as basic food, clean water, shelter and basic clothing.

Wants are things we feel might improve our lives, but we do not really need these things to survive. A luxury car, the latest smartphone, concert tickets your favourite artist's show, designer clothes and accessories are not essential to survive, but are nice to have. We derive satisfaction from consuming these goods, and some goods give us more satisfaction than others. In economics there is a specific term for this feeling of satisfaction – utility.

Have you ever noticed how, once a need or want has been satisfied, there is always something else to take its place? We all would like more food, more love and more free time, because what we have never seems to be enough. Even in wealthy societies, there are people whose wants and needs are never fully satisfied.

Economics then starts from the basis that people's needs and wants are unlimited.

Scarce resources

Economics is not only concerned with needs and wants, but also how best to satisfy these unlimited needs and wants. To this end, we have to consider how these goods and services are able to satisfy our needs and wants. What we find is that the resources at our disposal to produce the goods and services we need and want are limited. There are simply not have enough resources to produce all the things we need and want.

There are over seven billion people on our planet. Imagine the long list of every single person's needs and wants. Now imagine trying to satisfy everyone's needs and wants with the resources available. For example, consider how much food seven billion people need. On earth there is only so much land available that can be used to cultivate the crops to feed everyone. And, to make matters worse, the

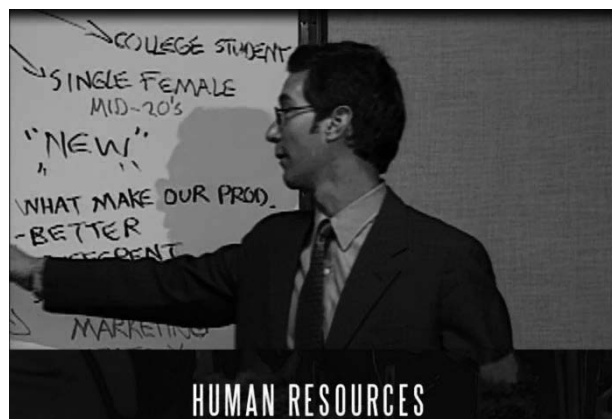
amount of land that is available is decreasing all the time because it is increasingly being used for other things, such as industry, cities or biofuel crops. Added to the fact that as humans we are never fully satisfied, we are indeed facing a severe problem. It is because of these unlimited needs and wants, on the one hand, and our limited resources, on the other, that the economic problem, the scarcity problem, exists. The study of economics is about how we as a society deal and should deal with this scarcity problem.

Resources include everything in the world around us that we can use to produce goods and services to satisfy our needs and wants. It is usually classified in the following three main groups:

natural resources, such as land, water, minerals, animals and plants



human resources, such as entrepreneurs or labour such as economists, builders, architects, accountants, lawyers and cleaners



man-made resources such as machines and infrastructure that are available to use to produce goods – in economics we call these resources capital.



1.3 Scarce goods and free goods

After you have worked through this section of the learning unit, you should be able to

- differentiate between scarce goods and free goods

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 the Lees live in it, the Nguyens 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 neighbor 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 characterizes virtually everything. Consequently, the scope of economics is wide indeed.

Do the following activity on the economic problem before you proceed:

ACTIVITY 1

1.1 Indicate whether the following statements is **true** or **false**:

- a. Scarcity is a problem in poor countries only.
- b. Scarcity is a problem faced by poor households only.
- c. The economic problem of scarcity arises because needs and wants are unlimited and the resources (or means) to fulfil these wants are limited.
- d. An economy's capacity to produce is limited by the quantity and quality of the available resources.
- e. The economic problem of scarcity can be solved by increasing the productivity of resources.
- f. Scarce goods are goods that have no alternative use.
- g. Economics is mainly about the study of free goods.

T	F

1.2 An example of a natural resource is _____.

- a. water
- b. an entrepreneur
- c. a tractor

1.3 An example of a man-made resource is_____.

- a. water
- b. an entrepreneur
- c. a tractor

1.4 An example of a human resources is _____.

- a. water
- b. an entrepreneur
- c. a tractor

1.4 The three fundamental questions

After you have worked through this section of the learning unit, you should be able to

- differentiate between scarce goods and free goods

We have established that economics is the study of how society uses its limited resources to satisfy some of our unlimited wants and needs To deal with the economic problem of scarcity each and every society, whether it's capitalist, or communist, socialist or some other kind of system, needs to answer the following three fundamental questions.

What goods and services to produce

Since we cannot produce all the goods and services that people need and want we need to decide what is the best combination of goods and services that we should produce. This decision then requires that we allocate our scarce resource to the production of these goods and services.

This is indeed a very complicated decision since we need to decide what kind of food and how much of it to produce, what kind of houses and how much houses to build, what kind of education to provide, how much health care and countless more decisions about televisions, clothes, cell phones, beer, cold drinks, etc. We also need to answer the question about what kind of capital goods, that is the machines and tools we use in the production of goods and services, we need to produce. And we to do this under the condition that our resources are scarce which implies that we cannot produce everything and that once a resource is allocate to the production of a good it is not available for the production of another good.

We are all aware of the pressing shortage of housing in South Africa today. But do we really know whether we should build houses or rather concentrate on providing more food? Is the production of food not more important than providing houses? Do we know how much more food could be produced if we built fewer houses?

How to produce the goods and services

Through the process of production our scarce our resources are combined to produce the desired goods and services. It is possible to produce the same product by using different combination of our scarce resources and the challenge to society is to find the most efficient way of producing goods and services. This efficiency requirement is very important since our resources are limited and we cannot afford to waste it by producing the wrong goods and services and/or produce the desired combination of goods and services in an inefficient way. The more effectively and efficiently resources are used, the more goods and services can be produced, and the more needs and wants can be satisfied. So, efficient and effective use of our scarce resources contributes to economic growth and the wealth of our nation.

We as a society are again confronted with difficult decisions. If for instance we decide to build houses should it be built with bricks, wood or concrete blocks? In New York, most construction uses steel or concrete - there is not an abundance of timber for building - whereas in Knysna there are a lot of timber homes, because there are ample and well managed forests. Should we make use of unskilled labour or should we rather use sophisticated building techniques which require large capital outlays?



Capital intensive



Labour intensive

For whom to produce

We produce goods and services to satisfy people's needs and wants. But which people's needs and wants? Who gets the houses, the food, the computers, the cars that we have produced. This question deals with the distribution of goods and services and it is one of the most challenging questions to answer.

Do the following activity on the three fundamental questions:

ACTIVITY 2

Read the following extract from an article which appeared on the website of The New Age newspaper on 4 December 2015 and answer the questions:

Limited university space shuts out scores of students

BATANDWA MALINGO

Thousands of university applicants have been turned away as universities across the country struggle to accommodate growing numbers of young people wanting to study.

At least seven major universities in the country had received a combined total of more than 300 000 first year applications for placements next year, but fewer than 50 000 were accepted for the new academic year.

Admissions had reportedly become competitive and universities were able only to admit a limited number of students.

The number of spaces available was reportedly in line with the enrolment plan approved by the Department of Higher Education and Training.

More than 90 000 first-year applications had been received by the University of Johannesburg, with only 10 500 accepted.

The University of Western Cape received 50 000 applications and had taken a mere 4 500, while Wits University accepted 6 300 students from more than 65 000 applicants.

Rhodes University took in 1 800 from 7 830 applicants while the University of Cape Town accepted 4 200 from more than 19 000 applicants.

Nelson Mandela Metropolitan University had 6 056 students from more than 50 000 applications.

The application period for all these institutions had ended and those whose applications were unsuccessful were urged to find alternative institutions to study.

Source: <http://www.thenewage.co.za/limited-university-space-shuts-out-scores-of-students/>

2.1 Indicate whether you agree or disagree with the following statements:

- a. It is clear from the article that in terms of the question of what to produce the South African society decided to allocate its resources in such a way that its higher education institutions can accept approximately 50 000 new students in 2015.
- b. The number of students that were admitted is less than the number of students that applied to study at higher education institutions.

- c. To increase the number of places the South African society needs to allocate more resources to higher education institutions which can be done very easily since it has an abundance of resources.
 - d. To answer the question for whom to produce, in this case who will be accepted to study, the South African society decided to award the places on a first come first serve basis.
-

1.5 Factors of production

After you have worked through this section of the learning unit, you should be able to

- describe and distinguish between the factors of production

Overview

From the discussion on the economic problem, we know it arises because wants and needs are unlimited and resources are scarce. In a market system, these scarce resources are mainly the following four factors of production: natural resources, labour, capital and entrepreneurship. Natural resources and labour are sometimes called primary factors of production, while capital and entrepreneurship are referred to as secondary factors of production.

These factors of production are important for two reasons: Without them, there can be no production of goods and services. Think about what is needed to produce a wooden table. You need the wood, equipment (a saw and hammer) and you need human resources (labour and entrepreneurship). A second reason why the factors of production are important in a market system is that it is from the ownership of the factors of production that households derive an income.

The factors of production therefore play a key role in solving the three fundamental questions of what to produce, how to produce it and for whom to produce it.

Natural resources

After you have worked through this section of the learning unit, you should be able to:

- describe and identify natural resources and the income that is derived from the ownership of natural resources

Read through the following extract from Stats SA:

Environmental economic accounts for South Africa

The natural environment provides resources – such as water, land and minerals – that drive the economy and other human activities. The effective measurement of the extent of resource use is vital for ensuring the development of successful environmental management policies and sustainability. The United Nations' System of Environmental and Economic Accounts (SEEA), adopted by Stats SA, is the international standard for measuring the amount of natural resources a country has in reserve, and how quickly these reserves are being used.

Stats SA has developed the following environmental economic accounts for South Africa: energy (the amount of energy produced by coal, crude oil, gas, hydro, nuclear, petroleum, waste and renewable resources), minerals (physical stocks and flows, depletion rates, sales and resource rent for gold, coal and platinum group metals (PGMs)) and fisheries (the physical stock of hake, lobster, abalone and horse mackerel caught over time). These are published in the annual Environmental Economic Accounts Compendium report. Discussion documents on the compilation of water accounts have also been published.

http://www.statssa.gov.za/?page_id=5992&paged=2

At current production levels, South Africa has only 39 years of accessible gold reserves remaining, whereas the country still has 335 years of platinum group metal reserves and 256 years of coal reserves. This is according to Stats SA's latest Environmental Economic Accounts Compendium.⁵

Once the world's top producer of gold, dwindling gold reserves have implications for future policies related to the economy, mining and employment.

The influence of mining, as well as manufacturing, on the economy has waned over the decades. Manufacturing was the largest industry in 1980, contributing 22% to GDP. In other words, for every R100 of value add that the South African economy produced that year, R22 was due to manufacturing. By 2016, its contribution had fallen to 13%.

Mining's contribution increased during the 1970s and peaked at 21% in 1980. Contributing to the upward surge in 1980 was a relatively high gold price. In 1987, mining employed just over 760 000 individuals. In 2016, the industry contributed only 8% to GDP, employing 438 000 individuals in the third quarter of that year.⁶

Agriculture also slipped in economic ranking to fall from seventh to tenth place, contributing 2% to GDP in 2016.

<http://www.statssa.gov.za/?p=10718>

A natural resource is anything that people can use which comes from nature. Because this factor of production is not created primarily by human endeavour, most of the various natural resources are given and can often not be increased at will.

Note the following examples of natural resources:

- air, water and soil
- biological resources (e.g. plants and animals)
- raw materials (e.g. minerals)
- space and land
- wind, geothermal, tidal and solar energy

Natural resources are often classified into renewable, flow and non-renewable resources.

Renewable resources are usually living and can therefore renew themselves, assuming they are not killed off or overharvested. Good examples of renewable sources are trees (forests and woodlands) crops, and livestock like fish. Water and soil are also renewable sources, but they are classified as non-living.

The tides, solar power and wind can be classified as **flow renewable resources**. They are all renewable, but they do not need regeneration or re-growth.

Non-renewable resources are those which cannot be replaced once they have been used up or harvested. This includes fossil fuels, coal and petroleum.

Most natural resources are limited, but with the aid of technology, they can be made more productive. For example, fertilisers have improved the quality of land, thus making more land available for agriculture, and improved drilling technology has opened up oil deposits in frozen areas such as Alaska. Nevertheless, as natural resources are limited (in fixed supply), exploiting them should be carefully considered. Overexploitation or rapid (fast) exploitation can cause terrible environmental damage as well as long-term economic, environmental and human suffering.

Income from natural resources

The owners of natural resources earn an income in the form of rent from it. In everyday usage, the word "rent" has different meanings. Many people rent their houses, offices and shops. Included in this rent is the rent for both the land on which the house, office or shop is situated and the building itself. The concept of rent is also used in connection with the rental of a car or computer.

When we use the concept of rent in the field of natural resources, we refer to the payment made to the owners of natural resources for the use of the natural resources. It excludes the rental payments for the improvements on the land, such as a building or factory.

ACTIVITY 3

3.1 Which of the following is not an example of a natural resource?

- a. A cell phone
- b. Water
- c. Oil
- d. Coal

3.2 Indicate whether the following statement is true or false:

- a. Many natural resources come from the earth and are therefore unlimited.
- b. Owners of natural resources receive rent as income for making natural resources available for the production of goods and services.

Labour

After you have worked through this section of the learning unit, you should be able to:

- describe and identify labour and the income that is derived from the ownership of labour

Read through the following extract from Stats SA about job losses in South Africa

More bad news for job-seekers

More bad news looms for job-seekers as the formal non-agricultural sector of the economy reported a decline of 34 000 jobs for the quarter ended June 2017. This is according to the latest Quarterly Employment Statistics (QES) report released by Statistics South Africa. The QES data tracks changes in employment at the establishment level, and thus provide a picture of aggregate employment growth statistics.

There was a decline in employment in both the March 2017 and June 2017 quarters. The QES recorded consecutive losses of 41 000 jobs and 34 000 jobs over the last two quarters, respectively.

The manufacturing industry reported the highest job loss of 13 000 employees. This was followed by losses in the construction industry with 11 000 jobs, the community and social services industry with 10 000 jobs, the transport and communication industry with 5 000 jobs and the business services industry with 1 000 jobs.

However, the mining industry created 3 000 jobs in the quarter ended June 2017. This is the second quarter in succession where jobs were created in the mining industry. The trade industry made a recovery of 3 000 jobs in the current quarter from a decline of 30 000 jobs in March 2017.

Job levels in the electricity industry remained unchanged.

Gross earnings for the quarter ended June 2017 continued on a downward trend with a decline by R2,3 billion. This follows a decline of R19,5 billion in the previous quarter. The total amount of gross earnings measured for the quarter was R585 billion. This is down from R587 billion.

The decline in earnings was driven by the business services industry with a quarter-on-quarter decrease of R13,6 billion. This follows three successive quarters of positive growth in earnings. Despite the overall decline, earnings in the mining sector increased by R182 million, manufacturing increased by R144 million, electricity increased by R44 million, construction increased by R469 million, trade increased by R970 million, transport increased by R1,8 billion and community services increased by R7,4 billion.

Average monthly earnings were measured at R18 666 in the formal non-agricultural sector of the economy for the June 2017 quarter. This is an increase of 1,7% from the previous quarter and an increase of 1,4% from the same quarter in 2016.

<http://www.statssa.gov.za/?p=10509>

According to economists, an important cause of job losses is the inflexibility of the labour market.

The following is an extract by Dieter von Fintel (2015) on the issue of the flexibility of the South African labour market.

How flexible is the South African labour market in the short and long run?

The inflexibility of the labour market has become a common scapegoat to explain the low rate of employment and the muted growth of (especially small) firms in South Africa. It is argued that employee-friendly labour laws put workers in a strong position vis-à-vis employers to bargain for high wages despite a crippling unemployment rate and a low growth of labour productivity (Fedderke 2012; Klein 2012). The World Competitiveness Report of the World Economic Forum (WEF) consistently rates the SA labour market among the least efficient in the world. Many argue that liberalizing the labour market to allow greater wage flexibility and to reduce the constraints on firing workers would go a long way towards solving the unemployment problem.

He then reaches the conclusion that

... new evidence shows that only in specific contexts (unionized workers in the short run) does wage rigidity restrain the ability of the labour market to absorb workers. In the long run, wages are much more flexible and structural factors explain more of the unemployment puzzle. The policy debate on unemployment and wage flexibility needs to take these subtleties into account.

<http://www.econ3x3.org/article/how-flexible-south-african-labour-market-short-and-long-run>

Labour is the human effort that is put into the production of goods and services, and includes both physical and mental effort. For example, writing a book involves both physical effort – typing – and mental effort – using the brain for research and creativity.

In modern societies, this concept is usually limited to remunerative activities, with the result that, say, amateur sport and a housewife's labour are excluded. This description is inadequate when applied to developing countries or the economies of earlier societies. In such communities, the bulk of production is intended for the consumption of the producer, so that remunerative activities represent only a fraction of the productive effort of the labour force.

When we talk about labour, we need to separate it into the quality and the quantity of labour.

The quantity of labour refers to the size of a population, the number of people who are of a working age (15–64 years old), and who are willing and able to work.

The quality of labour refers to the skill, knowledge and health of workers. The quality of labour is also often called human capital. Human capital is becoming increasingly important in modern production processes. Even more important than the quantity of labour is the quality of labour. Many economists believe that the difference in living standards between countries is mainly due to differences in human capital. The higher the quality of human capital in a country, the higher the productivity of labour, and the more goods and services are produced to satisfy needs and wants.

The assertion that labour is available only in limited quantities requires some comment since it is common knowledge that many countries are struggling with the problem of overpopulation. Bear in mind, however, that the productivity of a labour force depends not only on the number of labourers available, but also on the strength, health, skills and training of the workers concerned. So it is possible for a country to have an oversupply of unskilled labour but a shortage of skilled labour.

Income from labour

In return for providing firms with labour services, the owners of these labour services receive remuneration in the form of wages and salaries, royalties, commissions, management and consultancy fees, bonuses and fringe benefits (housing, medical aid, pension contributions, etc.).

In a market system, the underlying forces that determine the level of wages and the difference in wages are linked to the forces of demand and supply. The demand for labour is based on the demand for goods and services that are to be produced with labour. The remuneration of labour will depend on two things, namely the demand for the goods and services produced by labour and how valuable the person is to the firm.

Do the following activity which deals with the factor of production labour:

ACTIVITY 4

Indicate whether the following statements is **true** or **false**:

- 4.1 The factor of production labour only refers to physical labour.
- 4.2 In South Africa, the quality of labour is just as important as the size of the labour force.
- 4.3 The term "human capital" refers to the number of workers.

T	F

Capital

After you have worked through this section of the learning unit, you should be able to:

- describe and identify capital and the income that is derived from the ownership of capital

On the issue of white monopoly capital, Lucien van der Walt (2016) writes:

Existing alongside vast private companies – not all of which fit the label "white monopoly capital" is another massive economic force, the state apparatus – the biggest single employer, landowner, income earning institution, and by any reasonable measure, the dominant 'monopoly capital' in electricity, rail, roads, forestry, television, sectors of banking, higher education and elsewhere.

South Africa, I argue, is controlled by a single ruling class, divided into two sectors: a (largely white) private sector elite, and a (largely black) state elite. This is united at both a deep structural level, through common interests and interdependence, and at a more conjunctural level, by current neo-liberal programmes and alliances, among which note can be made of the Growth Employment and Redistribution (Gear) Strategy (1996) or the fact that almost every single cabinet minister is a shareholder in one or more companies. It is not held together by the corruption of a few people, or by incorrect programmes, not by poor state leadership, not even by the ANC, all of which can be changed.

The state can no more be wielded against private capitalists than one brick in a wall can fight another – and capitalism and the state can no more lose their character of exploitation and domination than a wall can become an aeroplane. Efforts to capture the state can, at most, lead to a few people, mainly party leaders, joining the ruling class – nothing more.

The strategic task must then become one of building a movement outside and against the private and state corporations and the state more generally, by the broad working class (including the unemployed), which is both victim and potential destroyer of the system.

<https://lucienvanderwalt.wordpress.com/2016/01/20/analysis-pdf-lucien-van-der-walt-2015-beyond-white-monopoly-capital-who-owns-south-africa-in-south-african-labour-bulletin/>

Capital comprises all manufactured resources, such as machines, tools and buildings, which are used in production of other goods and services. This includes the entire range of durable equipment, from hammers, saws and other simple tools, to aircraft, ships, electronic computers and nuclear reactors.

The characteristic of a capital good that makes it different from other goods is that it is created with the specific aim of producing goods and services. Consumer goods satisfy wants directly, whereas capital goods, which are used in the production of consumer goods, satisfy wants indirectly. Capital goods also differ from raw materials and intermediate goods in the sense that they are not used up immediately in the process of production. They are used over and over again in the process of production.

An economist's use of "capital" differs from that of the man in the street. If the economist refers to capital, he or she means "real" capital ("equipment") and not money. Money is not a resource that can be used directly in production. However, money does make it possible to purchase capital and other goods.

One reason why capital goods are scarce is that saving, which is abstaining from consumption, is a necessary prerequisite for capital formation or investment. This means that people are not buying and consuming as many goods and services as they otherwise would, so that resources are released from the production of consumer goods and made available for the production of capital goods. If a community insists on using all its factors of production for producing consumer goods, obviously it cannot produce any capital goods at all.

Capital goods play a vital role in creating production capacity. The more machines, factories and tools we have, the more goods and services we can produce. The better the quality of these machines and so forth, the more productive we can be; and the more productive we are, the higher our economic growth will be.

Income from capital

The reward for capital is the interest payment that the owner of capital receives for making his or her capital available for production. This is expressed as an annual percentage of the amount loaned to purchase the capital goods and is called the interest rate. In the case of a loan of R1 000 000 and an interest payment of R100 000, the interest rate received is equal to 10% per annum since $R100\,000 \div R1\,000\,000 \times 100 = 10\%$. The interest rate is determined in the financial and capital markets.

Do the following activity which deals with the factor of production capital:

ACTIVITY 5

- 5.1 The factor of production capital is created when ____.
- Mr Bee buys existing shares on the stock exchange
 - Mrs Dee inherits R5 million from her grandfather
 - the Conrad Business School builds a new classroom
- 5.2 Which of the following is not a factor of production?
- Young migrant workers
 - Infrastructure such as highways
 - Money held in bank and building society accounts
 - Unexploited gas reserves in the Karoo
- 5.3 Thandi owns a building that she rents out to Patrick. Geoff owns agricultural land that he rents to Glynis, who uses it to produce tomatoes. Temba works as a clerk for an auditing firm.
- What are the earnings of the following people which they derive from the ownership of the factors of production?
- Thandi _____
 - Geoff _____
 - Themba _____

Entrepreneurship

After you have worked through this section of the learning unit, you should be able to:

- describe and identify entrepreneurship and the income that is derived from the ownership of entrepreneurship

The following is a post by an unknown user on the MyMedia24 website about the difficulties of being an entrepreneur:

Unemployment and the Missing Key Factor of Production

Why does the Government keep promising more jobs for the jobless in South Africa when they know deep in their heart that there will be no improvement of employment in the formal and to a lesser extent in the informal sector until such time they understand and address the four factors of production?

Politicians promise that they will create jobs – how? Where will these jobs come from?

The four factors of production, Labour, Capital, Natural Resources, and Entrepreneurship are key

to the improvement and sustainability of any economy. Although all factors are as important as the other, it must be stressed that entrepreneurship is the vital and most important key to South Africa's future growth and prosperity.

South Africa is blessed with natural resources and labour, capital is abundant. The only element missing in South Africa is entrepreneurship.

Just try and approach 1 of the big 4 for money to start or expand your own business – impossible.

I have a business which I am trying to expand. I also have three employees. The business proposal is thorough, cash flow predictions are conservative, I have a customer base, I am listed as a supplier with 1 of South Africa's major retail chains but still the banks won't budge until you have 50% collateral before they extend cash.

How bizarre, so in order to obtain R 500,000 you need to lodge R 250,000 as collateral. Now why would you ask for cash in the first place? I still say that in order to obtain a loan from any bank, you need to give them 20 reasons why you don't need the loan until they grant you a loan. Please bear in mind that the big 4 annually post inflation beating profits.

Banks are on a self-fulfilling mission to tell the public at large that they are there to assist small business – they are not!!

Whilst millions are poured into advertising and sport, banks are missing the point. Why not plough this money into small business?

I approached the DTI for funding, just as frustrating. When I called, the dear lady promised me she would send an email with all the avenues to funding. What a joke? – I received an email with 5 entities which provide funding. It looked like the document was compiled at the last minute and none of them can help anyway.

Now I ask you, how does the small business expand with no access to finance from the formal sector.

Until the South African Government as well as the big banks understand that the only way to grow an economy is through promoting and financing small business thereby creating employment, the jobs problem in this country will only worsen.

Stop promising jobs when you don't know where they are going to come from for cheap electioneering.

You need to assist small business.

<https://www.news24.com/MyNews24/Unemployment-and-factors-of-production-20121112>

Entrepreneurship is the willingness to take risks and develop, organise and manage a business venture in a competitive global marketplace that is constantly evolving. Entrepreneurs are pioneers, innovators, leaders and inventors.

The way in which land, labour and capital are combined and organised in the production process is the function of the entrepreneur (from the French word entrepreneur – someone who undertakes). Without the vision of the entrepreneur, labour and other resources would remain largely unrealised potential. The entrepreneur is also the innovator who comes to the fore with new goods or new production techniques. That is why he or she is at the same time the bearer of risk – his or her time, effort, reputation and own funds (and those of others) are at stake should the innovation fail. The entrepreneur

is also responsible for the taking of non-routine decisions in the management of the enterprise.

Capable, energetic and imaginative entrepreneurs are perhaps the most valuable of all productive resources.

Income from entrepreneurship

Profit is the remuneration of the entrepreneur, who is the driving force in a market economy. In all the activities undertaken by entrepreneurs, they face the risk of failure. Why do you think they are willing to undertake this risk of failure?

In a market economy, the possibility of making a profit is a strong incentive for entrepreneurs to undertake the risk associated with the establishment of new enterprises. Typically, an entrepreneur will weigh the risk of failure against the probability of making a profit. If the probability of making a profit outweighs the risk involved, the entrepreneur will be willing to undertake the enterprise. If the entrepreneur is successful in providing the right product, at the right price and the right time, to the right consumers, he or she will be able to make a profit.

Profits are the difference between the revenue received from selling the good or service to the market and the cost of producing the good or service. If revenue exceeds the cost of production, a profit is made. If the revenue is less than the cost of production, a loss is made. The amount of profit a business makes is determined by how successful the business is. It is not possible to determine beforehand what the profit will be. The amount earned by the entrepreneur might change from one period to the next. There is no guarantee that a profit will be made. Whether or not a profit is made depends on how successful the entrepreneur is. The more successful the entrepreneur is, the higher his or her profits will be.

Do the following activity which deals with the factors of production:

ACTIVITY 6

6.1 Individuals who are willing to take risks, bring resources together, develop new products and start new businesses are referred to as _____.

- a. entrepreneurs
- b. resources
- c. services

6.2 Indicate whether the following statement is true or false:

Without entrepreneurship economic success cannot be guaranteed.

- a. true
- b. false

6.3 The payment for entrepreneurship is _____.

- a. wages
- b. interest
- c. profits
- d. rent

6.4 Choose the appropriate factor of production in brackets.

One of the best known entrepreneurs in South Africa is Sol Kerzner, who developed the Sun City/Lost City hotel complex near Rustenburg. He saw the opportunity to provide a service with which he could help to satisfy people's needs for tourism and entertainment. He bought land,

which is (a natural resource, capital, labour) to build the hotel complex on.

He then bought or hired the necessary machines and tools (natural resources, capital, labour) to have the complex built, and employed people (natural resources, capital, labour) to construct the hotels and maintain them afterwards. Services are constantly being supplied to the guests with the help of devices such as cleaning equipment, refrigerators, buses, boats (natural resources, capital, labour) for pleasure rides, and so on.

1.6 Opportunity cost

After you have worked through this section of the learning unit, you should be able to

- define and explain opportunity cost

Overview

Resources are limited, while needs and wants are unlimited. We are therefore faced with the economic problem of scarcity, which forces us as individuals and as a society to continuously make choices about how our scarce resources are to be used to satisfy our needs and wants. In this section, we will argue that whenever a choice is made, it involves a cost that is known as the opportunity cost of the choice. We will also show that because of the existence of opportunity cost, there is no thing such as a "free lunch", which basically means that it is impossible to get something for nothing since the cost of something is ultimately borne by someone in a particular society.

Opportunity cost of studying economics

Since you are reading this, it can be safely assumed that you have made a choice to study economics. The question that arises here is – what is the opportunity cost of your choice to study economics?

Before we formally define opportunity cost, you need to do the following:

Reflect on the cost of this choice by considering the following two questions:

- How much does it cost you to study economics?
- What did you give up to study economics?

The easier question to answer is the one about how much it will cost you to study economics. This is usually interpreted as meaning how much money you would have to pay to study the course. This would include the course fee which, in 2017, is R1 950 for ECS1501 (the course you are registered for). If you require a textbook for the course, then the cost of the book becomes part of the cost of studying economics. This also applies to any printing costs.

If these costs are paid by your parents, family members or a bursary scheme it might cost you nothing, but the cost is borne by someone, which means that it is by no means free.

The second question is a more tricky, and goes to the heart of the concept of opportunity cost. The question is – what would you be doing if you were not studying economics?

These costs could be in the form of wages that you could have earned instead of using your time to study; or it could be those things you could be doing if you were not studying.

To determine the opportunity cost of studying for this course, you need to include not only the monetary cost of studying the course, but also those things that you have to give up in order to study.

Opportunity cost is therefore a broader concept than simply the amount you have to pay, because it also includes the best alternative that you have to give up in order to do what you are doing.

Based on the above, we can formally define opportunity cost of a choice as follows:

Opportunity cost is the value to the decision maker of the best alternative that is given up.

Note that it is not the value of all the alternatives that are given up, but only the value of the best alternative.

Do the following activities on opportunity cost.

ACTIVITY 7

7.1 You are given the following information about a student who is studying economics:

Course fee:	R2 000
Internet connectivity:	R300
Hardware and software cost:	R1 000
Cost of food:	R3 000
Travel cost to examination centre:	R120
Wages the student could have earned if not studying economics:	R8 000

Use this information to calculate the opportunity cost of studying economics for the student.

7.2 It is Saturday, and Mpho decides to attend a soccer league match which costs her R250 and takes up two hours of her time. If she had not attended the soccer match, she would have read a couple of magazines.

Her opportunity cost to attend the soccer league match is

- a. R250, plus the value of reading the magazines
- b. only R250
- c. only the value of reading the magazines
- d. zero because it is a Saturday and these are recreational activities

7.3 It is Saturday, and Peter decides to attend a soccer league match which costs him R250 and takes up two hours of his time. He is supposed to mow the lawn, but decides to hire someone to do it at R50 per hour while he is at the soccer match. It will take two hours to mow the lawn.

His opportunity cost to attend the soccer league match is

- a. R250 for the soccer match
- b. R100 that he must pay someone to mow the lawn
- c. R350, which is the R250 for the match and R100 for the mowing the lawn

7.4 Glenda works as a consultant and earns R500 per hour. It is Saturday, and she decides to attend a soccer league match instead of working. The cost of the soccer match is R250 and it takes up two hours of her time.

Her opportunity cost to attend the soccer match is

- a. R250 for the soccer match
- b. R1 000 she could have earned working
- c. R1 250, which is the cost of the attending the soccer match, plus the lost earning of R1 000

The opportunity cost to society

Up to this point when we calculated the cost of studying economics we have only the cost to you or your family. Economists, however, are not only interested in the opportunity cost to the individual, but also the opportunity cost to society. The question then is how much does it cost society to provide a student with the opportunity to study economics. To calculate this cost, we need to include the subsidy that government pays towards higher education.

For a hypothetical student, the calculation of the opportunity cost to society might be as follows:

Course fee:	R2 000
Internet connectivity:	R300
Hardware and software cost:	R1 000
Subsidy by government:	R2 400
Travel cost to examination centre:	R120
Wages the student could have earned if not studying economics:	R8 000

According to these figures, the opportunity cost to provide a student with an opportunity to study economics is R13 829, which is significantly more than the direct monetary cost to the student.

The reason forgone (forgo: to do without) wages are included is because society is losing the contribution to production that the student could have made if he or she were not studying. It is a loss to society and therefore part of the cost.

It is not only individuals and households that face opportunity cost, but businesses and governments as well.

Businesses make a variety of decisions on a daily basis and each of these decisions implies an opportunity cost. If a business, for instance, decides to use its personnel to upgrade its customer database, the opportunity cost might be not using the personnel to update the sales database. Opening a new factory might also involve an opportunity cost in terms of not investing in equipment to improve the efficiency of the existing factory.

The South African government also faces opportunity costs. It strives to provide housing, electricity, running water, free health services, education and jobs to South Africans. However, because resources are limited, it will have to decide what must be done first and what will have to be postponed until later. The best alternative that is not undertaken is then the opportunity cost of the current choice. If the government decides to provide free higher education and the best alternative for the use of this money is the creation of jobs, then the opportunity cost of free higher education is the jobs that are not created.

As you can see from the above, the concept of opportunity cost may be applied to many different situations and arises when we need to make a choice between different alternatives. While opportunity cost is usually expressed in terms of money – as was done in the example of the student studying economics – it can also be done in term of hours spent or some kind of output measure.

Consider the following example:

In the following hypothetical country, laptops and mobile phones are produced using the country's resources. If all the resources are used, the country can produce the following combination of laptops and mobile phones:

Production of laptop and mobile phones

Combinations	Laptops	Mobile phones
A	3 000	18 000
B	4 000	10 000

The information in the above table shows that the opportunity cost of increasing the production of laptops from 3 000 to 4 000, that is, by 1 000, is the loss of the production of mobile phones from 18 000 to 10 000. The opportunity cost of increasing the production of laptops by 1 000 is therefore 8 000 mobile phones.

Now do the following activities on opportunity cost:

ACTIVITY 8

- 8.1 A small business owns the building in which it operates and therefore pays no rent. This then implies that there is no opportunity cost for the business with regard to the building.
 - a. true
 - b. false
- 8.2 Johannes is currently working as a computer programmer for a large corporation and earns R500 000 per year. He is considering starting his own business and is currently estimating the opportunity cost of doing so. Should he include the loss of his current income as part of the opportunity cost to start his own business?
 - a. Yes, he should include it.
 - b. No, he should not include it.

There is no such thing as free higher education.

It is estimated that to provide free higher education for students will cost around R100 billion per year. In applying the concept of opportunity cost to free higher education, economists would put forward the following argument:

There is no such thing as free higher education because someone has to pay for it. As a society, we will need to make a decision about who will pay for it. But even if the R100 billion could be found before it is used to finance higher education, the alternative uses of the R100 billion should also be considered. Should we not spend it on primary and tertiary education or health or job creation? To be able to make this decision we need to do a cost benefit analysis.

ANSWERS TO THE ACTIVITIES

Activity 1

1.1

a. False.

Both poor and rich countries experience scarcity since the problem of scarcity arises because needs and wants are unlimited and the resources (or means) to fulfil these needs and wants are limited. People in rich countries also have wants that are not satisfied. For example, they might want a third car or a bigger house.

b. False.

Both poor and rich households experience scarcity since the problem of scarcity arises because needs and wants are unlimited and the resources (or means) to fulfil these wants are limited. Rich people also have wants that are not fully satisfied. For instance, they might want a third car or a bigger house.

c. True,

We have unlimited needs and wants, on the one hand, and scarce resources, on the other, which leads to scarcity. In economics we study how a society deals and should deal with this scarcity problem.

d. True.

Resources are required to produce goods and services resources. The more and better the quality of the resources, the greater the capacity will be to produce goods and services to satisfy needs and wants.

e. False.

The scarcity problem arises because our needs and wants are unlimited. While an increase in the productivity of our resources increases our capacity to produce more goods and services, it will still not be enough to satisfy all our needs and wants since our needs and wants are unlimited. Our needs and wants will always exceed or outstrip our resources.

f. False.

Scarce goods have alternative uses.

g. False.

Economics mainly studies scarce goods.

1.2. Water is an example of natural resources, an entrepreneur is an example of human resources and a tractor is an example of man-made resources (capital).

1.3. A tractor is an example of man-made resources (capital), water is an example of natural resources and an entrepreneur is an example of human resources.

1.4. An entrepreneur is an example of a human resources, a tractor is an example of man-made resources (capital) and water is an example of natural resources

Activity 2

2.1

- a. You should agree since only 50 000 new students can be accommodated at our higher education institutions.
- b. You should agree since the number of students that were admitted is 50 000 while the number that applied were 300 000.
- c. The statement is only partially correct. If we wish to increase the number of places we need to allocate more resources to higher education institutions but we cannot do it easily because we do not have an abundance of resources to allocate. Our resources are scarce.
- d. You should disagree since the allocation of the places is awarded on a number of criteria such as such as APS scores and scores for National Benchmark Tests as well as ability to pay.

Activity 3

3.1 The correct option is a.

It is a cell phone. Bear in mind that natural resources are not made by humans. They are "gifts of nature".

3.2

- a. The statement is false.

Natural resources do come from the earth, but they are scarce and must be used with great care. For example, humans cannot survive without water. If water is not available, the human race will die out.

- b. The statement is true.

The owners of natural resources earn an income in the form of rent from these resources.

Activity 4

4.1 The statement is false.

Labour refers to human effort that is put into the production of goods and services, and includes both physical and mental effort

4.2 The statement is false.

In South Africa, the quality of the labour is more important than the size of the labour force.

4.3 The statement is false.

The term "human capital" refers to knowledge, talents, skills, abilities, experience, intelligence, training, judgment, and wisdom of the labour force and not to the number of workers.

Activity 5

5.1 The correct option is c.

Capital is something that is created to be used in the production of goods and services. These include things such as machines, tools and buildings. When the Conrad Business School builds a new classroom, the classroom will be used to provide educational services.

When Mr Bee buys existing shares on the stock exchange, no capital goods are created. He is making a financial investment.

Mrs Dee is lucky because she has inherited financial wealth from her grandfather. No capital goods have been created in the process.

5.2 The correct option is c.

Young migrant workers are part of the factor of production labour. Infrastructure development are part of the factor of production capital. Unexploited gas reserves are part of the factor of production natural resources. Money, however, is not a factor of production.

5.3

a. Thandi – interest

b. Geoff – rent

c. Temba – wages

Thandi rents out a capital good and her income is interest. Geoff rents out agricultural land which is part of natural resources and his income is rent. Themba sells his labour and receives wages for it.

Activity 6

6.1 The correct option is a.

It is the entrepreneurs in a market economy who are willing to take risks, bring resources together, develop new products and start new businesses.

6.2 The statement is true.

6.3 The correct option is c.

The payment for entrepreneurship is profits.

6.4 One of the best known entrepreneurs in South Africa is Sol Kerzner, who developed the Sun City/Lost City hotel complex near Rustenburg. He saw the opportunity to provide a service with which he could help to satisfy people's needs for tourism and entertainment. He bought land, which is (a natural resource) to build the hotel complex on.

He then bought or hired the necessary machines and tools (capital) to have the complex built, and employed people (labour) to construct the hotels and maintain them afterwards. Services are constantly being supplied to the guests with the help of devices such as cleaning equipment, refrigerators, buses, boats (capital) for pleasure rides, and so on.

Activity 7

7.1 It is R11 420. The only item that is not included in calculating the opportunity cost is the cost of food. Even if the student is not studying, he or she still has to eat.

7.2 a. She pays R250 for the match and loses the value of reading her magazines. The R250, plus the satisfaction of reading magazines, is her opportunity cost.

7.3 c. His opportunity cost is the R250 for the soccer match and the R100 he pays for someone to mow the lawn.

7.4 c. Her opportunity cost is equal to the R250 for the soccer match and the R1 000 she loses by not working.

Activity 8

- 8.1 False. The best alternative use of the building is the opportunity cost of the small business using the building for their own operation. For instance, the owners of the business could have rented out the building and rented more suitable premises elsewhere. When economists calculate the cost of doing business, they include this alternative use as part of the cost.
- 8.2 He should include it. Opportunity cost is the value to the decision maker of the best alternative that is given up or sacrificed. Johannes is giving up his salary of R500 000 per year, and it should therefore be part of his opportunity cost.

CHECKLIST

	Well	Satisfactory	Must redo
Concepts and explanations			
I am able to			
explain the economic problem of scarcity			
distinguish between unlimited wants and needs			
identify the three main scarce resources			
distinguish between scarce and free goods			
identify and describe the three fundamental economic questions (what?, how? and for whom?)			
define the four factors of production and to give examples of each			
distinguish between the incomes of the factors of production			
explain why money is not a factor of production			
define opportunity cost			
explain why scarcity of resources leads to opportunity costs			
give examples of opportunity cost			

The economists' tool kit 2

TOPIC OUTCOME

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 peoples; 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:

- Economists give special emphasis to the role of opportunity costs in their analysis of choices.
- Economists assume that individuals make choices that seek to maximize the value of some objective, and that they define their objectives in terms of their own self-interest.
- Individuals maximize 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 maximize the value of objectives that serve their self-interest, and a focus on the effects of small changes are ideas of great power.

Economics differs from other social sciences because of its emphasis on opportunity cost, the assumption of maximization in terms of one's own self-interest, and the analysis of choices at the margin. But certainly much of the basic methodology of economics and many of its difficulties are common to every social science—indeed, to every science. This section explores the application of the scientific method to economics.

TOPIC OUTCOME

After you have worked through this learning unit, you should be able to

- explain how economists test hypotheses, develop economic theories, and use models in their analyses.
- explain how the all-other-things unchanged (*ceteris paribus*) problem and the fallacy of false cause affect the testing of economic hypotheses and how economists try to overcome these problems.
- distinguish between normative and positive statements.
- distinguish between microeconomics and macroeconomics

2.1 Scientific method

Researchers often examine relationships between variables. A variable is something whose value can change. By contrast, a constant is something whose value does not change. The speed at which a car is traveling is an example of a variable. The number of minutes in an hour is an example of a constant.

Research is generally conducted within a framework called the scientific method, a systematic set of procedures through which knowledge is created. In the scientific method, hypotheses are suggested and then tested. A hypothesis is an assertion of a relationship between two or more variables that could be proven to be false. A statement is not a hypothesis if no conceivable test could show it to be false. The statement “Plants like sunshine” is not a hypothesis; there is no way to test whether plants like sunshine or not, so it is impossible to prove the statement false. The statement “Increased solar radiation increases the rate of plant growth” is a hypothesis; experiments could be done to show the relationship between solar radiation and plant growth. If solar radiation were shown to be unrelated to plant growth or to retard plant growth, then the hypothesis would be demonstrated to be false.

If a test reveals that a particular hypothesis is false, then the hypothesis is rejected or modified. In the case of the hypothesis about solar radiation and plant growth, we would probably find that more sunlight increases plant growth over some range but that too much can actually retard plant growth. Such results would lead us to modify our hypothesis about the relationship between solar radiation and plant growth.

If the tests of a hypothesis yield results consistent with it, then further tests are conducted. A hypothesis that has not been rejected after widespread testing and that wins general acceptance is commonly called a theory. A theory that has been subjected to even more testing and that has won virtually universal acceptance becomes a law.

Even a hypothesis that has achieved the status of a law cannot be proven true. There is always a possibility that someone may find a case that invalidates the hypothesis. That possibility means that nothing in economics, or in any other social science, or in any science, can ever be proven true. We can have great confidence in a particular proposition, but it is always a mistake to assert that it is “proven.”

2.2 Models in economics

All scientific thought involves simplifications of reality. The real world is far too complex for the human mind—or the most powerful computer—to consider. Scientists use models instead. A model is a set of simplifying assumptions about some aspect of the real world. Models are always based on assumed conditions that are simpler than those of the real world. A model of the real world cannot be the real world.

We will encounter our first economic model in the Unit 4 dealing with the production possibilities curve. For that model, we will assume that an economy can produce only two goods. Then we will explore the model of demand and supply in Unit 6. One of the assumptions we will make there is that all the goods produced by firms in a particular market are identical. Of course, real economies and real markets are not that simple. Reality is never as simple as a model; one point of a model is to simplify the world to improve our understanding of it.

Economists often use graphs to represent economic models. This unit provides a quick, refresher course, if you think you need one, on understanding, building, and using graphs.

Models in economics also help us to generate hypotheses about the real world. In the next section, we will examine some of the problems we encounter in testing those hypotheses.

2.3 Testing hypotheses in economics

Here is a hypothesis suggested by the model of demand and supply: an increase in the price of petrol will reduce the quantity of petrol consumers demand. How might we test such a hypothesis?

Economists try to test hypotheses such as this one by observing actual behaviour and using empirical (that is, real-world) data. The average retail price of petrol in the United States rose from an average of \$2.12 per gallon on May 22, 2005 to \$2.88 per gallon on May 22, 2006. The number of gallons of gasoline consumed by U.S. motorists rose 0.3% during that period.

The small increase in the quantity of petrol consumed by motorists as its price rose is inconsistent with the hypothesis that an increased price will lead to a reduction in the quantity demanded. Does that mean that we should dismiss the original hypothesis? On the contrary, we must be cautious in assessing this evidence. Several problems exist in interpreting any set of economic data. One problem is that several things may be changing at once; another is that the initial event may be unrelated to the event that follows. The next two sections examine these problems in detail.

2.4 The all-other-things-unchanged problem

The hypothesis that an increase in the price of petrol produces a reduction in the quantity demanded by consumers carries with it the assumption that there are no other changes that might also affect consumer demand. A better statement of the hypothesis would be: An increase in the price of petrol will reduce the quantity consumers demand, *ceteris paribus*. *Ceteris paribus* is a Latin phrase that means “all other things unchanged.”

But things changed between May 2005 and May 2006. Economic activity and incomes rose both in the United States and in many other countries, particularly China, and people with higher incomes are likely to buy more gasoline. Employment rose as well, and people with jobs use more petrol as they drive to work. Population in the United States grew during the period. In short, many things happened during the period, all of which tended to increase the quantity of petrol people purchased.

Our observation of the petrol market between May 2005 and May 2006 did not offer a conclusive test of the hypothesis that an increase in the price of petrol would lead to a reduction in the quantity demanded by consumers. Other things changed and affected petrol consumption. Such problems are likely to affect any analysis of economic events. We cannot ask the world to stand still while we conduct experiments in economic phenomena. Economists employ a variety of statistical methods to allow them to isolate the impact of single events such as price changes, but they can never be certain that they have accurately isolated the impact of a single event in a world in which virtually everything is changing all the time.

In laboratory sciences such as chemistry and biology, it is relatively easy to conduct experiments in which only selected things change and all other factors are held constant. The economists' laboratory is the real world; thus, economists do not generally have the luxury of conducting controlled experiments.

2.5 The fallacy of false cause

Hypotheses in economics typically specify a relationship in which a change in one variable causes another to change. We call the variable that responds to the change the dependent variable; the variable that induces a change is called the independent variable. Sometimes the fact that two variables move together can suggest the false conclusion that one of the variables has acted as an independent variable that has caused the change we observe in the dependent variable.

Consider the following hypothesis: People wearing shorts cause warm weather. Certainly, we observe

that more people wear shorts when the weather is warm. Presumably, though, it is the warm weather that causes people to wear shorts rather than the wearing of shorts that causes warm weather; it would be incorrect to infer from this that people cause warm weather by wearing shorts.

Reaching the incorrect conclusion that one event causes another because the two events tend to occur together is called the fallacy of false cause.

Because of the danger of the fallacy of false cause, economists use special statistical tests that are designed to determine whether changes in one thing actually do cause changes observed in another. Given the inability to perform controlled experiments, however, these tests do not always offer convincing evidence that persuades all economists that one thing does, in fact, cause changes in another.

In the case of petrol prices and consumption between May 2005 and May 2006, there is good theoretical reason to believe the price increase should lead to a reduction in the quantity consumers demand. And economists have tested the hypothesis about price and the quantity demanded quite extensively. They have developed elaborate statistical tests aimed at ruling out problems of the fallacy of false cause. While we cannot prove that an increase in price will, *ceteris paribus*, lead to a reduction in the quantity consumers demand, we can have considerable confidence in the proposition.

2.6 Normative and positive statements

Two kinds of assertions in economics can be subjected to testing. We have already examined one, the hypothesis. Another testable assertion 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 judgment. Such a judgment 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 South Africa 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.

2.7 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 labor 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 section, we will have a look at what one can do with training in economics.

ACTIVITY 1

Indicate whether the following statements is **true** or **false**:

- 1.1 Economics studies human behaviour and is therefore classified as a natural science.
- 1.2 A hypothesis is an assertion of a relationship between two or more variables that could be proven to be true.
- 1.3 A hypothesis that has not been rejected after widespread testing and that wins general acceptance is commonly called a theory.
- 1.4 The ceteris paribus assumption means “all other things equal”.
- 1.5 If two events occur together one can conclude that these two events are related.
- 1.6 We call the variable that responds to a change the independent variable; the variable that induces a change is called the dependent variable
- 1.7 Macroeconomics deals with phenomena such as total production, total employment and inflation.
- 1.8 Microeconomics focuses on specific parts of the economy while macroeconomics is concerned with the economy as a whole.
- 1.9 The study of the total output of the motorcar industry is an example of macroeconomics.
- 1.10 An increase in the price of tomatoes is a macroeconomic issue.

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- 1.11 The total production of beer in South Africa is a macroeconomic issue.
- 1.12 If somebody says that the current Minister of Finance is doing a good job, he or she is making a positive statement.
- 1.13 “Unemployment is the only important economic problem in South Africa” is an example of a normative statement.
- 1.14 “In 1995 the official unemployment rate in South Africa was 29,3 per cent” is an example of a positive statement.

T	F

2.8 Using graphs in economics

Introduction

A glance through the pages of this guide should convince you that there are a lot of graphs in economics. The language of graphs is one means of presenting economic ideas. If you are already familiar with graphs, you will have no difficulty with this aspect of your study. If you have never used graphs or have not used them in some time, this section will help you feel comfortable with the graphs you will encounter in this text.

In economics we usually show the relationship between two or more variables on a graph. A variable is any unit or factor that can change, for example the price or the demand for a product or the supply of a service or any other economic element. A considerable portion of your studies in Economics will be concerned with establishing how a change in one economic variable will influence another variable, or other variables.

Due to the large number of variables in any economy it is, however, necessary to isolate two variables at a time and “pretend” that other variables will not change (will stay constant) while we look at the two variables we are interested in. For example, if we want to examine the relationship between the price of red pens and the supply of red pens, we need to ignore the possible effect of taxes, inflation, etc. on the decision to produce the pens. We therefore look at supply of a product and its price in isolation and pretend that the rest of the variables remain constant. We refer to this as the *ceteris paribus* principle.

Typical examples of the relationships we study in economics are:

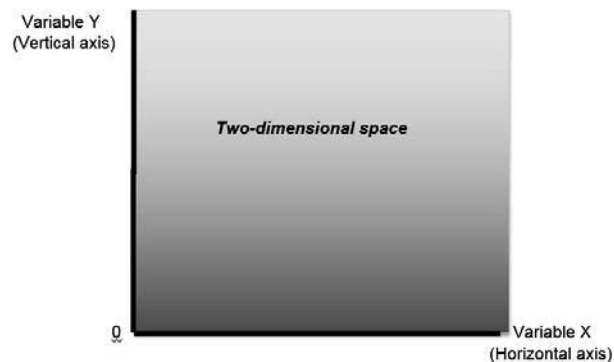
- How does a change in the price of a product influence the quantity demanded of that product?
- If the supply of product A increases, how will this influence the price of A?
- What effect will a decrease in income have on the spending of an individual?
- How will a decrease in government spending influence total employment in a country?

In the rest of the learning unit we will examine how the relationship between two variables may be presented in the form of a graph.

The axes of a graph

Because we normally have two variables which we want to relate to each other, our graphs must be drawn in a two-dimensional space. For this we need two lines (also called axes) on which to measure the values of each variable. In the following figure both axes start from the same point of origin (0), and are drawn horizontally and vertically respectively. On the horizontal axis the values of X are

measured, and on the vertical axis the values of Y are measured. The shaded area provides us with the space in which to indicate the relationship between these two variables.

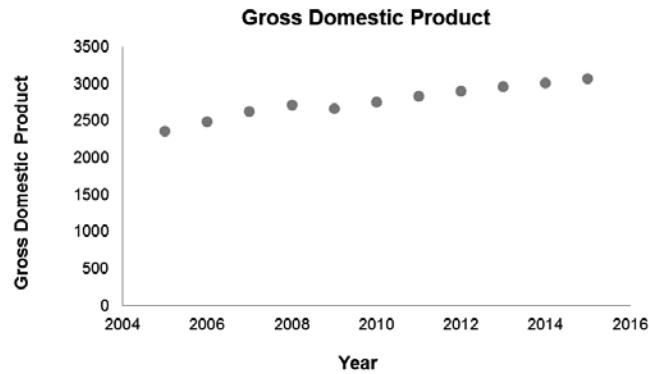


To show how we use the two-dimensional space created by these two axes, a time-series graph will now be drawn. A time-series graph is very common in economics. It measures time (e.g. days, weeks or years) on the horizontal axis and any other variable (or variables) which we want to relate to time on the vertical axis. The following table denotes the production figures for South Africa. The figures show an increasing trend.

By plotting the information contained in the table on a two-dimensional graph we are able to gain a much better idea of the production pattern. In the following figure production (Gross Domestic Product) is measured on the vertical axis and the different years are marked out on the horizontal axis. Each year's value is plotted on the graph by measuring the value of production on the vertical axis in line with the corresponding years on the horizontal axis. For example, production for 2005 (R2 359 billion) is obtained by measuring a vertical distance of R2 359 billion from the horizontal axis. This is done for each year's production. For example, a value of R2 708,6 billion corresponds with the year 2008, R2 899 billion with 2012 and R3 008,6 billion with 2014 and so forth.

Production (GDP) in South Africa, 2005 - 2015	
Year	Production (GDP) Rand (billions)
2005	2 359 099
2006	2 491 295
2007	2 624 840
2008	2 708 600
2009	2 666 939
2010	2 748 008
2011	2 836 286
2012	2 899 248
2013	2 963 389
2014	3 008 576
2015	3 068 798

Source: International Monetary Fund (2015)

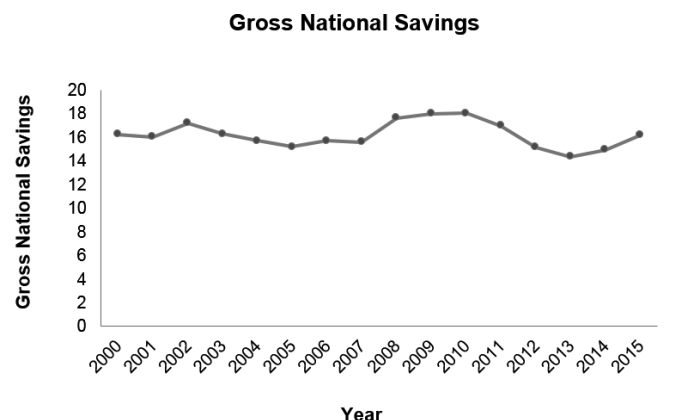


By plotting the information contained in the table below on a two-dimensional graph we are able to gain an idea of the national savings pattern for South Africa between 2005 and 2015. In the following figure national savings as a percentage of GDP is measured on the vertical axis and the different years are marked out on the horizontal axis. After each year's values are plotted, a graph or line is obtained by connecting all the dots. The continuous line represents national savings for the 11-year period. From the figure we can immediately see that national savings in South Africa increased from 2008 to 2010 before decreasing from 2011 to 2015. This graph is called a time-series graph because time is measured on one of the axes.

National savings of South Africa (as % of GDP)

Year	National savings (% of GDP)
2005	15,186
2006	15,706
2007	15,602
2008	17,613
2009	17,977
2010	18,012
2011	16,985
2012	15,137
2013	14,355
2014	14,913
2015	16,158

Source: International Monetary Fund (2015)



Other types of graphs

Time-series graphs are not the only type of graph we use in economics. Using graphs allows us to present the relationship between two economic variables in a meaningful manner. From this type of graph it is relatively easy to establish whether a general pattern, or trend, exists between two variables.

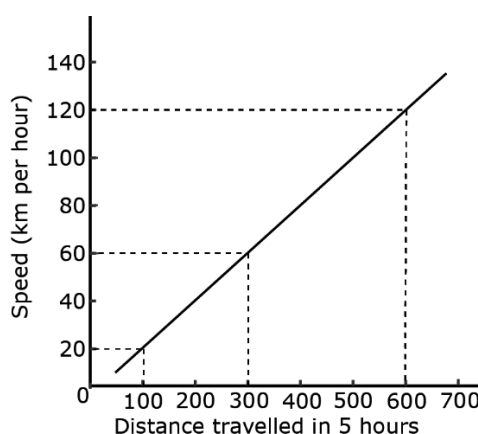
Typical patterns that are found in economics are the following:

- variables that move up or down together
- variables that move in opposite directions, that is, when one goes up the other goes down
- variables that are not related to each other in any way

We will now explain these relationships in greater detail by using practical examples.

Variables with a positive relationship

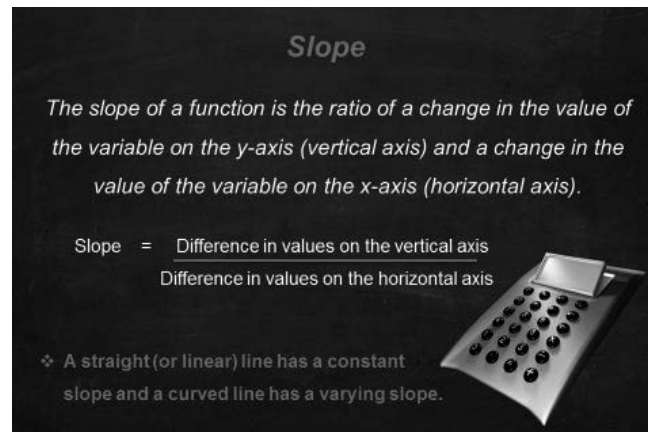
If two variables move together in the same direction, we say that there is a positive or a direct relationship between them. An example of a positive relationship is that between speed and distance travelled. The higher your speed, the greater the distance you can travel in 5 hours. This is illustrated in the following figure, where a straight line is drawn to show the relationship between speed and distance travelled in 8 hours.



Example of a linear positive (direct) relationship

Because the relationship is a straight line, we call this a linear relationship. Furthermore, because the line rises from left to right, the slope or gradient of the line is positive. In economics any line in a graph is called a curve, irrespective of whether it is a straight line or not.

Let's calculate the value of the slope of the line in the above figure using the following formula.



The diagram shows that when the speed increases from 60 to 120 (shown on the vertical axis), the distance travelled in 5 hours increases from 300 to 600 (shown on the horizontal axis):

$$\text{Slope of line} = \frac{\text{Difference in values on the vertical axis}}{\text{Difference in values on the horizontal axis}}$$

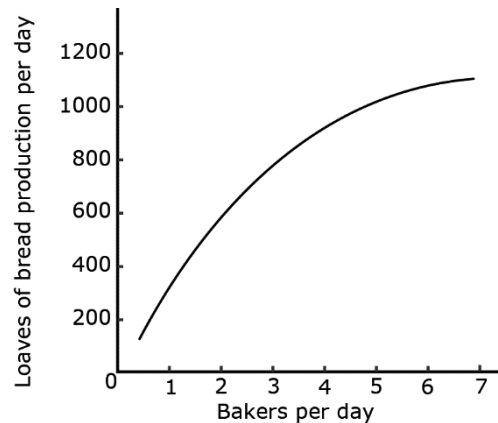
$$\text{Slope of line} = \frac{120 - 60}{600 - 300} = \frac{60}{300} = 0,2$$

The slope of this line is equal to 0,2. The positive value indicates that the value on the horizontal axis changes in the same direction as the value on the vertical axis, i.e. when the speed at which travelling takes place increases, the distance covered in 5 hours also increases.

You can calculate the slope of this line when the speed increases from 20 to 60.

Is your answer 0,2? That is because this is a straight line and the value of the slope will be the same everywhere on this line.

Another example of a positive relationship is that between the number of bakers per day and the number of loaves of bread that are baked. Note that the line in the figure below is not a straight line, but a curved line. Although the relationship is still positive, it is a non-linear relationship. It is reasonable to assume that bakers per day will not influence production in a linear fashion, but that the curve will begin to flatten somewhat as more loaves of bread are produced per day. This means that when all the best bakers have been hired the additional bakers that will be hired will produce fewer loaves of bread extra, thus production still increases when additional bakers are hired, but by less. In other words, the slope of the curve becomes less steep as more loaves of bread are produced. Too many bakers can even reduce production. The slope or gradient of the curve in the figure is positive, because the relationship between the two variables is positive.

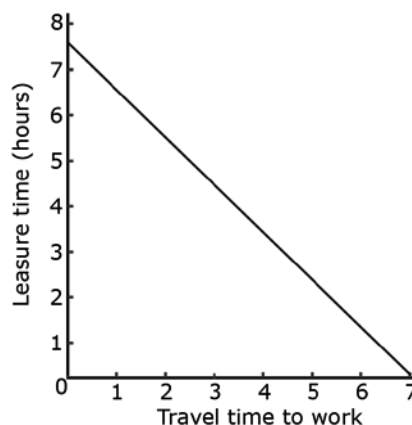


Example of a non-linear positive (direct) relationship

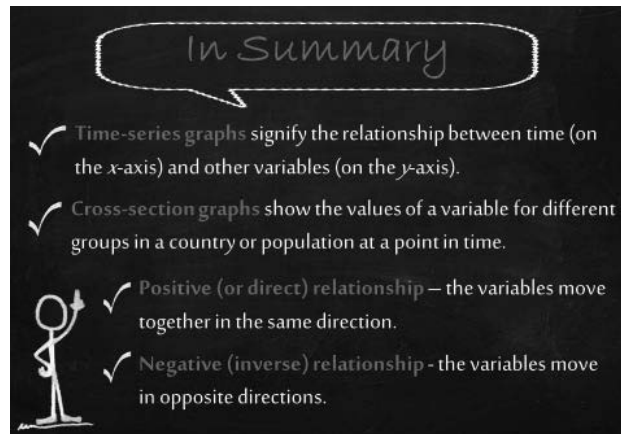
As this curve is not a straight line the value of the slope will change. The value will, however, be positive everywhere on the curve because the curve slopes upwards.

Variables with a negative relationship

A relationship between two variables that move in opposite directions is called a negative or an inverse relationship. An example of a negative relationship is that between the time one spends travelling to work and back, and the leisure time at one's disposal: the more time spent on the road, the less leisure time at one's disposal. Here we can again assume a linear relationship between travelling time and leisure time. Also note that the slope of the curve is now negative (like going down a hill) because of the negative (inverse) relationship between the two variables. Although we haven't given you an example of a graph showing a non-linear inverse relationship, there are many examples of this kind of relationships in the real world.



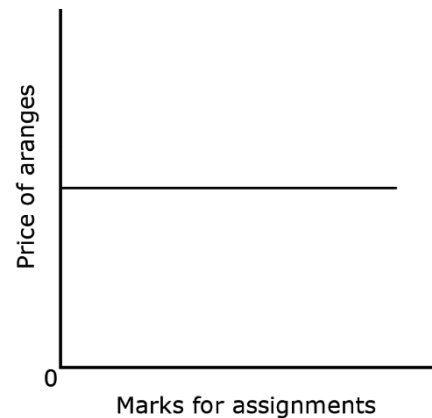
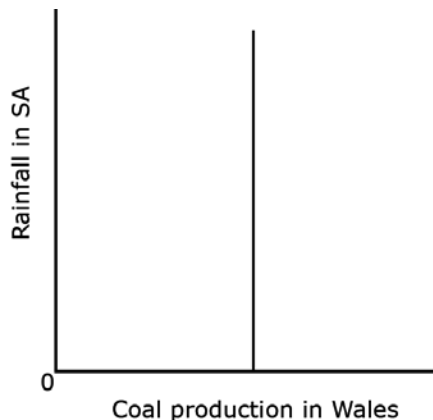
Example of a linear negative (inverse) relationship



Variables that are unrelated

There are many things that are totally unrelated to each other. The price of oranges will have no influence on the marks we obtain for a Unisa assignment. Nor will the rainfall in South Africa have any influence on coal production in Wales. Examples of unrelated variables are given in the following figures.

Note that the non-relationship in these cases is denoted by either a horizontal or a vertical line. The slopes of these curves are either zero (in the case of a horizontal line) or infinitely large (in the case of a vertical curve). In both cases the value of one of the variables does not influence the other variable at all.



Vertical and horizontal curves

ACTIVITY 2

Indicate whether the following statements is **true** or **false**:

- The origin is the point where a graph starts.
- A graph showing a positive relationship between stock prices and the nation's production means that an increase in stock prices causes an increase in production.
- If the graph of the relationship between two variables slopes upward to the right, the relationship between the variables is positive.

T	F
☐	☐
☐	☐
☐	☐

T	F

- d. Graphing things that are unrelated on one diagram is not possible.
- e. The slope of a straight line is calculated by dividing the change in the value of the variable measured on the horizontal axis by the change in the value of the variable measured on the vertical axis.
- f. For a straight line, if a large change in y is associated with a small change in x , the line is steep.
- g. The slope of a curved line is not constant.
- h. Ceteris paribus means “everything else changes”.
- i. Demonstrating how an economic variable changes from one year to the next is best illustrated by a time-series graph.
- j. If variables x and y move up and down together, they are positively related.

2.2 If the total amount of goods produced in South Africa has generally increased, on a time-series graph illustrating the total amount produced, you would expect to find

- a. an upward trend
- b. linear relationship

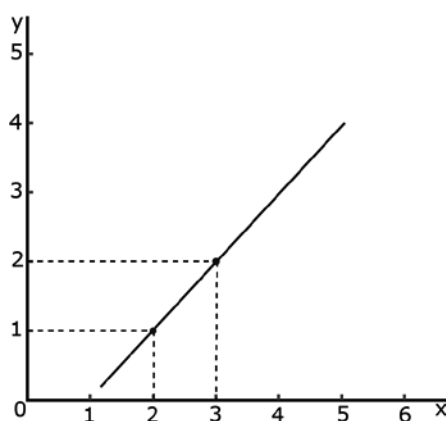
2.3 If the relationship between two variables, x and y , is a vertical line, then x and y are

- a. positively correlated
- b. not related.

2.4 A linear relationship

- a. always has a constant slope
- b. always slopes up to the right

2.5 Use the figure below to answer the following questions:



- a. What is the slope of the line between $x = 2$ and $x = 3$?
- b. How does the slope of the line between $x = 4$ and $x = 5$ compare with the slope between $x = 2$ and $x = 3$?

2.6 Use the data in the table below to answer the following questions:

X	Y
1	2
2	4
3	6
4	8
5	7
6	6

- Draw a graph to show the relationship between x and y .
 - Over what range of values for x is this relationship positive? Over what range is it negative?
 - Calculate the slope between $x = 1$ and $x = 2$.
 - Calculate the slope between $x = 5$ and $x = 6$.
-

ANSWERS TO THE ACTIVITIES

Activity 1

1.1 False.

Economics studies human behaviour and is therefore classified as a social science.

1.2 False.

A hypothesis is an assertion of a relationship between two or more variables that could be proven to be false.

1.3 True.

1.4 True.

1.5 False.

This is called the fallacy or false cause.

1.6 False.

We call the variable that responds to a change the dependent variable; the variable that induces a change is called the independent variable

1.7 True.

1.8 True.

1.9 False.

The motorcar industry is one specific industry and thus a microeconomic issue.

1.10 False.

Tomato is a specific product and therefore a microeconomic issue.

1.11 False.

The production of beer is a specific market for a product and therefore a microeconomic issue.

1.12 False.

It is a value judgement and therefore a normative statement.

1.13 True.

It is a value judgement and therefore a normative statement.

1.14 True.

It is based on fact.

Activity 2

2.1

a. False.

The origin is where the horizontal and vertical axes start, NOT where the graph starts.

b. False.

A relationship does not necessarily mean that one of the variables causes the other. More intricate econometric tests are necessary to determine causality.

c. True.

If the graph of the relationship between two variables slopes upward to the right, the relationship between the variables is positive.

d. False.

It is, for example, possible to show the number of houses built in Gauteng every year from 2000 to 2015 and the number of ducklings born in Dublin in Scotland every year from 2000 to 2015. It is not clear why anyone would want to do such a thing, but it is certainly possible!

e. False.

The slope of a straight line is calculated by dividing the change in the value of the variable measured on the vertical axis by the change in the value of the variable measured on the horizontal axis.

f. True.

For a straight line, if a large change in y is associated with a small change in x , the line is steep.

g. True.

The slope of a curved line is NOT constant.

h. False.

Ceteris paribus means everything else stay the same.

i. True.

Demonstrating how an economic variable changes from one year to the next is best illustrated by a time-series graph.

j. True.

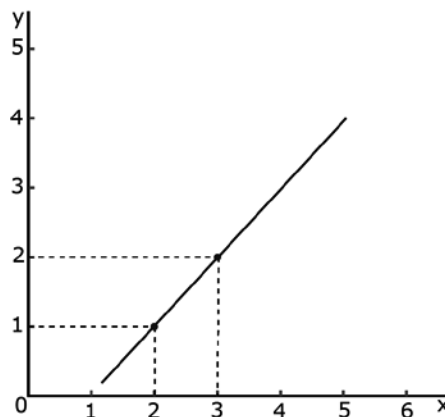
If variables x and y move up and down together, they are positively related.

2.2 If the total amount of goods produced in South Africa has generally increased, on a time-series graph, illustrating the total amount produced, you would expected to show an upward trend.

2.3 If the relationship between two variables, x and y , is a vertical line, x and y are not related.

2.4 A linear relationship always has a constant slope.

2.5



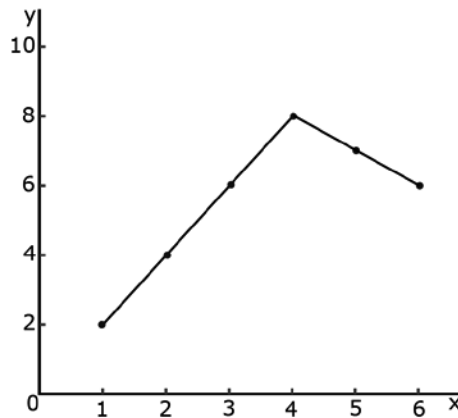
- a. The slope equals the change in the variable measured along the vertical axis divided by the change in the variable measured along the horizontal axis, or

$$\frac{(2 - 1)}{(3 - 2)} = \frac{1}{1} = 1$$

- b. How does the slope of the line between $x = 4$ and $x = 5$ compare with the slope between $x = 2$ and $x = 3$?

The figure shows a straight line. The slope of a straight line is constant, so the slope between $x = 4$ and $x = 5$ is the same as the slope between $x = 2$ and $x = 3$.

2.6 a



- b. The relationship between x and y changes when x is 4. The relationship is positive between $x = 1$ and $x = 4$. Between $x = 4$ and $x = 6$, the relationship is negative.
- c. The slope equals $\Delta y / \Delta x$ or, in this case, between $x = 1$ and $x = 2$, the slope is

$$\frac{(2 - 4)}{(1 - 2)} = \frac{-2}{-1} = 2$$

- d. Between $x = 5$ and $x = 6$, the slope is equal to

$$\frac{(7 - 6)}{(5 - 6)} = \frac{1}{-1} = -1$$

CHECKLIST

	Well	Satisfactory	Must redo
Concepts and relationships			
I am able to			
describe the three distinguishing features of economics as a social science			
distinguish between theory and reality			
explain the concept <i>ceteris paribus</i>			
distinguish between positive and normative statements and to give examples of each			
distinguish between microeconomics and macroeconomics and to give examples of each			

Economic systems

3

TOPIC OUTCOME

We have seen that the economic problem is about what, how and for whom to produce. Every society has different solutions to these questions which are dictated by the particular society's economic system. An economic system provides the framework for the allocation of resources, production of goods and services and the distribution of goods and services. In other words, the economic system of each society is the framework for answering the "what", "how" and "for whom" questions in that society.

TOPIC OUTCOME

After you have worked through this learning unit, you should be able to:

- describe the main features of the different economic systems and identify the strengths and weaknesses of the different economic systems
- distinguish between different property rights systems

3.1 Main economic system

The following is a tongue-in-the-cheek explanation of different economic systems using two cows as an example:

SOCIALISM

You have two cows.

You give one to your neighbour.

COMMUNISM

You have two cows.

The State takes both and gives you some milk.

FASCISM

You have two cows.

The State takes both and sells you some milk.

NAZISM

You have two cows.

The State takes both and shoots you.

BUREAUCRATISM

You have two cows.

The State takes both, shoots one, milks the other, and then throws the milk away.

TRADITIONAL CAPITALISM

You have two cows.

You sell one and buy a bull.

Your herd multiplies, and the economy grows.

You sell them and retire on the income.

SURREALISM

You have two giraffes.

The government requires you to take harmonica lessons.

AN AMERICAN CORPORATION

You have two cows.

You sell one, and force the other to produce the milk of four cows.

Later, you hire a consultant to analyse why the cow has dropped dead.

<https://organizationsandmarkets.com/2009/02/25/21-economic-models-explained/>

There are three main types of economic systems:

- traditional
- command
- market

Then there is also a mixed system, which is a combination of the main types.

Given the types of economic systems, which one do you think is the predominant economic system in South Africa?

- traditional
- command
- market
- mixed

South Africa's economy has elements of each and it is therefore a mixed economy, as will be explained below and in the following sections.

Traditional

The South African economy does have elements of a traditional system, but it is not the predominant (principal/leading) system. For example, many sons or daughters take over the family business out of a sense of duty or make economic decisions based on customs or beliefs.

Command

The South African economy does have elements of a command system but it is not the predominant (principal/leading) system. For example, the government control some parts of the economy, like setting a price for petrol and diesel or providing public goods and services, like roads and waste management.

Market

While the market plays a dominant role in the South African economy, it is not a purely market system. We have many free markets but there is also government influence, therefore we do not have a pure market system.

The predominant economic system in South Africa is mixed because we have elements of a market system, a command system and a traditional system.

3.2 Traditional system

After you have worked through this section of the learning unit, you should be able to:

- describe the main features of a traditional system and identify strengths and weaknesses of the traditional system

The traditional economy is the original, oldest and most common method used to solve the economic problem in the history of humankind. Examples of such communities are Europe during the Middle Ages, India and China until a few decades ago and many parts of Africa to this day. An attempt to reinstate the traditional community took place in Iran under Ayatollah Khomeini in the 1970s.

In the traditional society, custom is the way in which the economic decisions on production, production techniques, division of labour, consumption, et cetera, are made. On the questions of what, how and for whom, the answer is "according to custom" and "as in the past".

The same goods are produced and distributed in the same way over generations. Men do the work their fathers did and women do the work their mothers did. These societies tend to value religious and cultural practices more than economic prosperity; for them, production is merely a means to an end. The system is rigidly driven by tradition, and there is little economic progress or development.

Adam Smith pointed out, for example, that the production problem in ancient Egypt was solved by the fact that it was expected of the oldest son to follow in his father's footsteps. This ensured an adequate supply of skilled craftsmen from one generation to the next. In practice, the status community proved to be:

- unprogressive,
- the extended family a disincentive to exerting oneself,
- the division and specialisation of labour to be limited;
- production to be mainly for own use, and
- the standard of living to be low.

Traditional communities are characterised by their pre-technological and non-industrialised nature and the important role of agriculture.

The biggest disadvantage of such a system is economic stagnation. This is why the dismantling of certain traditional views is regarded as a prerequisite for economic development. Mediaeval serfs were able to escape their feudal responsibilities after the establishment of towns and cities by leaving the land. This partial break with the tradition of serfdom led to the establishment of new classless individuals who featured prominently in the economic progress that followed.

ACTIVITY 1

Indicate whether the following statements is **true** or **false**:

- 1.1 Under a traditional system, the factors of production are owned by the government.
- 1.2 In a traditional system, bartering plays an important role.
- 1.3 A weakness of the traditional system is that it is slow to adapt to new technology.

T	F

3.3 Command system

After you have worked through this section of learning unit, you should be able to:

- describe the main features of a command system and identify strengths and weaknesses of the command system

In a command economy, economic effort is devoted to goals passed down from a leader or ruling class. Ancient Egypt's absolute monarchy is an example of an ancient command system, while a modern example is a communist country like North Korea.

The government decides what goods and services will be produced and what prices will be charged for them. The government decides what methods of production will be used and how much workers will be paid. Some necessities like healthcare and education are provided free of charge.

In an extreme command system, people work where the government tells them, do not get paid but receive what the government thinks they need from them. Because government is answering the "what", "how" and "for whom" questions centrally for the whole society, the command system is also sometimes called a centrally planned system.

In a complex command economy, the answers to the economic problems of production and distribution are provided by a binding central plan comprising the following elements:

- The decisions on what, where and when to produce are taken by the central planners according to what they consider important.
- Production methods. The planners decide how to produce and how the production factors are to be rationed. The problem of "how" is also solved by the planners by instituting quotas for all industries. The planners (for the state) also have to act as entrepreneurs.
- Distribution. The planners solve the "for whom" problem by rationing consumers according to the priorities they deem important.

This is a tremendous task, the extent of which becomes clear when we consider the typical decisions

that have to be taken on behalf of such a community. A decision has to be taken on how, where and for what purpose every labourer, every piece of land and all capital goods are to be applied.

Other examples are the distribution of raw materials, how many houses to build, what consumer goods to produce, how these goods are to be divided among consumers, what proportions of the economic resources should be used to produce capital goods and consumer goods, and so on.

Obviously these decisions cannot all be made by one person or even one committee. In actual fact, economic decisions are based on the advice of numerous subordinate committees appointed on a regional or activity basis. This does not mean that such decisions are implemented efficiently in a centrally controlled community since there is considerable scope for wrong decisions and malpractice on account of the complexity of the economy itself.

To implement this plan successfully, all the natural and human resources have to be in the hands of the authority.

The system of central control differs from traditional systems in one important respect: economic change can be forced on the community by the state. A typical example is the former Soviet Union which underwent radical economic change under state duress.

In reality, no country today is completely centrally planned. Even in the former Soviet Union, a type of market mechanism was present in certain sectors, and today China is moving to a more market-oriented economy.

ACTIVITY 2

2.1 Do you agree or disagree with the following statement?

In a pure command economy, all the economic decisions are made by a central authority. It therefore follows that the authority would have the power to force individuals to follow the central plan even if it is against their will.

- a. Agree
- b. Disagree

2.2 Do you agree or disagree with the following statement?

In a pure command economy, resources are always allocated and distributed efficiently.

- a. Agree
- b. Disagree

2.3 By whom are major economic decisions made in a command economy?

- a. By officials and bureaucrats who control all main aspects of economic activity
- b. By the wholesalers of goods
- c. By the forces of demand and supply
- d. By the manufacturers of industrial goods

2.4 Which one of the following is a strength of a command economy?

- a. It has the ability to change direction quickly.
- b. Consumers make the decision about what goods and services are to be produced.
- c. It is a relatively small and close-knit community.

3.4 Market system

After you have worked through this section of learning unit, you should be able to:

- describe the main features of a market system and identify the strengths and weaknesses of the market system

The third way in which the economic problem can be solved is through the market economy. Markets as such are almost as old as the history of humankind itself and appear in both the traditional society and the command economy. The market economy, where consumption and production decisions, the allocation of production factors and the distribution of goods and services are all arranged through a system of market determined prices, is a recent development – it is not much older than 200 years. (A modern command economy also uses prices to organise consumption, production and the use of production factors, but these prices are not determined by the market, but unilaterally by the government.)

The market economy, like any other economic system, has to provide answers to the following fundamental economic questions:

- *Allocation.* The problem of what to produce is determined by the consumer, that is, there is consumer sovereignty. Consumers display their preferences for goods and services in the market and the producers, in their pursuit of profit, react accordingly.
- *Production methods.* The problem of how to produce is solved by the entrepreneur who, under coercion of competition, strives to combine factors of production in such a manner that production takes place at the lowest possible cost, thereby maximising profits.
- *Distribution.* The problem of for whom goods and services are to be produced is solved in two steps. Firstly, the consumer's income is determined by the quantity of production factor(s) each offers, multiplied by the value (i.e. price) the market assigns to this/these factor(s). Secondly, the consumer uses this income to purchase those goods and services he or she desires.

While command economies have a highly centralised structure for economic decision making, market economies have a decentralised structure. Society's resources are owned and operated by private individuals or groups of private individuals known as businesses. In a pure market economy, economic decisions are made through the free market coordination of individuals who are driven by their own self-interest.

A market is an institution (with or without a physical location) that brings together the buyers and sellers of goods or services, which may either be individuals or businesses. It is this interaction between buyers and sellers, known as free market coordination, that determines the price and quantity demanded of goods and services in the economy.

The market price reflects the underlying demand and supply conditions of the product. For instance, if the price of a product increases, this may be the result of an increase in demand or a decrease in supply. In response to this increase in the market price, buyers will decrease the quantity of the product they demand, while suppliers will increase their production in order to take advantage of the higher price for their goods. If one supplier charges a price that is above the equilibrium market price, then consumers will simply buy from other suppliers, thus forcing the supplier to reduce its price or go out of business. It is this kind of competition that regulates the market and keeps it functioning efficiently.

In a market system, a person's income is based on his or her ability to convert the factors of production (labour, land, capital and entrepreneurship) he or she owns into something that society values. If an

individual is incapable of converting his or her factors of production into something society values, he or she will not be rewarded. This means that a person unable to contribute to society would go hungry without the help of others like a family member or a good Samaritan. In reality, almost all nations have some type of social welfare system run by their government to help these people. Government receives tax revenue and directs some of it to social welfare programmes to help those who cannot help themselves. Government also provides national defence and other public goods and services which cannot be efficiently provided by the free market. A pure market economy does not have a government, which is why there are no real-life examples of countries with a pure market system.

ACTIVITY 3

3.1 Which of the following are primarily responsible for making economic decisions in a pure market economy?

- a. The central government
- b. Large corporations
- c. Individual consumers and suppliers
- d. Regulators and bureaucrats

3.2 Indicate whether the following statements is **true** or **false**:

- a. In a pure market economy, the “for whom” or distribution question is largely answered according to the needs and wants of individuals and groups in society.
- b. In a pure market economy, the price mechanism plays an important role in solving the economic problem.
- c. In a market system, prices are determined by government bureaucrats.
- d. A strength of the market system is that it provides an incentive for people to work hard.

T	F

3.5 Mixed system

After you have worked through this section of learning unit, you should be able to:

- describe the main features of a mixed economic system

In the real world, the majority of economies are mixed – that is, they combine elements of command, market and even traditional systems in varying degrees. Each nation has a different emphasis on the three basic types of economic systems.

For example, the USA puts greater emphasis on the free-market mechanism, but it also has a government and some socialist programmes. By contrast, many countries in Europe have a greater degree of government involvement in economic decisions, while still being primarily market oriented. Some elements of the traditional system exist in most economies as well, for example, a son who takes over his father’s business, not because he wants to do what his father does, but rather out of a sense of duty or religious motivations.

ACTIVITY 4

4.1 The South African economy can best be described as which type of economy?

- a. A traditional system
- b. A mixed system
- c. A pure market system
- d. A command system

4.2 Indicate whether the following statements is **true** or **false**:

- a. In a mixed economy, society answers the "what", "how" and "for whom" questions through a free-market system only.
- c. In a mixed system, the economic problem is solved through the combination of efforts by the public and private sectors.

T	F

3.6 Property rights

After you have worked through this section of learning unit, you should be able to:

- describe the different property rights systems

A distinguishing feature between economic systems is their differing approach to property rights. Property can refer to tangible assets such as land, buildings, vehicles, animals, jewellery, et cetera, or intangible assets such as patents and intellectual property.

Full ownership of property can be broken down into the following three basic rights:

- The right to dispose of (sell) the property.
- The right to use the property as the owner desires.
- The right to receive the income generated by the property.

Partial ownership exists when only one or two of the property rights is/are held. For example, a family that rents a house from a landlord has the right to use the home (i.e. to live in it) for the duration of the lease. The landlord maintains the right to dispose of the property and the right to receive the income generated from the property.

Property can be owned privately or publicly.

Differences in the legal enforcement of property rights will also affect real economic outcomes. Consider the example of two societies: these societies have identical resources and property rights and are fully owned by individuals in both societies (i.e. private ownership). The only difference is that society A has well-functioning legal and law enforcement institutions which protect property rights, while society B does not. In society A, individuals will seek to increase their incomes by investing capital to make the highest possible income off their property, thus resulting in an increase in economic activity and increased prosperity. In society B, however, the threat exists that owners can be separated from their property at any time. This will remove the incentive to improve or invest in property since it can be taken without reasonable compensation leading to a decline in economic activity.

Theoretically, command economies favour complete public ownership of property, while the market system favours absolute private ownership of property. In practice, however, most economies can be described as mixed with varying emphasis on command and market systems. The USA is an example of one of the more market-based mixed economies, even though it still has public ownership of property. China is an example of a command-based mixed economy, but limited private property ownership is allowed – for example, individuals can own real estate such as houses but they cannot own the land on which the house is situated.

ACTIVITY 5

Complete the following by selecting the correct option in brackets:

	Pure traditional	Pure command	Pure market	Mixed
Coordinating mechanism	Determined by tradition	(<i>Centrally planned</i> <i>Free market</i>)	(<i>Centrally planned</i> <i>Free market</i>)	Combination of all three
Property rights	Typically limited	(<i>Publically owned</i> <i>Privately owned</i>)	(<i>Publically owned</i> <i>Privately owned</i>)	Combination of public and private ownership
Price determination	Typically no currency	(<i>By the state</i> <i>Forces of demand and supply</i>)	(<i>By the state</i> <i>Forces of demand and supply</i>)	Prices are mainly determined by the free market but there is government intervention
Incentives	Community survival	(<i>Working for the common good and/or external coercion</i> <i>Self-interest and profit maximisation</i>)	(<i>Working for the common good and/or external coercion</i> <i>Self-interest and profit maximisation</i>)	Self-interest and working for the common good

ANSWERS TO THE ACTIVITIES

Activity 1

- 1.1 The statement is false.

In a traditional system, the factors of production are owned by the community. The government only owns the factors of production in a command economy. A traditional system is slow to adjust to new technologies. A traditional system favours custom, how things have been done in the past, above innovation or new ideas.

- 1.2 The statement is true.

In a traditional system, the exchange of goods for other goods (barter) is an important element of the economy. For example, as agriculture is very important in a traditional system, a typical barter transaction would be if a maize farmer trades maize for some milk with a dairy farmer.

- 1.3 The statement is true.

A traditional system is slow to adjust to new technologies. A traditional system favours custom, how things have been done in the past, above innovation or new ideas.

Activity 2

- 2.1 You should agree.

The argument is for the system to function the central authority needs the power of coercion – that is the use of threats or force to persuade someone to do something.

- 2.2 You should disagree.

Evidence indicates that a command economy requires a large amount of incredibly complicated planning in order to efficiently allocate and distribute resources. Unfortunately, in practice, human error or corruption often occurs because of the immense complexity of the economy, leading to misallocation of resources.

It is also argued that the collapse of the Soviet Union was the result of massive misallocation of resources.

- 2.3 The correct option is a.

In a command economy, major economic decisions are made by officials and bureaucrats. Wholesalers are a type of firm or business that will also be under the authority of the government in a command economy.

- 2.4 The correct option is a.

As the central authority controls everything, they can enforce decisions quickly.

Activity 3

- 3.1 The correct option is c.

In a command system, the central government as well as regulators and bureaucrats are important decision makers. In a pure market economy, the decisions are made by individual consumers and suppliers.

3.2

- a. The statement is false.

In a pure market economy, you need an income in order to purchase goods and services to satisfy your needs and wants. It is the needs and wants of those with income that are satisfied.

- b. The statement is true.

In a market system, it is the forces of demand and supply which determine the prices of goods and services, and consumers and suppliers make decisions on the basis of these prices.

- c. The statement is false.

In a market system, prices are determined by the forces of demand and supply. Bureaucrats set prices in a command system.

- d. The statement is true.

To be able to satisfy their needs and wants, people must have an income, and income is earned through making a contribution to the production of goods and services. Therefore, there is a motivation to work hard.

Activity 4

- 4.1 The correct option is b.

The predominant economic system in South Africa is mixed because the country has elements of a market system, a command system and a traditional system.

4.2

- a. The statement is false.

A mixed economy combines elements of a market economy and a command economy. The economic problem is therefore answered partly by the free market and partly by a central authority.

- b. The statement is true.

Some goods and services are produced privately where the price is determined by the market system, and some goods and services, such as healthcare and national defence, are provided by government (i.e. the public sector).

Activity 5

You can use the following table as a summary of the important characteristics and differences between the different economic systems.

	Pure traditional	Pure command	Pure market	Mixed
Coordinating mechanism	Determined by tradition	<i>Centrally planned</i>	Free market	Combination of all three
Property rights	Typically limited	<i>Publically owned</i>	<i>Privately owned</i>	Combination of public and private ownership
Price determination	Typically no currency	<i>By the state</i>	<i>Forces of demand and supply</i>	Prices are mainly determined by the free market but there is government intervention
Incentives	Community survival	<i>Working for the common good and/or external coercion</i>	<i>Self-interest and profit maximisation</i>	Self-interest and working for the common good

CHECKLIST

	Well	Satisfactory	Must redo
Concepts and relationships			
I am able to			
explain the main features of a traditional economy, a command economy, a market economy and a mixed economy			
distinguish between the different economic systems in terms of its strengths and weaknesses			
Distinguish between different property rights systems			

Production possibilities curve

4

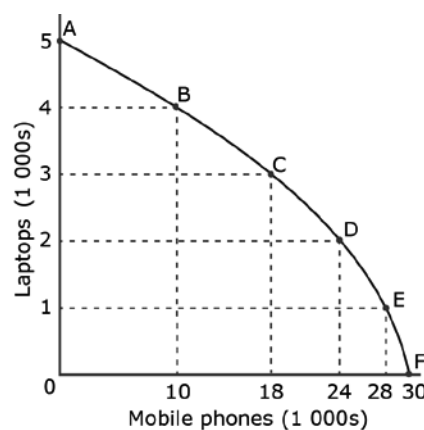
TOPIC OUTCOME

Economics is a social science and economists are confronted with a real world that is too complex and dynamic to be understood completely. One way in which economists deal with this complex reality is to build and use models that simplify the real world and help us to focus on the important forces that shape our economic lives.

In this section, we will make use of such a model, the production possibilities curve or frontier, to illustrate the problem of choice, scarcity, efficiency, inefficiency, increasing opportunity cost and change in production capacity.

TOPIC OUTCOME

After you have worked through this learning unit, you should be able to use a production possibilities curve to illustrate and explain:



- scarcity
- choice
- inefficiency
- efficiency
- opportunity cost
- increasing opportunity cost
- change in production capacity
- impact of investment

Pre-knowledge

Before you start this section make sure that you are familiar with:

- the economic problem
- factors of production
- opportunity cost

4.1 Assumptions of the production possibilities curve

After you have worked through this section of the learning unit, you should be able to:

- describe a production possibilities curve
- identify the assumptions used to derive a production possibilities curve

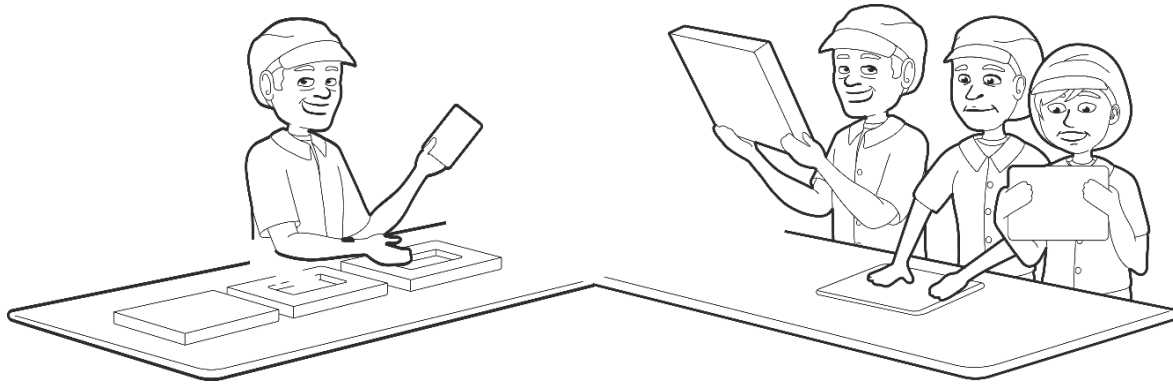
While thousands of different goods and services are produced in the real world, an important assumption of our model is that only two goods are produced. As an example to illustrate this, we will use a hypothetical country, Zanadu, in which laptops and mobile phones are produced.



Xanadu produces laptops and mobile phones

We further assume that the economy is using all its resources fully and efficiently to produce these two goods and that the quantity and quality of these resources are fixed.

In this model, it is also possible to shift the resources from the production of one good (laptops) to the production of another good (mobile phones).



Human resources can be shifted from the production of mobile phones to the production of laptops

Our last assumption is that, for the time being, the technology is unchanged.

Given these assumptions, in the sections below we will construct a production possibilities table and curve which indicate *the combinations of goods or services that can be produced when a country's resources are employed fully and efficiently.*

Do the following activity to see if you understand the assumptions of the production possibilities.

ACTIVITY 1

You are the President of Paradiso and have given instructions to your engineers to provide economists in the country with information on the production of guns and food in Paradiso so that they can construct a production possibilities curve for Paradiso.

You receive the following information from the engineers:

Resources used	Tons of food	Number of guns
20%	400	0,1 million
40%	430	0,9 million
60%	460	1,9 million
80%	500	2,6 million
100%	550	3,0 million

What would your opinion as an economist be of the data provided by the engineers?

- The only useful information is that if Paradiso were to use 100% of its resources, it would be able to produce 550 tons of food and three million guns.
- The information would be sufficient to construct a production possibilities curve.
- The engineers misunderstood what would be required to construct production possibilities since this requires different combinations of guns and food that can be produced in Paradiso, if all the resources are used fully and efficiently.

4.2 A production possibilities table

After you have worked through this section of the learning unit, you should be able to:

- interpret the data in a production possibilities table

We will construct a production possibilities table for a hypothetical country called Zanadu. The two products that are produced by this country, using their resources fully and efficiently, are laptops and mobile phones.

The different combinations of laptops and mobile phones, using resources fully and efficiently, that can be produced are indicated in the following production possibilities table:

Production possibilities for Zanadu

Combination	Laptops	Mobile Phones
A	5 000	0
B	4 000	10 000
C	3 000	18 000
D	2 000	24 000
E	1 000	28 000
F	0	30 000

Let's turn our attention to the table to see exactly what the data is telling us.

Study the above table and answer the following questions:

How many laptops will be produced if the country uses all its resources for the production of laptops?

It is 5 000 as indicated by combination A.

How many mobile phones will be produced if the country uses all its resources for the production of mobile phones?

- ☐ 0
- ☐ 5 000
- ☐ 24 000
- ☐ 30 000

It is zero. If the country uses all its resources to produce laptops, then no resources will be available to produce mobile phones, and the production of mobile phones must indeed be zero. This is indicated by combination A.

In terms of combination F in the above table, how many mobile phones could be produced if all the resources were to be used for the production of mobile phones, and how many laptops?

- ☐ Laptops: _____
- ☐ Mobile phones: _____

Combination F tells us that if all the resources are used for the production of mobile phones, then 30 000 mobile phones will be produced and zero laptops.

In terms of combination B in the above table, how many laptops could be produced and how many mobile phones?

- ☐ Laptops: _____
- ☐ Mobile phones: _____

If you look at a combination such as B, it tells you that if Zanadu allocates some of its resources to the production of laptops and some to the production of mobile phones and makes efficient use of these resources, then it will be able to produce 4 000 laptops and 10 000 mobile phones.

Note that if 10 000 mobile phones are produced, Zanadu can only produce 4 000 laptops and not 5 000 laptops.

Combination C indicates that it is possible for Zanadu to produce 3 000 laptops and 18 000 mobile phones, while combination D indicates a production possibility of 2 000 laptops and 24 000 mobile phones. Combination E indicates a production possibility of 1 000 laptops and 28 000 mobile phones.

Do the following activity to make sure you understand the production possibilities table since we will use data in a production possibilities table to draw the production possibilities curve or frontier:

ACTIVITY 2

After explaining what is required of the engineers in activity 1, they provide you with the following information:

- ☐ If Paradiso uses all its resources efficiently for the production of food, it will be able to produce 1 000 tons of food.
- ☐ If Paradiso uses all its resources efficiently, it will be able to produce 900 tons of food and one million guns.
- ☐ If Paradiso uses all its resources efficiently, it will be able to produce 750 tons of food and two million guns.
- ☐ If Paradiso uses all its resources efficiently, it will be able to produce 550 tons of food and three million guns.
- ☐ If Paradiso uses all its resources efficiently, it will be able to produce 300 tons of food and four million guns.
- ☐ If Paradiso uses all its resources efficiently for the production of guns, it will be able to produce five million guns.

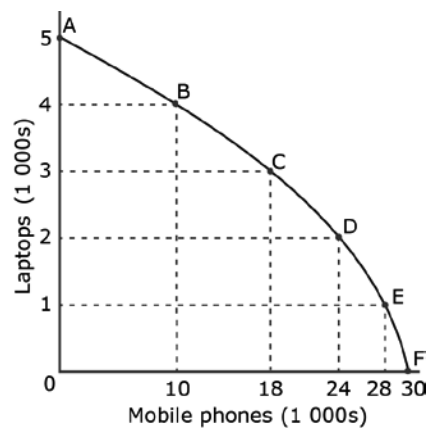
Use the above information to complete the following production possibilities table for Paradiso:

Combination	Food (tons)	Guns (millions)
A		0
B		
C		
D		
E		
F	0	

4.3 Drawing a production possibilities curve

After you have worked through this section of the learning unit, you should be able to:

- draw a production possibilities curve to illustrate the different combinations of goods and/or services that can be produced if resources are used fully and efficiently



We will make use of our production possibilities table for Zanadu to draw a production possibilities curve or frontier:

Production possibilities for Zanadu

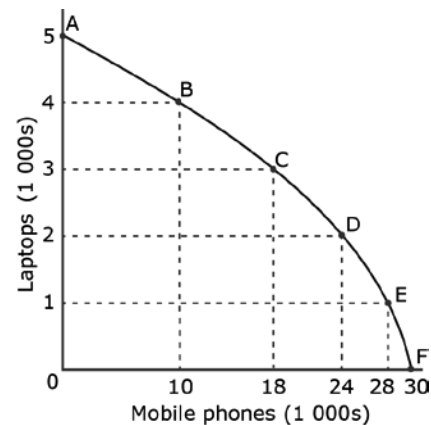
Combination	Laptops	Mobile Phones
A	5 000	0
B	4 000	10 000
C	3 000	18 000
D	2 000	24 000
E	1 000	28 000
F	0	30 000

On the vertical axis, the number of laptops (in 1 000s) that can be produced is measured, while on the horizontal axis, the number of mobile phones (in 1 000s) that can be produced is measured.

If Zanadu makes efficient and full use of its resources, it can produce the following combinations:

- Point A indicates a combination of 5 000 laptops and 0 mobile phones
- Point B indicates a combination of 4 000 laptops and 10 000 mobile phones
- Point C indicates a combination of 3 000 laptops and 18 000 mobile phones
- Point D indicates a combination of 2 000 laptops and 24 000 mobile phones
- Point E indicates a combination of 1 000 laptops and 28 000 mobile phones
- Point F indicates a combination of 0 laptops and 30 000 mobile phones

Combining these points gives us a production possibilities curve or frontier.



This production possibilities curve or frontier indicates the combinations of laptops and mobile phones that are attainable (can be produced) when Zanadu's resources are fully and efficiently used. Note that any point on the production possibilities curve is a possible combination, but we will only focus on points A, B, C, D, E and F.

Because the curve shows all the different possible combinations, and because it takes into account all the available resources and its efficiencies, it shows the boundaries (limits) of production possibilities for producing two goods. It represents the potential output of Zanadu.

It is important that you have a very good understanding of the production possibilities curve since we will be using it to explain scarcity, choice, efficiency, inefficiency and opportunity costs.

ACTIVITY 3

You are given the following information about production possibilities for Paradiso:

Combination	Food (tons)	Guns (millions)
A	1 000	0
B	900	1
C	750	2
D	550	3
E	300	4
F	0	5

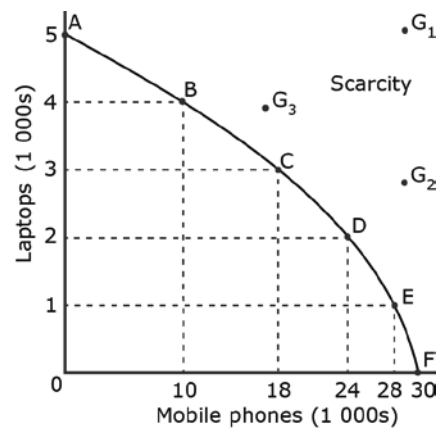
Your task is to use this information to draw a production possibilities curve for Paradiso with the production of food on the vertical axis and production of guns on the horizontal axis.

4.4 Production possibilities curve and scarcity

After you have worked through this section of the learning unit, you should be able to:

- identify a position of scarcity using the production possibilities curve

Scarcity exists because there are not enough resources to satisfy unlimited needs and wants. Given the production possibilities curve for Zanadu, we know that this country can produce combinations such as A, B, C, D, E and F. What it cannot produce, given its resources and the efficiency of these resources, is a combination such as 5 500 laptops and 28 000 mobile phones.



Scarcity and the production possibilities curve

Zanadu would certainly like to produce at a point such as point G_1 because it would have more mobile phones and laptops, but this is not possible because the country does not have enough resources. Points G_1 , G_2 , and G_3 therefore represent scarcity and lie outside the production possibilities curve.

Points on the production possibilities curve (A, B, C, D, E, F) indicate the possible or attainable combinations of laptops and mobile phones and can therefore be regarded as potential output. These points also indicate the boundaries of production.

To reach any point outside the production possibilities curve such as G_1 or G_2 or G_3 , Zanadu would need more resources and/or increase the efficiency of its current resources.

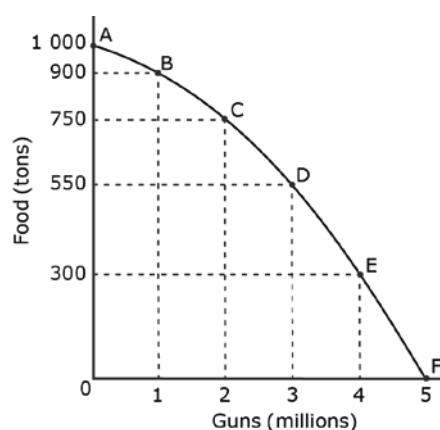
ACTIVITY 4

Do the following activity to make sure you understand positions of scarcity.

A journalist at one of the newspapers in Paradiso asks your opinion on the following:

Based on the information below, a politician concluded that in the current period the country of Paradiso could produce a combination of 1 000 tons of food and five million guns.

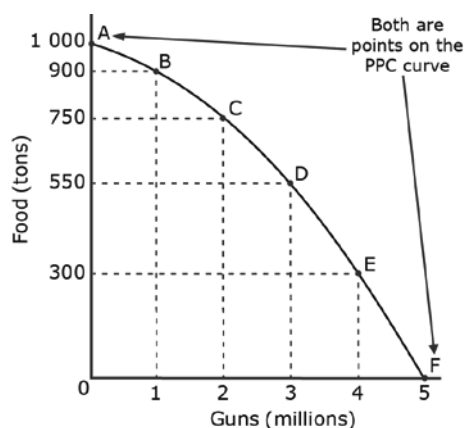
Combination	Food (tons)	Guns (millions)
A	1 000	0
B	900	1
C	750	2
D	550	3
E	300	4
F	0	5



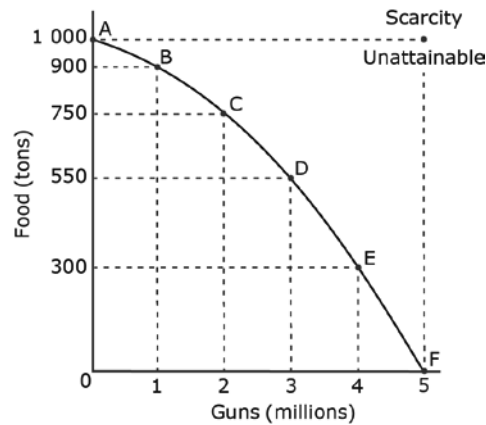
Production possibilities curve for Paradiso

Which **one** of the following will be your response?

- You agree and state that Paradiso will indeed be able to produce this combination and explain it by showing that 1 000 tons of food and five million guns are points on the production possibilities curve and represent points of potential output.



- b. You disagree because Paradiso does not have sufficient resources to produce this combination and explain it by showing that that this combination of food and guns lies outside the production possibilities curve and represents scarcity.



4.5 Production possibilities curve and efficiency and inefficiency

After you have worked through this section of the learning unit, you should be able to:

- illustrate and explain point of inefficiency and technical efficiency

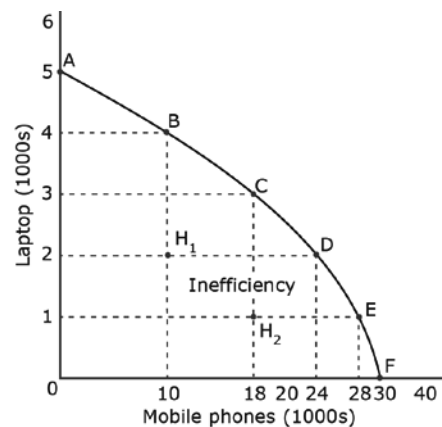
Inefficiency occurs when resources are not fully and efficiently used. Inefficiency means that the current output is lower than the potential output. The output that is produced as a result of the inefficient use of resources is therefore less than what is possible if the resources are fully and efficiently used.

In terms of our production possibilities curve, this is represented by a point such as H_1 which lies inside the production possibilities curve. At point H_1 , 2 000 laptops and 10 000 mobile phones are produced, which is less than the potential output.

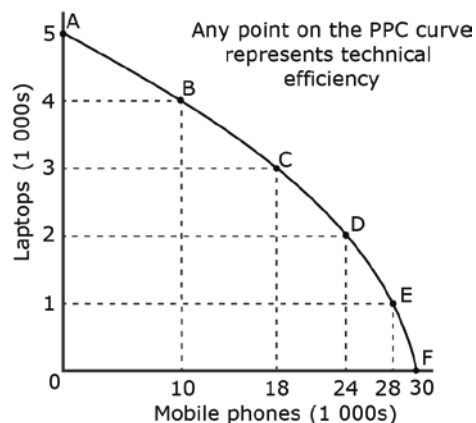
At point H_2 , 1 000 laptops and 18 000 mobile phones are produced which is also less than potential output.

By moving from point H_1 to a point such as C, which is on the production possibilities curve, both more laptops and more mobile phones can be produced.

Points inside the production possibility curve indicate that the society concerned is not making full and efficient use of its resources, and consequently fewer needs and wants are satisfied than are possible.



When a point on the production possibilities curve is reached, it is referred to as technical efficiency, indicating that resources are fully and efficiently used. This is the point that any society should strive to reach, since it indicates that the society is indeed making efficient use of its scarce resources.



While a point **inside** the production possibilities curve indicates that both more laptops and mobile phones can be produced, a point on the curve indicates that it is not possible to increase the production of one good without decreasing the production of the other good.

For Zanadu, this implies that if it is producing at a point such as C, it can only move to point B if it produces fewer mobile phones and it can only move from point C to point D if it produces fewer laptops.

Now do the following activities to test your understanding of the concepts efficiency and inefficiency:

ACTIVITY 5

5.1 The following information is issued for the year by the Department of Statistics in Paradiso:

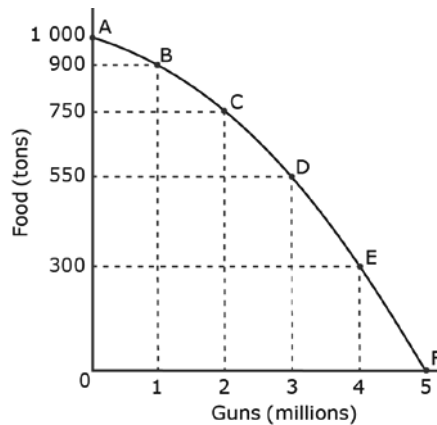
Food production increased by 5%, while the production of guns remained unchanged. Unemployment is currently at 24,5% and the manufacturers of guns and food reported that they are using 85% of their production capacity.

Based on the above information, which **three** of the following statements are **correct**?

- Paradiso is at a point inside the production possibilities curve.
- Paradiso can increase the production of guns without decreasing the production of food.
- Paradiso is technically efficient in its production of guns and food.
- Paradiso is inefficient in its production of guns and food.
- Paradiso is at a point on the production possibilities curve.
- Paradiso is at a point outside the production possibilities curve.

5.2 Which **one** of the following is correct?

If Paradiso is producing at point C, as indicated in the diagram below, you can conclude the following:

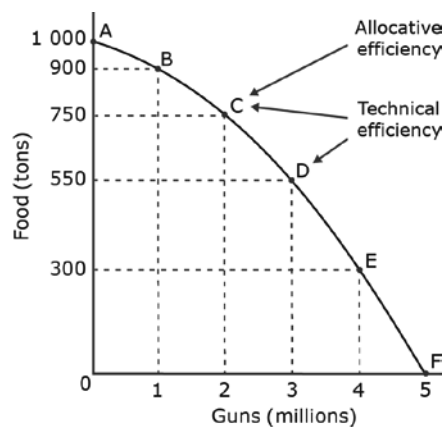


- a. Paradiso is efficient in the production of food and guns.
- b. Point C is a more efficient point than point D.
- c. It is possible for Paradiso to increase the production of food without decreasing the production of guns.
- d. It is possible for Paradiso to increase the production of guns without decreasing the production of food.

4.6 Production possibilities curve and choice

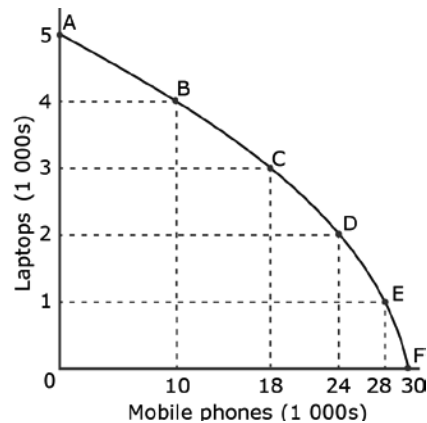
After you have worked through this section of the learning unit, you should be able to:

- use the PPC to illustrate what happens to the allocation of resources and technical efficiency along a production possibilities curve
- distinguish between technical efficiency and allocative efficiency and explain why the PPC curve can be used to explain technical efficiency but not allocative efficiency



Choice is illustrated by the available combinations along the production possibilities curve. For instance, in Zanadu, society must choose which combination of laptops and mobile phones to produce to ensure the maximum satisfaction to the citizens of Zanadu.

If you were asked to make the choice for Zanadu, which combination would you choose?



- ☐ A
- ☐ B
- ☐ C
- ☐ D
- ☐ E

Any of these combinations might be the right one. See the explanation below for why that might be the case.

The production possibilities curve provides information on technical efficiency – that is, the maximum number of goods and services that can be produced with the given resources. It does not tell us which of these possible combinations present *allocative efficiency* – that is, the optimal (best) combination of goods and services desired by consumers.

Allocative efficiency is achieved when the economy is doing the best possible job of satisfying unlimited wants and needs with limited resources. To achieve this, however, the market must first achieve technical efficiency. And this technical efficiency must be useful or valued by people.

For example, an industry might achieve technical efficiency for the production of 10 cm pieces of yellow cotton string, but if nobody in the market actually wants these, they will pile up in a room somewhere, and allocative efficiency has not been achieved.

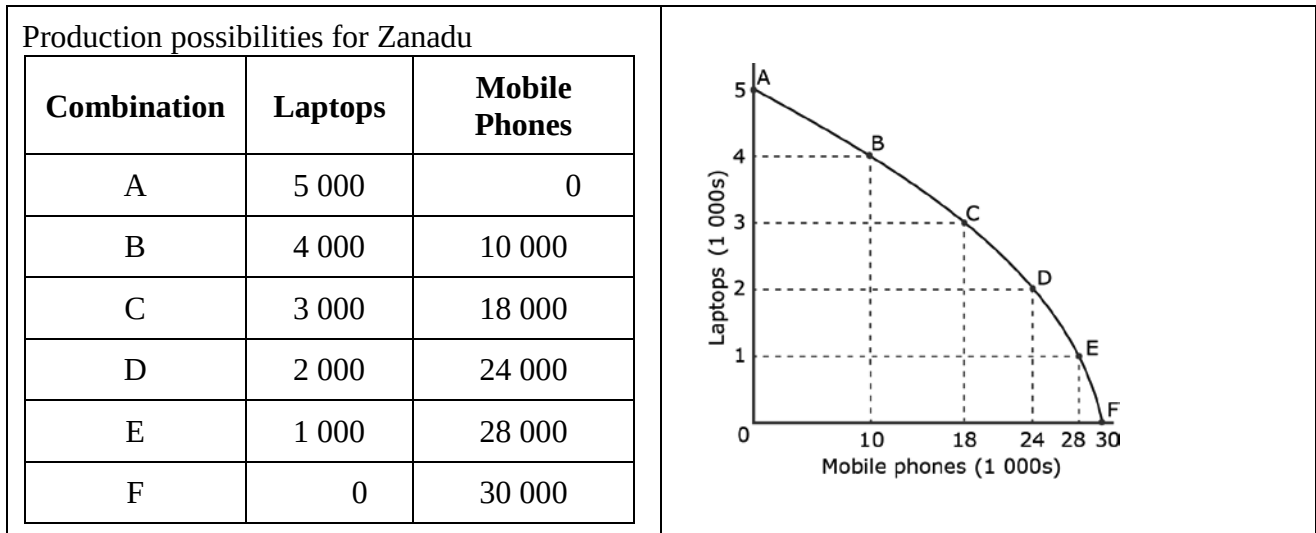
Allocative efficiency occurs when an economy provides the greatest amount of consumer satisfaction that is possible given the available resources. So markets have a role to play in determining not only the point of technical efficiency for the production of a good or service, but also the point of allocative efficiency.

The production possibilities curve provides information on technical efficiency – that is, the maximum number of goods and services that can be produced with the given resources. It does not tell us which of these possible combinations present *allocative efficiency* – that is, the optimal (best) combination of goods and services desired by consumers.

Which combination (A, B, C, D, E or F) consumers desire is an important issue in economics, and something we will return to later in the course.

Society faces a trade-off

What is the difference between points D and C in the diagram below? If we examine the table and the diagram, we see that at point D, 2 000 laptops and 24 000 mobile phones are produced, while at point C, 3 000 laptops and 18 000 mobile phones are produced. Because more laptops are produced, fewer mobile phones are produced. The people of Zanadu are facing a trade-off – to have more laptops they must give up some mobile phones. As they move from point D to point C, they are allocating more resources to the production of laptops and fewer to the production of mobile phones.



From this, one can also conclude that the question of what to produce is in fact a decision about how resources should be allocated among their competing uses. Competing uses suggests that the same resources could be used to produce different things. A decision to produce at a point such as D indicates that a decision has been made to allocate resources in such a way that this specific combination is produced.

Do the following activity to make sure you understand the concepts technical efficiency and allocative efficiency:

ACTIVITY 6

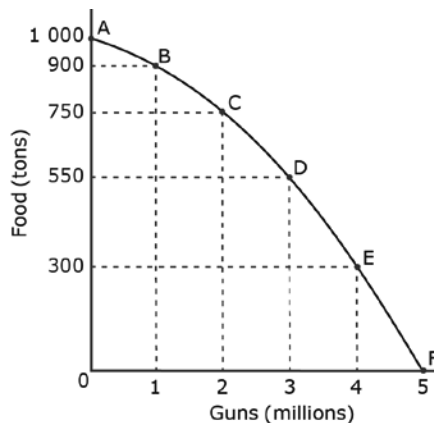
- 6.1 Paradiso is currently producing a combination of food and guns as indicated by point D on the production possibilities curve. The decision to produce this combination was taken by the president of Paradiso without any consultation with the parliament or the people of Paradiso. In a survey it was found that the people of Paradiso would prefer a combination such as that represented by C.

Which of the following statements regarding points C and D are correct?



- At point D, Paradiso is not technically efficient because the people of Paradiso prefer combination C.
- At point C, technical efficiency occurs.
- At point C, allocative efficiency occurs.
- At point C, the satisfaction the people of Paradiso derive from food and guns is greater than the satisfaction at point D.

6.2 A movement from point C to point B implies that

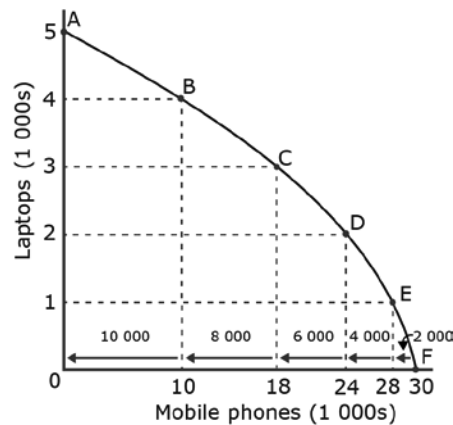


- the scarcity problem is solved.
- fewer resources are allocated to the production of guns and more resources to the production of food.
- more resources are allocated to the production of guns and fewer resources to the production of food.
- the technical efficiency of the country increases.

4.7 Production possibilities curve and opportunity cost

After you have worked through this section of the learning unit, you should be able to:

- use a production possibilities table and the production possibilities curve to explain and illustrate opportunity cost



Production possibilities curve and opportunity cost

The opportunity cost of a resource is the value of the best alternative use that is given up or sacrificed. In the case of Zanadu, where two products are produced, the opportunity cost of the use of resources is measured in terms of the production of laptops and mobile phones.

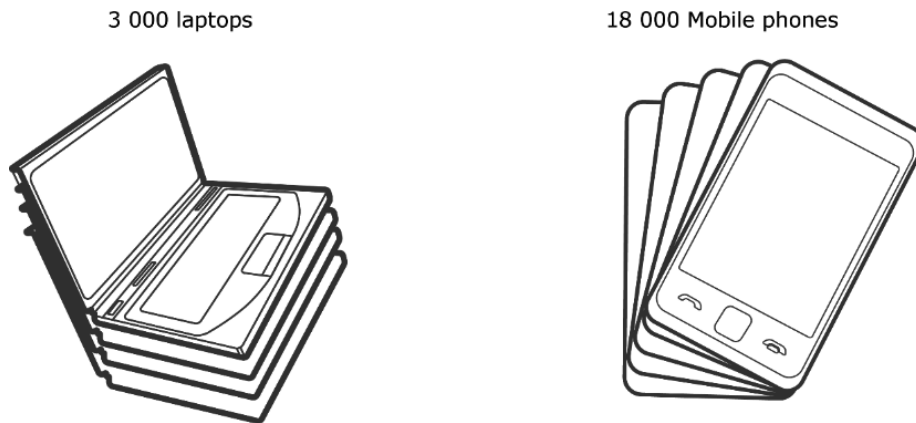
In the following table, the opportunity cost of increasing the production of laptops by increments of 1 000 is indicated in the fourth column:

Opportunity cost for Zanadu

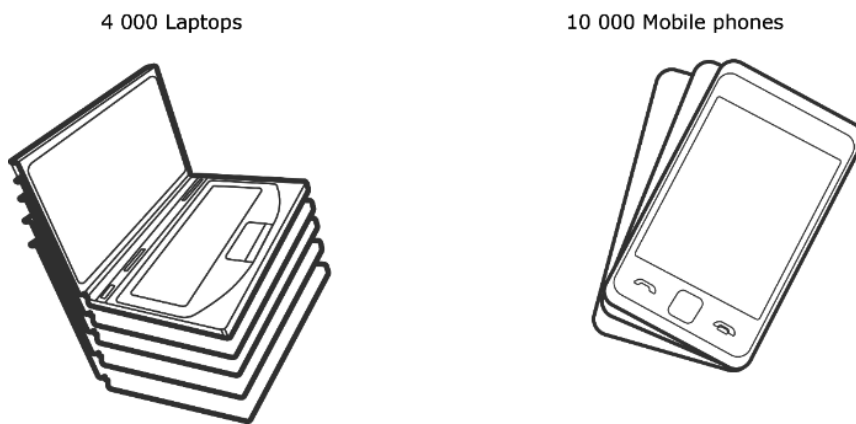
Combination	Laptops	Mobile phones	Opportunity cost of increasing production of laptops by increments of a 1 000
A	5 000	0	10 000
B	4 000	10 000	8 000
C	3 000	18 000	6 000
D	2 000	24 000	4 000
E	1 000	28 000	2 000
F	0	30 000	–

If one compares combinations C and B, the difference between these two combinations is that at point B, more laptops are produced – the number increases from 3 000 to 4 000 – while fewer mobile phones are produced – the number decreases from 18 000 to 10 000. This indicates that more resources are allocated to the production of laptops and fewer to the production of mobile phones.

At combination C:



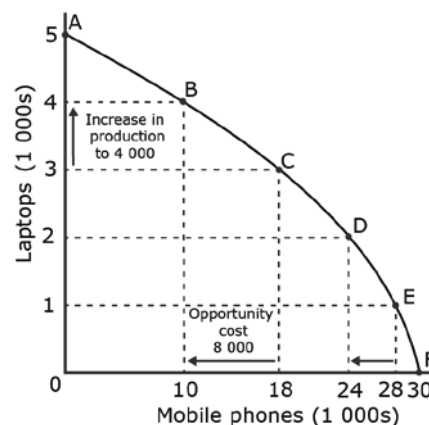
At combination B:



What is the opportunity cost of increasing the production of laptops from 3 000 to 4 000 in terms of mobile phones?

The opportunity cost of increasing the production of laptops by a 1 000 (from 3 000 to 4 000) is the decrease in the production of mobile phones, which in this case is equal to $18\ 000 - 10\ 000 = 8\ 000$ mobile phones. To increase the production of laptops, fewer mobile phones are produced, and the opportunity cost of producing more laptops is the mobile phones that are given up or sacrificed.

Graphically, the above is represented as a movement along the production possibilities curve from point C to point B. The opportunity cost of increasing the production of laptops by a 1 000 (from 3 000 to 4 000) is the decrease in production of mobile phones by 8 000 (from 18 000 to 10 000).



Production possibilities and opportunity cost

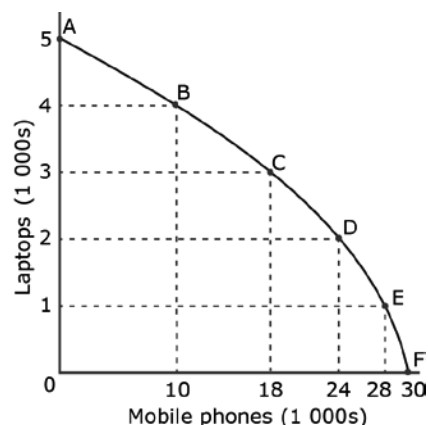
Looking at the table, what is the opportunity cost of increasing the number of laptops from 1 000 to 2 000?

Increasing the level of production of laptops from 1 000 to 2 000 decreases the production of mobile phones from 28 000 to 24 000. The opportunity cost of the increases in mobile phones is therefore $28\ 000 - 24\ 000 = 4\ 000$ mobile phones.

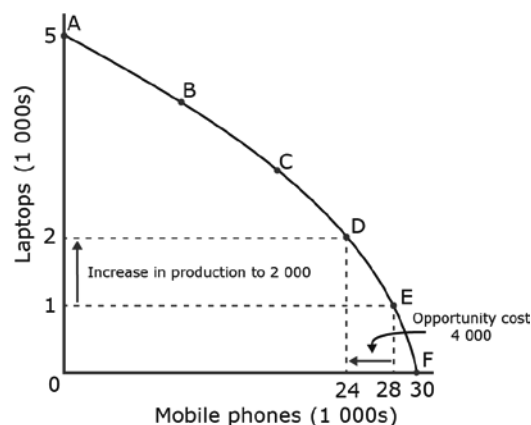
Opportunity cost for Zanadu

Combination	Laptops	Phones	Opportunity cost of increasing production of laptops by increments of a 1 000
A	5 000	0	10 000
B	4 000	10 000	8 000
C	3 000	18 000	6 000
D	2 000	24 000	4 000
E	1 000	28 000	2 000
F	0	30 000	—

Use the following diagram to indicate the opportunity cost of increasing the production of laptops from 1 000 to 2 000?



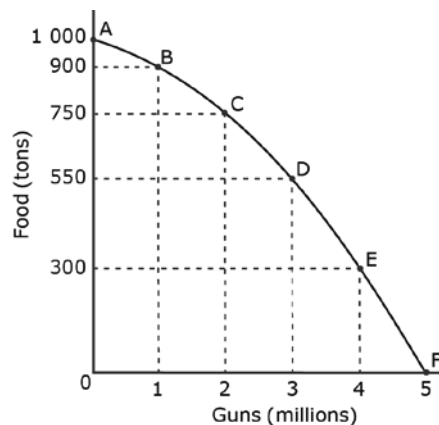
Graphically this is represented as follows:



Do the following activity about opportunity cost and the production possibilities curve.

ACTIVITY 7

7.1 Are the following statements about the situation in Paradiso **true** or **false**?



- The trade-off the people of Paradiso face is that in order to produce more guns, they must give up food.
- The trade-off the people of Paradiso face is that to produce more food, they must give up guns.
- The opportunity cost of producing guns is food.
- The opportunity cost of producing food is guns.

T	F

7.2 Use the information in the following table to calculate the **opportunity cost** in terms of tons of food when increasing the production of guns by increments of one million:

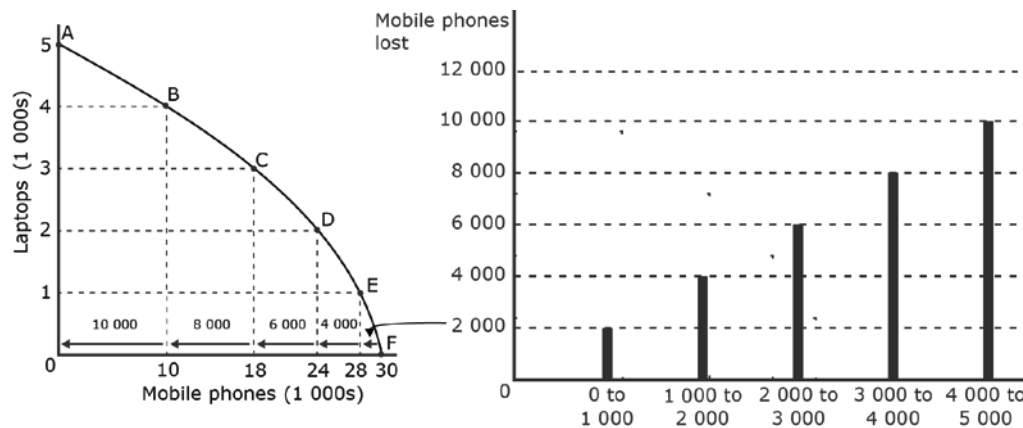
Production possibilities table for Paradiso

Combination	Food (tons)	Guns (millions)	Opportunity cost of increasing production of guns by increments of one million
A	1 000	0	
B	900	1	
C	750	2	
D	550	3	
E	300	4	
F	0	5	

4.8 Production possibilities and increasing opportunity cost

After you have worked through this section of the learning unit, you should be able to:

- explain and illustrate with the aid of a production possibilities curve increasing opportunity cost



Production possibilities curve an increasing opportunity cost

If you take a closer look at the opportunity cost of producing laptops, which is represented in the table below, what you will notice is that the opportunity cost increases as more laptops are produced. The opportunity cost of increasing the production of laptops from 0 to 1 000 is 2 000 mobile phones, whereas increasing the production of laptops from 3 000 to 4 000 is 8 000 mobile phones.

Production possibilities and increasing opportunity cost for Zanadu

Combination	Laptops	Mobile Phones	Opportunity cost of increasing production of laptops by increments of a 1 000
A	5 000	0	10 000
B	4 000	10 000	8 000
C	3 000	18 000	6 000
D	2 000	24 000	4 000
E	1 000	28 000	2 000
F	0	30 000	—

Study the table and answer the following questions:

What is the opportunity cost of increasing the production of laptops from 1 000 to 2 000?

Combination	Laptops	Mobile Phones	Opportunity cost of increasing production of laptops by increments of a 1 000
A	5 000	0	10 000
B	4 000	10 000	8 000
C	3 000	18 000	6 000
D	2 000	24 000	4 000
E	1 000	28 000	2 000
F	0	30 000	—

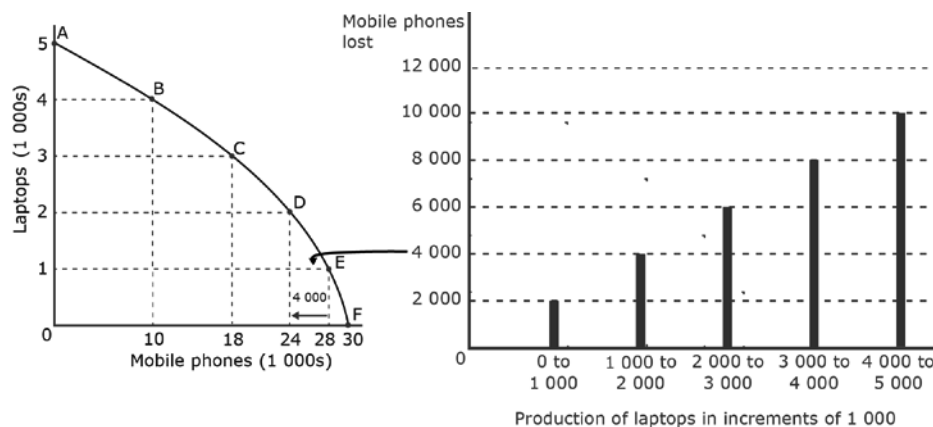
As you can see from the table, it is 4 000 mobile phones (28 000 – 24 000).

What is the opportunity cost of increasing the production of laptops from 2 000 to 3 000?

Combination	Laptops	Mobile Phones	Opportunity cost of increasing production of laptops by increments of a 1 000
A	5 000	0	10 000
B	4 000	10 000	8 000
C	3 000	18 000	6 000
D	2 000	24 000	4 000
E	1 000	28 000	2 000
F	0	30 000	—

As you can see from the table, it is 6 000 (24 000 – 18 000).

The reason for this increase in opportunity cost has to do with the suitability of the resources for which they are used. Resources are not all the same, and some resources may be more suitable for the production of mobile phones and others more suitable for the production of laptops.



Some of these resources are not suitable for the production of mobile phones, and by allocating these resources to the production of laptops (moving from point E to point D), for which the resources are

more suitable, the opportunity cost is relatively low – only 4 000 mobile phones need to be sacrificed to increase the production of laptops from 1 000 to 2 000.

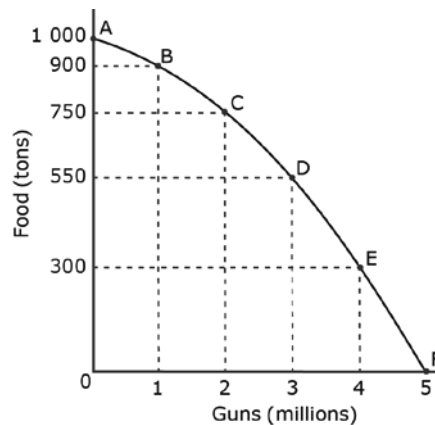
As increasingly more resources are allocated away from the production of mobile phones to the production of laptops, moving from point C to point B, less suitable resources are allocated to the production of laptops. Hence the opportunity cost of producing laptops rises – 8 000 mobile phones must be sacrificed to increase the production of laptops from 3 000 to 4 000.

It is because of this increasing opportunity cost that the curve is concave to the origin – that is, it bulges outwards from the origin.

Do the following activity to see if you understand increasing opportunity cost:

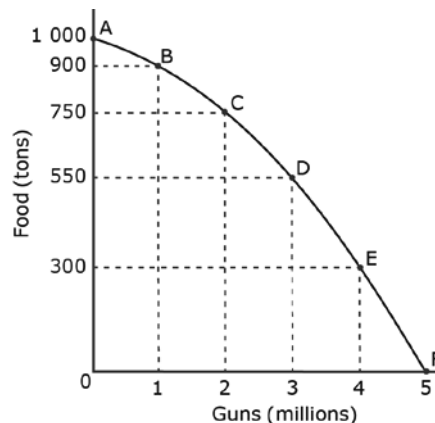
ACTIVITY 8

8.1 Choose the correct words to make the following statements **true**:



- The opportunity cost of producing guns (increases, decreases, stay constant) as more guns are produced.
- The opportunity cost of producing food (increases, decreases, stay constant) as more food is produced.

8.2 Refer to the diagram below and complete the following statements:

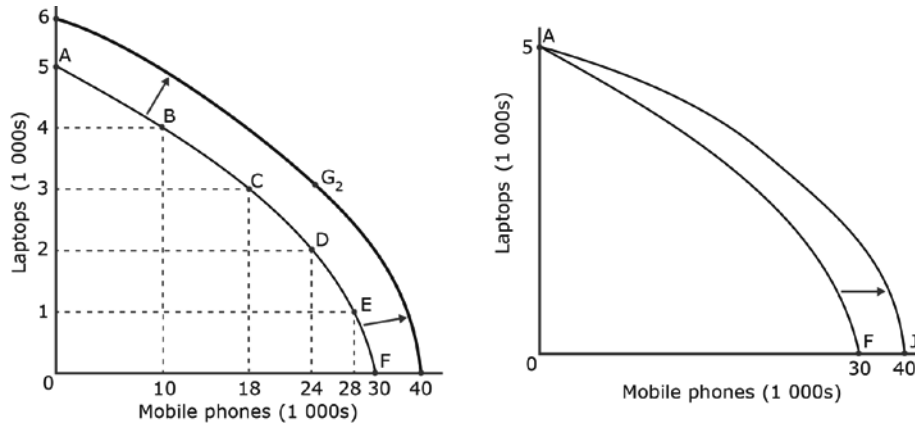


- A movement from B to C indicates that the opportunity cost of increasing the production of guns by _____ million is _____ tons of food.
- A movement from E to D indicates that the opportunity cost of increasing the production of food by _____ tons is _____ million guns.

4.9 Production possibilities and a change in resources

After you have worked through this section of the learning unit, you should be able to

- differentiate between two kinds of shifts, namely when the amount of resources and/or productivity for both products increase (shift of PPC) and when the production technique of one of the products improve (swivel of PPC)



Shift of PPC

What factors do you think can increase the quantity and quality of factors of production? Look at the options below. Select all the answers you think are relevant.

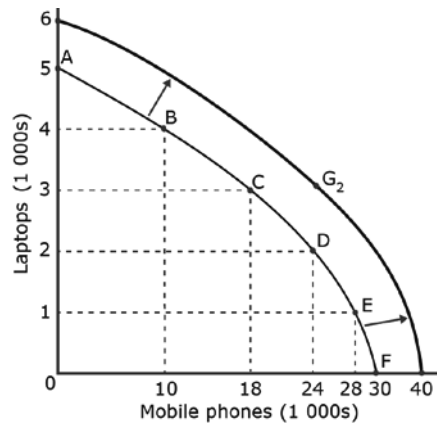
- ☐ Cheaper resources
- ☐ Longer working hours
- ☐ New technologies
- ☐ More workers
- ☐ Better weather
- ☐ Alternative resources of power
- ☐ Cheaper electricity
- ☐ Lower wages
- ☐ More factories
- ☐ Education

In fact, all of these may increase the quantity and quality of factors of production.

In our example of Zanadu, economic growth takes place if, at any combination, more laptops and/or more mobile phones are produced than before. Through economic growth it becomes possible for Zanadu to reach a point such as point G_2 , which we previously identified as unattainable.

This may be the result of an increase in the resources and/or an increase in technology that increases the productivity of the resources.

The impact of an increase in resources, which makes it possible for Zanadu to potentially produce both more laptops and mobile phones, can be represented graphically in the following diagram as an outward shift of the production possibilities curve:

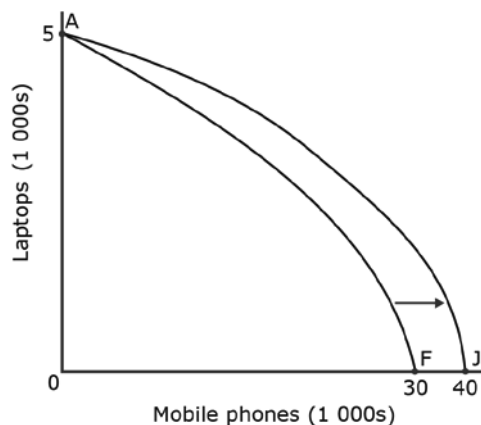


Outward shift occurs due to an increase in resources and/or efficiency of resources

At each combination, more laptops and mobile phones can be produced than before. If you compare points G_2 and D, you will see that the production of both laptops and mobile phones is higher.

Swivel of PPC

If a change in technology causes an improvement in the production of one of the goods, say, mobile phones, it implies that with the given resources, more mobile phones can be produced, and the maximum potential output for mobile phones increases from F to J. In this case, the maximum potential output for laptops is unchanged at A, and the production possibilities curve swivels outwards from AF to AJ. It is now possible, except at point A, to produce more mobile phones and laptops.



A change in the efficiency in the production of mobile phones

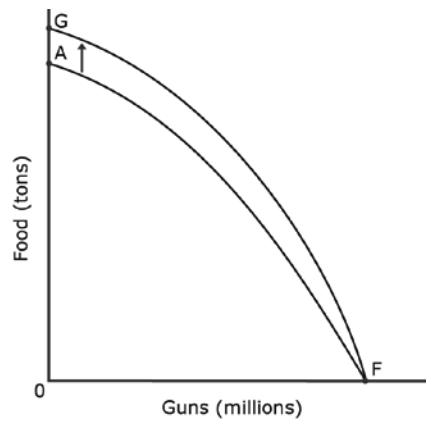
Do the following activity to make sure you understand a change in production possibilities:

ACTIVITY 9

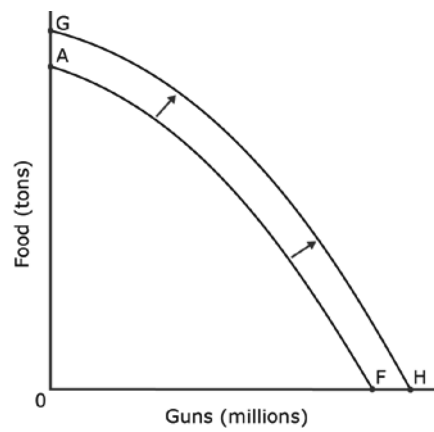
The President of Paradiso decides to stand for a third term, while the constitution only allows for two terms. This leads to political unrest that turns violent, and in the process, a number of food factories and gun factories are burnt down.

9.1 Which **one** of the following diagrams indicates the effect this would have on the production possibilities of Paradiso?

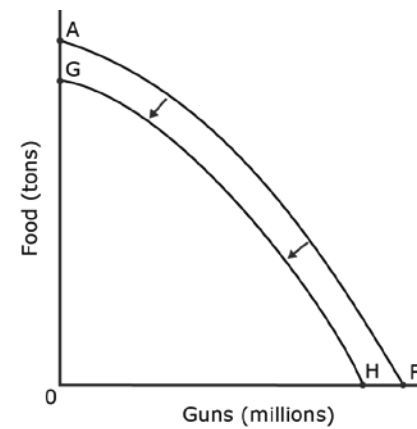
a.



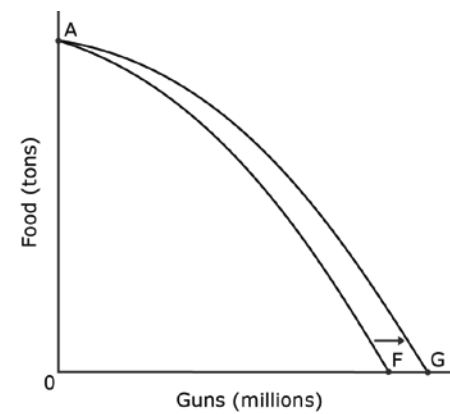
b.



c.

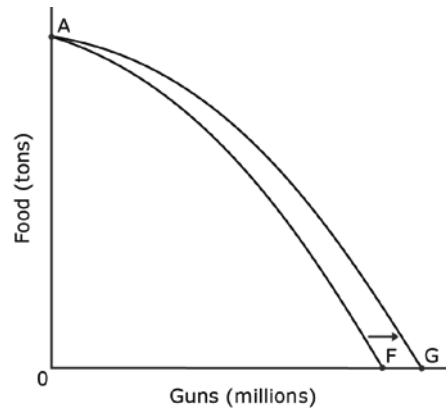


d.

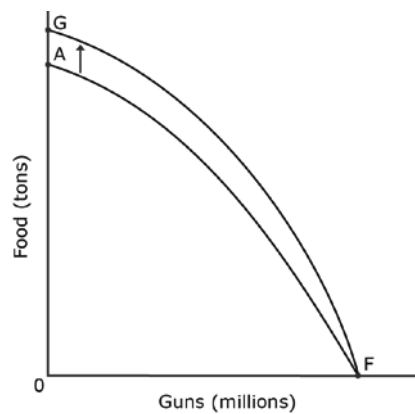


9.2 Which **one** of the following diagrams represents the impact of a new production design that would improve the production of food in Paradiso?

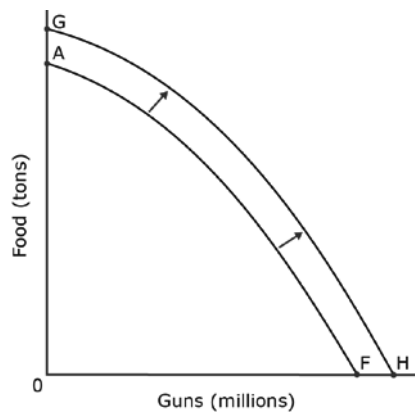
a.



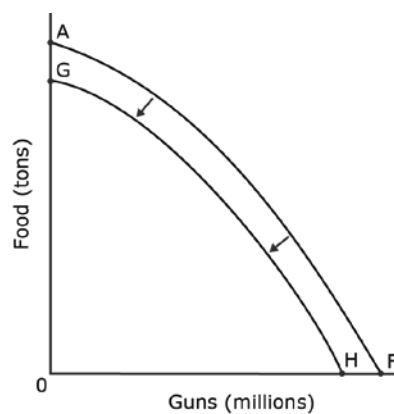
b.



c.



d.



4.10 How decisions today have an impact on our future

After you have worked through this section of the learning unit, you should be able to:

- use the PPC curve to explain what might happen in the future if a country decides to rather produce consumer goods than capital goods

A key issue that can be illustrated by the production possibilities curve is how the decisions we make today have an impact on our future.

An important decision that any society needs to make is how many resources to devote to the production of capital goods (investment) and how many resources to devote to the production of consumer goods.

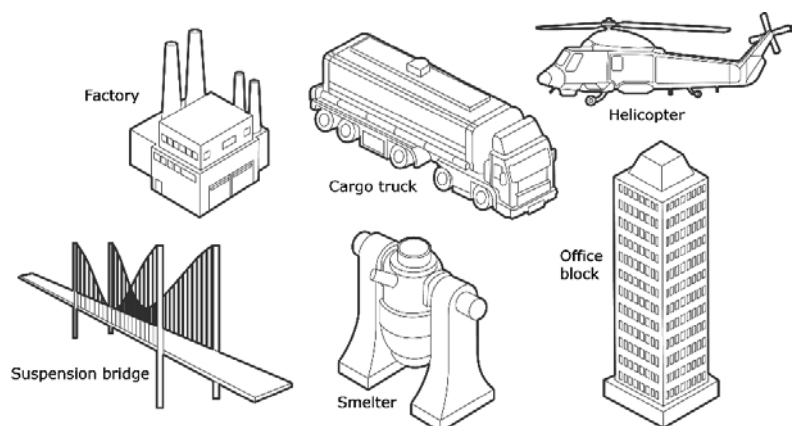
Look at the list of goods below. Which of these are capital goods and which of these are consumer goods?

- ☐ An mp4 player
- ☐ A mobile phone
- ☐ A factory
- ☐ A music CD
- ☐ A cargo truck
- ☐ An industrial digger
- ☐ An office block
- ☐ A mountain bike
- ☐ Beauty products
- ☐ A construction crane
- ☐ An energy drink
- ☐ A bridge

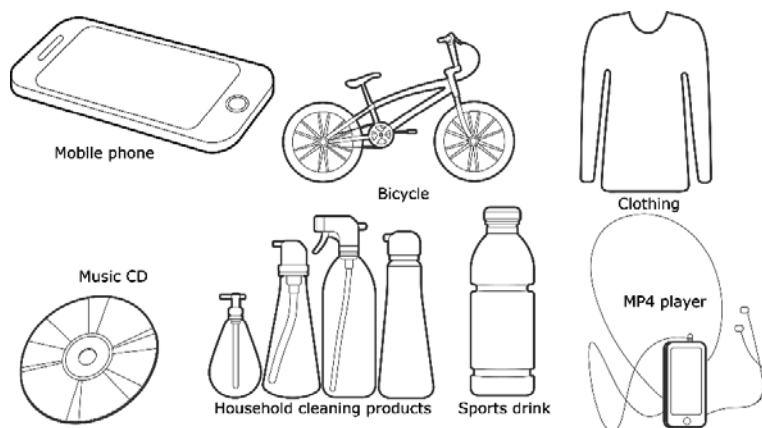
Some goods are strictly capital goods, and others are strictly consumer goods.

There are some however, such as a mobile phone, that may be considered either a capital good or a consumer good, depending on how it is put to use.

Capital goods are our man-made resources and are used in the production of other goods. Examples include all types of machinery, plant and equipment used in manufacturing and construction, school buildings, university residences, roads, dams and bridges. Capital goods do not themselves yield direct consumer satisfaction, but they do permit more production and satisfaction in the future.



Consumer goods are used or consumed by individuals or households (i.e. consumers) to satisfy needs and wants. Examples include food, wine, clothing, shoes, furniture, household appliances and motor cars.

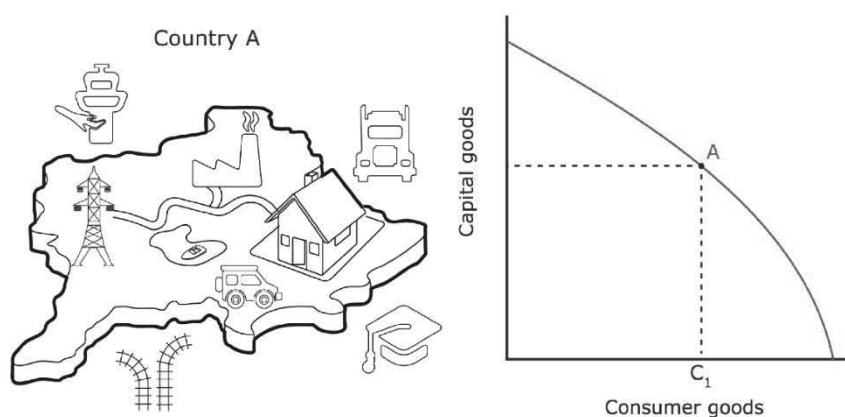


The trade-off society faces is whether it should allocate more resources to satisfy needs and wants in the current period, or whether it should allocate more resources to the creation of capital goods that will make it possible to create more consumer goods and services in the future. In other words, should society sacrifice current consumption to increase future consumption?

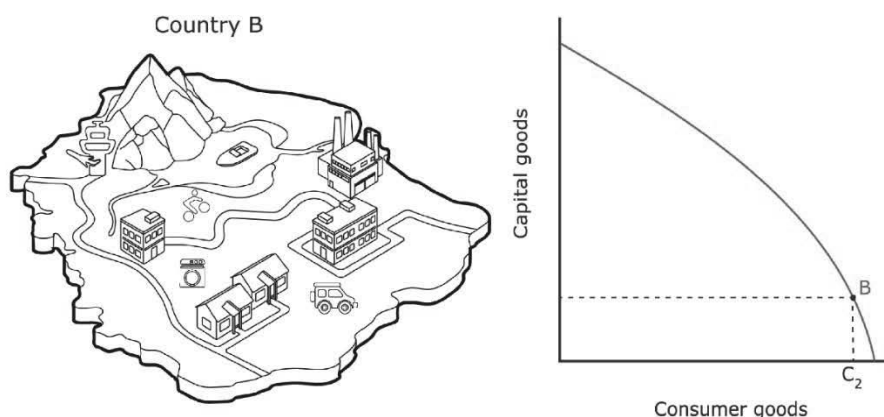
This trade-off can be illustrated by the production possibilities curves for country A and country B depicted below.

The production of capital goods is represented on the vertical axis, while the production of consumer goods is represented on the horizontal axis.

Country A decides to allocate resources not only for the replacement of worn-out capital, but also to create new capital goods. This is indicated by point A. At this point, the quantity of consumer goods is equal to C_1 .



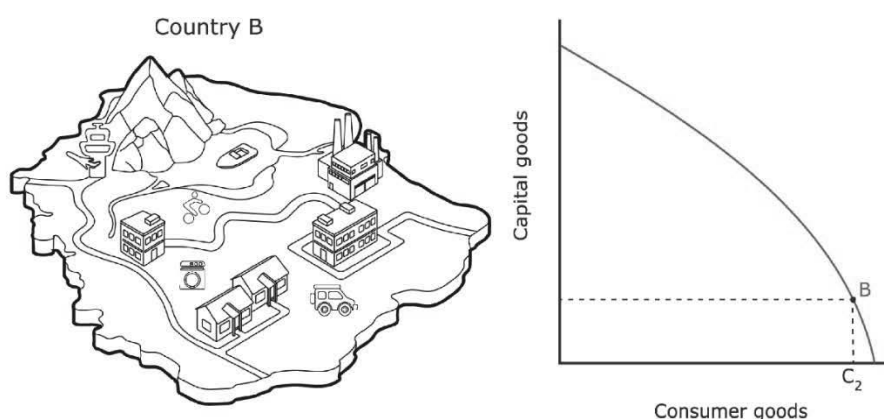
Country B, however, decides to allocate resources only for the replacement of worn-out capital. This is indicated by point B. At this point, the quantity of consumer goods is equal to C_2 .



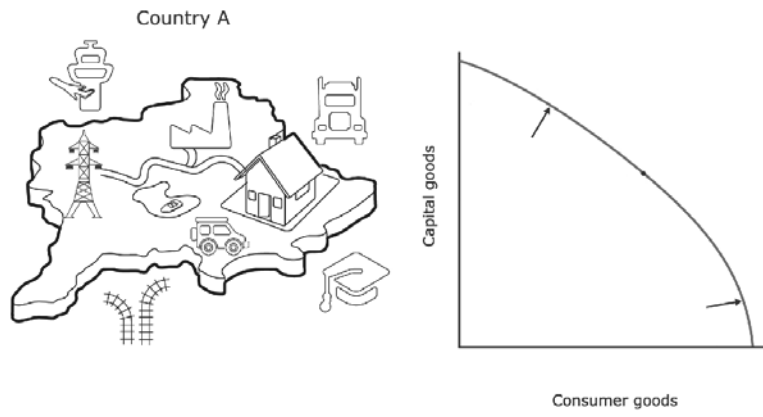
In the current period, people in country B have more consumer goods (C_2) than the people in country A (C_1) and they can therefore satisfy more needs and wants. We can therefore say they have a higher standard of living.

Over time, however, this position will change.

The production possibilities curve for country B will stay the same because the country only produces sufficient capital goods to replace worn-out capital goods and there will be no change in the people's standard of living.



The production possibilities curve for country A will shift outwards in the future because the country increased its capital goods, which makes it possible for it to produce more consumer goods. And as long as this country continues to allocate resources in this way, the production possibilities curve will shift outwards and economic growth will occur and the standard of living will increase and eventually overtake that of country B.



Production possibilities for Country A increases

ANSWERS TO THE ACTIVITIES

Activity 1

Options a and c are correct.

To construct a production possibilities curve, you need to know the different combinations of food and guns that can be produced when a country's resources are employed fully and efficiently.

The only useful information is that if Paradiso uses all its resources (100%), then it will be able to produce 400 tons of food and three million guns. This provides you with one point on the production possibilities curve. You are not interested to know what this combination is at 20% or 40% but at a 100%.

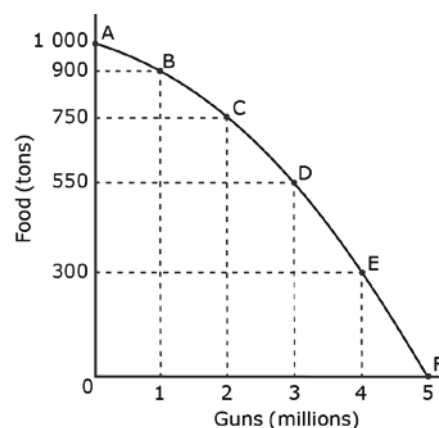
It is indeed the case that they misunderstood their brief since to construct a production possibilities curve, you need to know the different combinations of food and guns that can be produced when a country's resources are employed fully and efficiently.

Activity 2

Production possibilities table for Paradiso

Combination	Food (tons)	Guns (millions)
A	1 000	0
B	900	1
C	750	2
D	550	3
E	300	4
F	0	5

Activity 3



Production possibilities curve for Paradiso

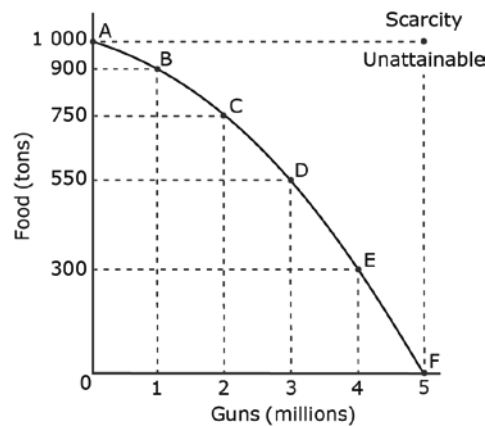
Activity 4

Option b is the correct choice.

You should indeed disagree.

It is true that 1 000 tons of food and five million guns are points on the production possibilities curve. What is not true is the fact that it is possible to produce a combination of 1 000 tons of food and five million guns. Paradiso can produce 1 000 tons of food or five million guns, but not both.

A combination of 1 000 tons of food and five million guns lies outside the production possibilities curve and represents scarcity.



Activity 5

5.1 Options a, b and d are the three correct options.

Paradiso is at a point inside the production possibilities curve. Because there is unemployment and firms are not making use of all their capacity, Paradiso is not making full use of all its resources and is at a point inside the production possibilities curve.

Paradiso can increase the production of guns without decreasing the production of food. A possible point is D. It is possible for Paradiso to move from point H to point D. This indicates that it can produce more guns without decreasing the production of food.

Paradiso is inefficient in its production of guns and food since it is not making full use of its resources. This indicates a position of inefficiency.

Options c, e and f are incorrect.

They are at a point inside the production possibilities curves since they are not making efficient and fully use of their resources.

They are at a point inside their production possibilities curve and not at a point outside.

Paradiso is not technically efficient in its production of guns and food. There is unemployment and underutilisation of their capacity.

5.2 The correct option is a.

Point C is on the production possibilities curve indicating that Paradiso is efficient in the production of food and guns.

Both points C and D are on the production possibilities curve; they are both points of technical efficiency. Point C is therefore not more efficient than point D.

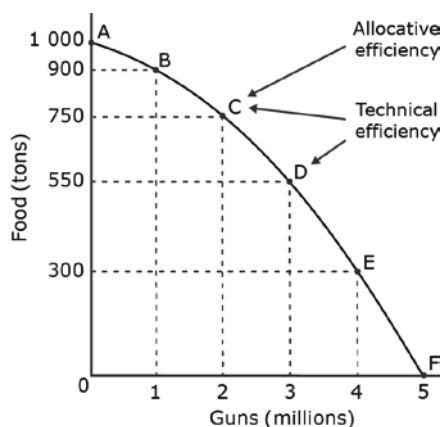
It is not possible to increase the production of food or guns without decreasing the production of the other good.

To increase the production of food, they will have to decrease the production of guns.

Activity 6

6.1 Options b, c and d are correct.

Any point on the production possibilities curve represents technical efficiency. At point D, there is therefore technical efficiency but not allocative efficiency since society prefer point C.



6.2 The correct option is b.

A movement from point C to point B indicates that fewer resources are allocated to the production of guns and more to the production of food.

Technical efficiency is the same at points B and C. Any point on the PPC represents technical efficiency but not necessarily allocative efficiency.

Activity 7

7.1

a. The statement is true.

The trade-off is indeed that in order to produce more guns, they must give up food and to produce more food, they must give up guns.

b. The statement is true.

The trade-off is indeed that in order to produce more food, they must give up guns and to produce more guns, they must give up food.

c. The statement is true.

The trade-off they face is that to produce more guns, they must give up food and to produce more food, they must give up guns. The opportunity cost of producing guns is therefore the food that is sacrificed.

d. The statement is true.

The trade-off they face is that to produce more guns, they must give up food and to produce more food, they must give up guns. The opportunity cost of producing food is therefore the guns that are sacrificed.

7.2

Production possibilities table for Paradiso

Combination	Food (tons)	Guns (millions)	Opportunity cost of increasing production of guns by increments of one million
A	1 000	0	-
B	900	1	100
C	750	2	150
D	550	3	200
E	300	4	250
F	0	5	300

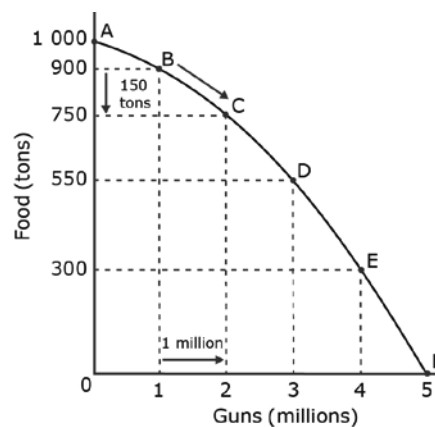
Activity 8

8.1 We are dealing with increasing opportunity cost. This applies to both the production of guns and the production of food.

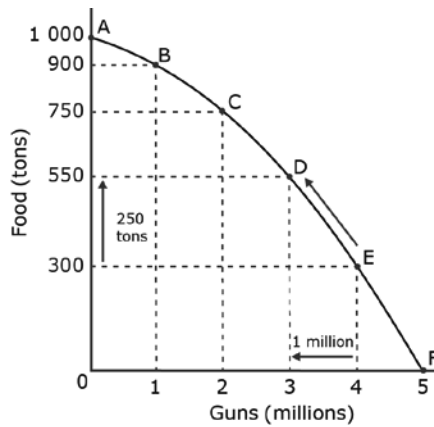
- The opportunity cost of producing guns *increases* as more guns are produced.
- The opportunity cost of producing food *increases* as more food is produced.

8.2

- A movement from B to C indicates that the opportunity cost of increasing the production of guns by 1 million is 150 tons of food.



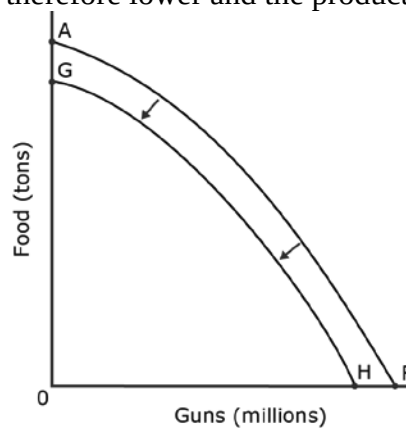
- A movement from E to D indicates that the opportunity cost of increasing the production of food by 250 tons is 1 million guns.



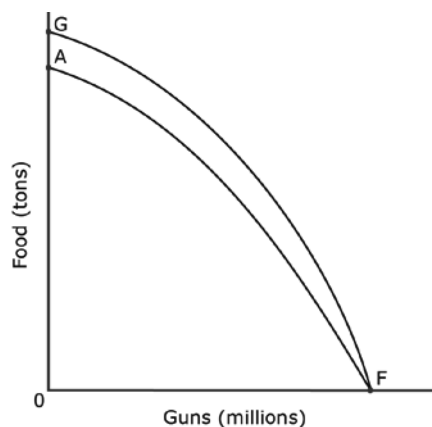
Activity 9

9.1 The correct option is c.

The destruction of factories implies that the capacity of Paradiso decreases and its potential output for both guns and food thus declines. The different combinations of guns and food that can be produced by Paradiso are therefore lower and the production possibilities shift inwards.



9.2 The correct option is b.



It implies that with the given resources more food could be produced and the maximum potential output for food would increase from A to G and the production possibilities curve would swivel outwards from FA to FG.

CHECKLIST

	Well	Satisfactory	Must redo
Concepts and relationships			
I am able to			
define a production possibilities curve			
identify the assumptions underlying the production possibilities curve			
interpret the data in a production possibilities curve			
draw a production possibilities curve			
distinguish between capital goods and consumer goods			
Diagrams			
I am able to explain with the aid of a production possibilities curve			
scarcity			
inefficiency			
technical efficiency			
allocative efficiency			
opportunity cost			
increasing opportunity cost			
the impact of an improvement in the production techniques of only one good			
the impact of an improvement in the production techniques of only one good or both goods			
the impact of investment on the living standard of a country			

Circular flow model

5

OVERVIEW

An economy is a complex system and it is impossible to model or even describe all the different forces that has an impact on the level of economic activity. To understand what determines the level of economic activity, we need to simplify things by focusing on the most important forces that shape an economy.

The circular flow model is a simplification of how the economy works. In a complete circular flow model, the interaction and interdependence between the major participants (households, firms, government and the foreign sector) in the various markets (factor, goods and financial) are captured and explained.

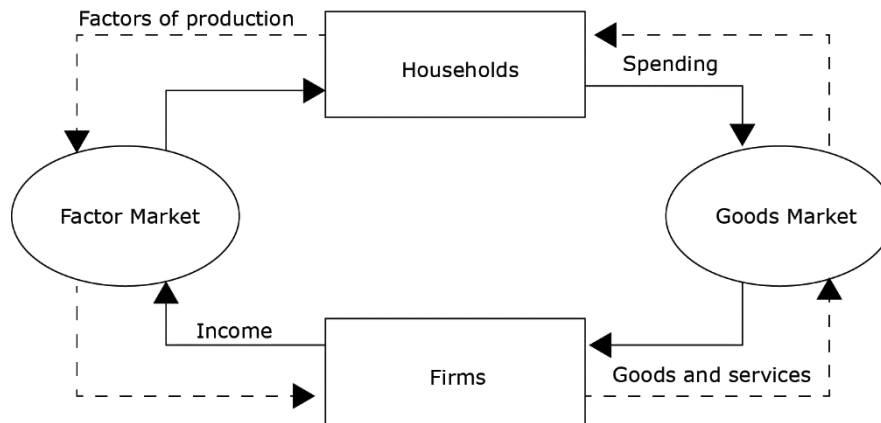
You will learn how the decisions these participants make and the way in which they interact have an impact on the economic life of every individual in our society. You will also see how the decision of one participant in the economy impacts on and elicits a reaction in the behaviour of another participant, and the influence this has on the level of economic activity.

In this section, we consider a model that includes only two participants: households and firms, and two markets: the goods and factor markets.

TOPIC OUTCOME

After you have worked through this learning unit, you should be able to use the circular flow model to illustrate and explain:

- the three flows of production, income and spending
- the interdependence between households and firms
- the real and monetary (nominal) flows through the factor market and the goods market



Simple circular flow model with two participants and two markets

Concepts

Familiarise yourself with the following concepts before you start this unit:

Households – A household can be described as all people who live together and who make joint economic decisions or who are subjected to others who make such decisions for them. A household can consist of an individual, a family or any group of people who have a joint income and take decisions together. Every person in the economy belongs to a household.

Firms – A firm can be described as the unit that employs factors of production to produce goods and services that are sold on the goods market.

Factor market – It is the market in which the factors of production are sold and purchased.

Goods market – It is the market in which goods and services are sold and purchased.

Real flows – It is the flow of real things such as goods and services or the factors of production.

Nominal (monetary) flows – It is the flow of money in the form of money income (wages and salaries, interest, rent and profits) and spending on goods and services.

Stocks and flows

An important distinction is made between a stock variable and a flow variable. The distinction has to do with whether the variable is something that is measured at a particular point in time or over a period of time. A stock variable is something that is measured at a particular point in time (say on 31 December 2018) while a flow variable is measured over a period of time (say monthly).

The factor of production capital is a stock variable since the value of the machines, tools and buildings that a firm owns is measured at a point in time. For instance, it can be said that on the 31 December 2018 the value of the capital stock for Firm X was R10 billion.

Investment, that is the purchasing or creation of capital goods, is a flow variable since it takes place over a period of time. For instance, it can be said that during the year 2018 the value of investment by Firm X was R1 billion. In other words, Firm X has invested over a period of a year R1 billion in machines, tools and buildings.

From the example it is clear that stocks and flows are related. Stocks change because the flows change. As Firm X increases its investment its capital stock will grow.

Examples of stocks are wealth, debts, assets, balance in your savings account and inventories. Examples of flows are income, spending, production, sales, investment, change in inventories and profits.

Read through the following extract (BusinesTech, 2017) on the technical recession in South Africa in 2017 and reflect on the questions that follow:

Technical recession in South Africa

The latest gross domestic product (GDP) data released by Stats SA shows that the South African economy declined by 0.7% in the first quarter of 2017, putting the country into a technical recession.

While the economy has slowed to a crawl over the past few years, the country has managed to escape the dreaded "official" recession tag.

In economic terms, a technical recession is described as two consecutive quarters of economic decline. The last quarter of 2016 showed a 0.3% decline; with the latest decline of 0.7% in the first quarter of 2017, South Africa fits the bill.

Source: <https://businesstech.co.za/news/finance/177885/south-africas-economy-is-officially-in-recession/>

If one takes a closer look at the different flows of production, income and expenditure what is clear is that during this recession the decline in production was mainly due to lower production levels in the manufacturing and trade sectors. Associated with this decline in production is a decline in spending by households. The decline in production and spending is also associated with a decline in income of households. It is this relationship between the flow of production, income and spending that we will investigate in more detail in this learning unit.

Questions for reflection

Why do you think the spending by households decline if the production in the economy declines?
What would your household do if the income of your household increases?
What would firms do if households decrease their spending on goods and services?

5.1 Three major flows

After you have worked through this section of the learning unit, you should be able to:

- identify the three major flows in the economy and describe the relationship between them

The three major flows in the economy are:

- The *production flow* comprises the production of goods and services by firms. It is here that the question of how to produce is answered.
- The *income flow* involves the flow of income to households which they earn from making the factors of production available for the production of goods and services by firms. Based on this income, the question of for whom to produce is answered.
- The *spending or expenditure flow* entails the spending by households on goods and services produced by the firms. It is during this flow that the question of what to produce is answered.

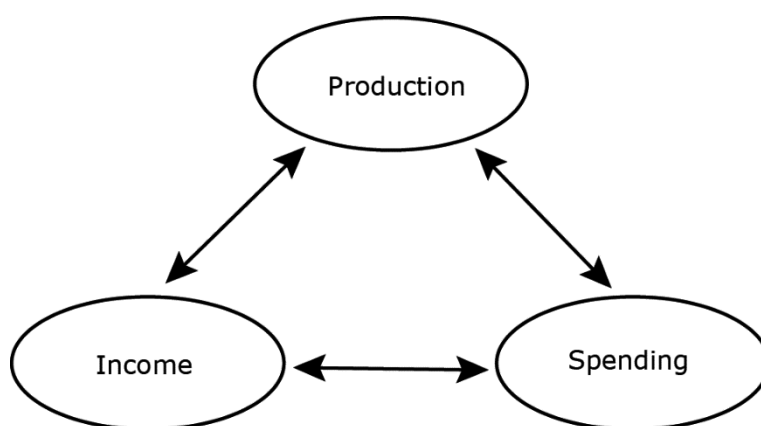
Thinking about these flows choose the correct option in the following question:

Do you think a person who is employed by a factory that produces mattresses is part of the flow of production, income and spending?

- ☐ The person is only part of the production flow.
- ☐ The person is only part of the income flow.
- ☐ The person is only part of the spending flow.
- ☐ The person is part of all three flows.

While the person is working in the factory producing mattresses, he or she is part of the production flow. When the person is paid, he or she is part of the income flow, and when he or she spends this income, he or she is part of the spending flow. The person is therefore part of all three flows.

The flows are not independent, but interdependent and closely linked. This interdependence between production, income and spending can be represented by the following circular flow diagram:

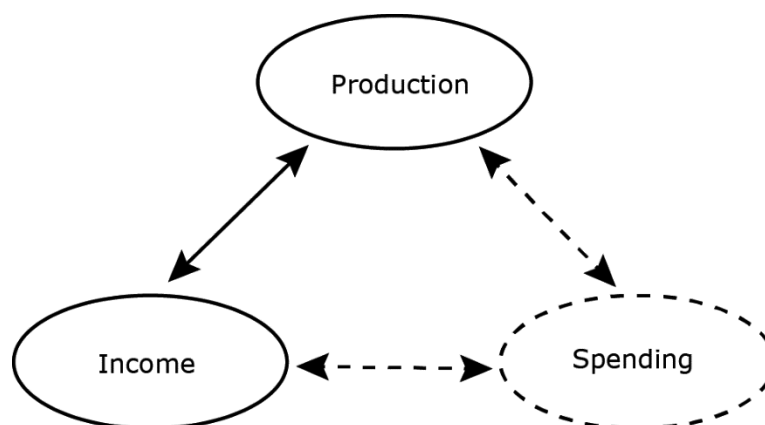


Three major flows

A change in the flow of production will bring about a change in the flow of income which, in turn, will change the flow of expenditure, which again will change the flow of production.

In the same way, an increase in spending will bring about an increase in production which, in turn, causes an increase in income. Similarly, an increase in income will bring about an increase in spending and then production. A major part of the study of macroeconomics is about how changes can be brought about in these flows.

Link between production and income

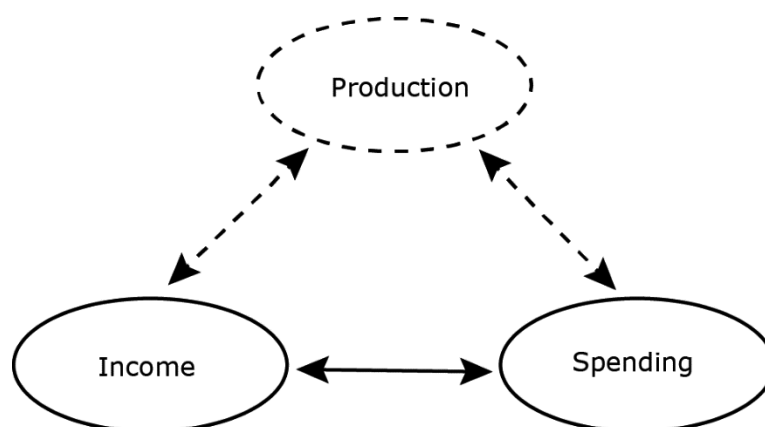


Link between production and income

The reason we produce goods and services is to satisfy our needs and wants. To produce these goods and services, factors of production are needed.

In a market system, the factors of production belong to households, who are then paid an income by producers for the use of the factors of production. As production takes place, a flow of income is created. If you are working (employed), the contribution of your effort is part of the production flow, while the payment you receive is part of the flow of income.

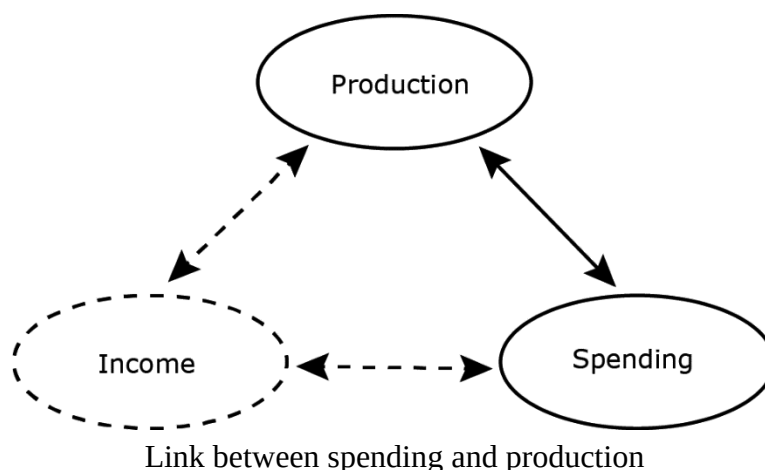
Link between income and spending



Link between income and spending

We have now established that as production takes place, a flow of income is created. This income, which flows to households from firms, is then spent by the households on the goods and services that were produced, and as they spend, a flow of spending or expenditure is created. As you spend the income you received from taking part in the process of production, you are creating a spending flow.

Link between spending and production



The spending in the economy is linked to production. When we bake bread, we are taking part in production, when we are paid for baking the bread, we are part of the income flow, and when we spend our income on buying the bread, we are part of the spending flow.

Example of the interdependence

James is a family man and works at the local bakery as a bread baker. To illustrate the circular flow between production, income and expenditure, we are going to use part of James's life story.

As James works as a baker and bakes bread, he is part of the production process. At the end of every month, James receives a salary from the bakery for his bread making. The salary James receives is income for him and his family. James's wife Martha does the shopping for the household at the end of every month; she buys everything the family needs, including the bread James helped bake. James's family is now part of the spending or expenditure process. That will happen all the time as long as James works and spends his income.

There is thus a continuous circular flow between production, income and spending in the economy. A change in production, such as an increase in production, will lead to an increase in income, which, in turn, will result in an increase in spending.

Do the following activity before you proceed:

ACTIVITY 1

Indicate whether you agree or disagree with the following statement:

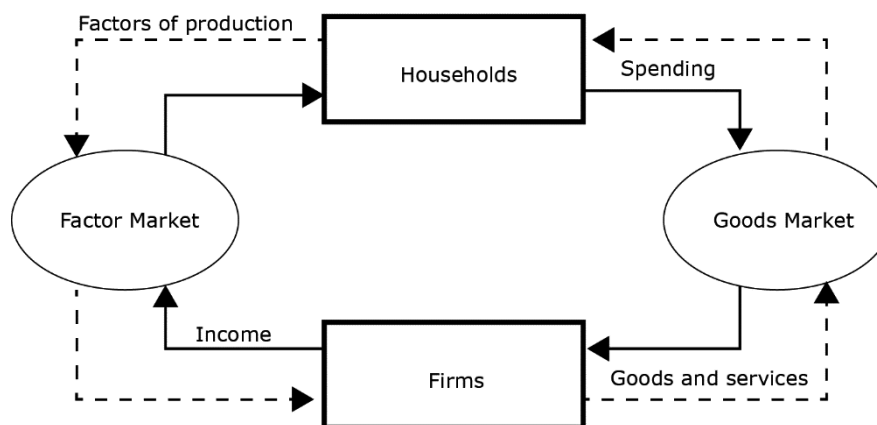
The lower the level of production in a country, and the lower the level of income and spending, the poorer the country.

- a. Disagree
- b. Agree

5.2 Participants in the circular flow: households and firms

After you have worked through this section of the learning unit, you should be able to:

- describe the different participants (households and firms) in the circular flow model
- describe the role households and firms play in the circular flow model
- describe the role households and firms play in solving the economic problem



Simple circular flow model with two participants and two markets

Households

Households are all the people who live together and who make joint economic decisions. Your family is a household, and a person living on his or her own is a household. Communes of friends who live in one house and share their expenses also form a household.

In a market economy, households are the biggest owners of the factors of production. They own all the labour and entrepreneurship as well as the capital and natural resources (land).

Even though businesses own the capital goods (buildings, factories, tools and machines), these businesses are, in turn, owned by households through the shares they have in them. Some households may own only a few hundred rand worth of shares, while others may own thousands or millions of rand worth of shares in a company. The point is that businesses are legal entities that are owned by people (households). These households own a firm's capital goods and have a right to its profit in the form of dividends.

Households make these factors of production available to the economy, where they are used by firms to produce goods and services. In exchange for the use of the factors of production, households receive an income from firms in the following forms:

- salaries or wages in return for their labour services
- interest on their capital
- rent from the ownership of natural resources such as agricultural land
- profit from entrepreneurial activities

The most important source of income for households in South Africa is the wages and salaries they receive in return for their labour services. To earn an income, households must therefore take part in the production of goods and services. This is a vital decision that households have to make. They have to

decide to whom they will make their factors of production available, how many of these factors of production and at what price. The more factors of production a household owns, and the more valuable these factors are, the higher the income of the household will be. This all happens in the factor market.

Households are therefore active participants in the factor market as suppliers of factors of production.

The primary aim of households is to maximise their satisfaction with their limited income. Households try to maximise their satisfaction by using their income to buy consumer goods and services that satisfy their needs and wants. These goods and services are bought on the goods market. Households are therefore active participants in the goods market as the demanders (buyers) of goods and services. They are the consumers in our society and responsible for consumption spending, which is spending on consumer goods and services.

If you think back to the basic economic questions of what, for whom and how to produce, you will immediately recognise the importance of households. It is the households, through their income and consumption expenditure, that the questions of what to produce and how much of it and for whom, are answered. What households (consumers) want and can afford (their demand) determines what firms will produce. A change in their behaviour (even a small one) has a significant impact on the flow of production, income and spending.

The characteristics of households may be summarised as follows:

- They are owners of production factors.
- They are sellers of production factors.
- They are consumers of goods and services.
- They are buyers of consumer goods and services.

Firms

In a market economy, business enterprises or firms are responsible for the production of goods and services in the economy. The bulk of the goods and services in South Africa are produced by privately owned businesses and they are therefore one of the key decision makers in our economy.

Firms combine and transform factors of production to produce goods and services. They are therefore active participants in the factor market as buyers of the factors of production that are owned by households. In return for the use of the factors of production, firms pay households wages and salaries for labour, interest for capital, rent for land and profits for the entrepreneur. This is part of the cost of production for the businesses.

Businesses do not only produce the consumer goods and services that households demand. They also produce capital goods (factories, machines and tools) that are used in the production of consumer goods and services. This creation of capital goods is known as real investment.

While households try to maximise their satisfaction from their limited income, firms try to maximise their profits. Profit is the difference between revenue and expenditure. Revenue is earned from the selling of goods and services to households in the goods market. Firms are therefore active participants as supplier (sellers) in the goods market. Firms strive to keep their revenue as high as possible and their expenditure – which is determined by their cost of production – as low as possible.

Looking back at our economic problem of what, how and for whom to produce, firms are responsible for "how to produce" and they continuously search for ways to make the production of goods and services more efficient. This is important, because our resources are scarce and we cannot afford to waste them.

The general characteristics of firms may be summarised as follows:

- They are buyers of factors of production.
- They are producers of goods and services.
- They are sellers of goods and services.

Do the following activity before you proceed:

ACTIVITY 2

2.1 Indicate whether the following statement is **true** or **false**:

The only factor of production that is owned by households is labour; the rest of the factors of production are owned by firms.

T	F

2.2 Write down the correct remuneration for the factors of production:

Labour - _____

Capital - _____

Natural resources - _____

Entrepreneurship - _____

2.3 Indicate whether the following statements is **true** or **false**:

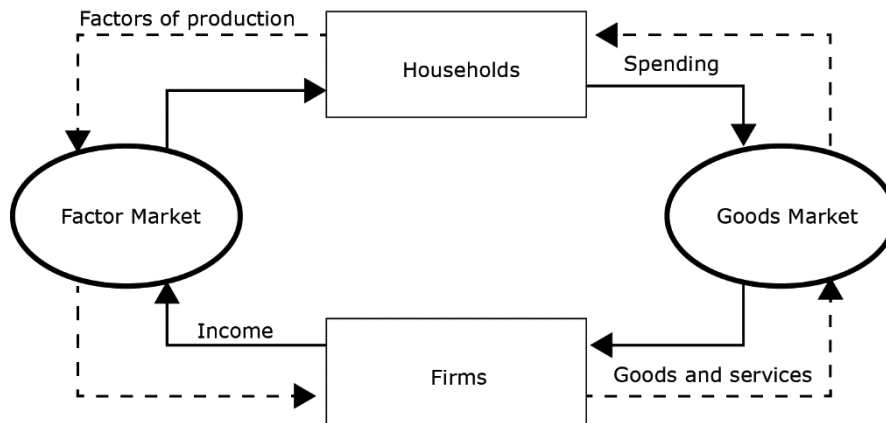
- The more factors of production a household owns, and the more productive the factors of production are, the higher the income of the household.
- The reason households make their factors of production available to firms is to earn an income which they can use to buy goods and services to satisfy their needs and wants.
- Firms own the factors of production that they use for the production of goods and services.
- The aim of firms is to maximise profits.

T	F

5.3 Markets in the circular flow: factor market and goods market

After you have worked through this section of the learning unit, you should be able to:

- describe the factor market and the goods market
- describe the role of households and firms in these markets



Simple circular flow model with two participants and two markets

Factor market

The factor market is the market in which the factors of production are bought and sold. It is through this market that households supply businesses with the factors of production, in exchange for an income in the form of wages and salaries, interest, rent and profits.

Two active participants in this market are households, as the suppliers of factors of production, and firms, as the demanders of the factors of production. The factor market includes the labour market as well as the market for capital.

Goods market

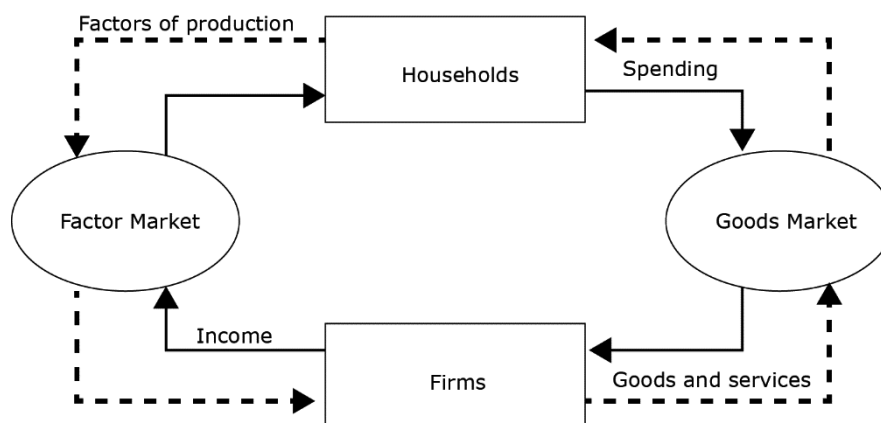
There are literally thousands of different producers of goods and services and millions of different consumers of these goods and services in the economy. In macroeconomics, all these different markets for goods and services, which include both the producers and the consumers, are grouped together under the heading of the goods market. In economics, this grouping together is called aggregation.

It is in the goods market that households (consumers) buy their goods and services and the producers supply their goods and services. Two active participants in this market are households, as the demanders of goods and services, and firms, as the suppliers of goods and services.

5.4 Real flows and nominal flows

After you have worked through this section of the learning unit, you should be able to:

- distinguish between real flows and nominal (monetary) flows
- identify the real and nominal flows through the factor market and the goods market



Simple circular flow model with two participants and two markets

Real flows refer to the flow of real things such as goods and services or the factors of production, while nominal flows refer to the flow of money in the form of money income (wages and salaries, interest, rent and profits) and spending on goods and services.

In the factor market, the real flow is the flow of the factors of production – the quantity of labour, capital, land and entrepreneurship – from households to firms.

The monetary flow is the flow of income in terms of money from firms to households – in other words, the amount that is paid in wages and salaries, interest, rent and profits.

In the goods market, the real flow is the flow of goods and services from firms to households.

The monetary flow is the flow of spending (payment) by households to firms for goods and services.

Do the following activity before you proceed:

ACTIVITY 3

- 3.1 Which one of the following is a real flow in the goods market?
 - a. The spending flow on goods and services from households to firms.
 - b. The flow of the factors of production from households to firms.
 - c. The flow of goods and services from firms to households.
- 3.2 Which one of the following is a monetary flow in the factor market?
 - a. The flow of factors of production from households to firms.
 - b. The income flow from firms to households.
 - c. The spending flow on goods and services from households to firms.
- 3.3 Indicate whether the following statements is **true** or **false**:

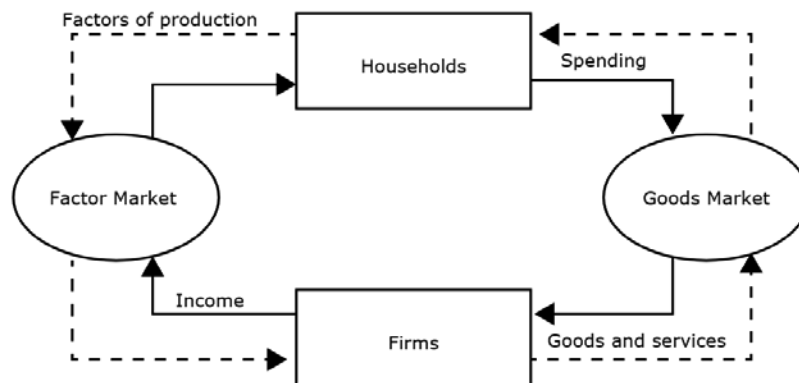
T	F

- a. If more factors of production flow to the firms, then the income flow to households will increase.
- b. The factors of production flow through the factor market, while spending by households flows through the goods market.

5.4 Complete circular flow model

Now that we have identified two main participants in the economy, namely households and firms, and two markets, namely the factor and goods markets, we can design a model to show the interactions between firms and households through the goods and factor markets.

The circular flow model that we will build consists of two participants, namely households and firms, and two markets, namely the factor market and the goods market and two kinds of flows namely nominal (monetary flows) and real flows.



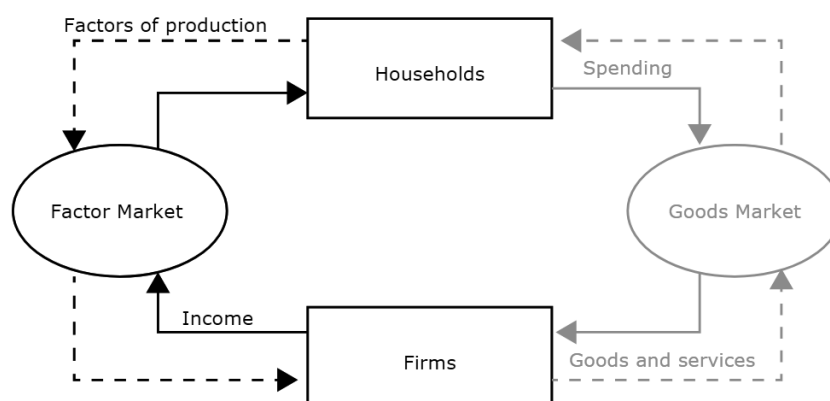
Simple circular flow model with two participants and two markets

After you have worked through this section of the learning unit, you should be able to use the circular flow model to illustrate and explain:

- the interdependence between households and firms
- the real and nominal (monetary) flows through the factor market and the goods market
- the impact of a change in a flow

Flows between households and firms through the factor market

From households to firms, there is a flow of factors of production through the factor market, as illustrated by the dotted line. This is a real flow. An example of this flow would be you leaving your house in the morning to go to work at a firm. This is an example of a real flow of labour. Then there is also the flow of capital, land and entrepreneurs from households to firms. This real flow of the factors of production takes place through the factor market.

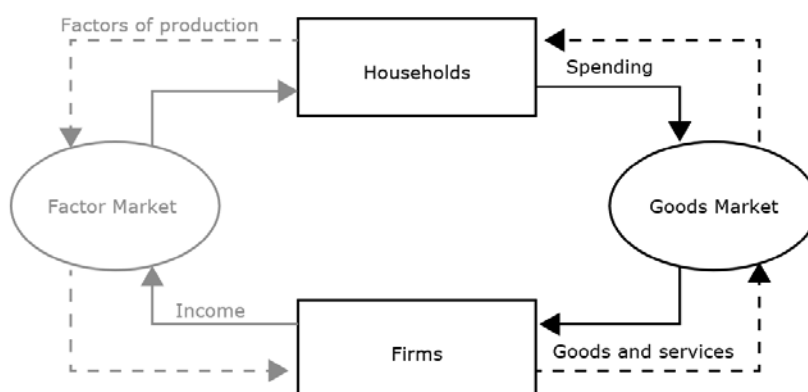


Flows through the factor market

From firms to households, there is an income flow through the factor market as firms pay households for the use of the factors of production owned by households, as indicated by the solid line. This is a monetary flow. An example of this flow would be you receiving payment in the form of a wage by the firm you are working for. Rent for land, interest for capital and profits for entrepreneurs are all nominal (monetary) flows and part of the income flow.

Flows between firms and households through the goods market

Firms use the factors of production to produce goods and services that they make available to households through the goods market. This is the real flow of goods and services from firms to households, and it is indicated by the dotted line. An example of this flow would be the actual groceries you buy from, say, your local supermarket.



Flows through the goods market

Households use their income to pay for the goods and services they receive from firms. This payment for goods and services is a monetary flow from the households to firms through the goods market indicated by the solid line, and it is the spending flow. An example of this flow would be when you pay for your groceries.

We can therefore distinguish between two kinds of flows between households and firms, namely real flows and nominal (monetary) flows through the factor market and the goods market. Notice how the nominal (monetary) flow is in the opposite direction of the real flow.

Impact of a change in a flow

We can now use this model to explain what happens to the flows if, for instance spending by households increases:

- As spending by households increases, the monetary flow from households to firms increases through the goods market.
- As the goods move from firms to households, the real flow from firms to households increases.
- This increased spending by households causes firms to increase production since the demand for goods is higher. As firms increase production, the production flow increases and more factors of production are employed.
- There is thus an increase in the income flow from firms to households through the factor market.

Do the following activity before you proceed:

ACTIVITY 4

Choose the correct term in brackets:

As production by firms decreases, the (monetary flow, real flow) of factors of production from households to firms (increases, decreases) through the (goods market, factor market). As a result, the monetary flow to households (increases, decreases) since the income flow is (greater, smaller) from firms to households. This change in the income flow causes the spending flow by households through the (goods market, factor market) to (increase, decrease). This, in turn, causes the (monetary flow, real flow) of goods and services between firms and households to (increase, decrease).

Task

It is important that you are able to draw the circular flow model and able to use it to explain what happens to the flows. Practise this by drawing your own circular flow model and use it to explain it to someone else (or to yourself) what happens if production increases.

Hint: It is the opposite from what happens if production declines.

5.6 Limitations of the simple circular flow model

After you have worked through this section of the learning unit, you should be able to:

- identify the limitations of the simple circular flow

At this stage, the circular flow model only includes a goods market and a factor market.

The state, representing the government's action through the markets in the economy, could also be introduced as an independent participant buying goods and services and factors of production in the various markets. The state also influences economic life directly by providing certain services such as defence, policing and education. In order to finance these services, the state taxes both firms and individual households.

The foreign sector is another participant not included in the simplified model. It comprises mainly the imports and exports of goods and services. This participant also operates in the markets for goods and factors of production in the domestic economy. Imports of goods and services may be regarded as an offer of these goods in the various markets, in return for which a reverse flow of money would go to the foreign sector. Exports of goods and services would mean a flow of goods from the relevant participants to the markets to foreign economies, with a corresponding return flow of money.

The model can also be extended to include a financial market. Households do not spend all their income. Some of it is saved (in the financial market) and firms borrow from the financial market when they invest (when they buy new machines or build bigger factories).

The model also assumes that prices of goods, services and production factors do exist, but it does not explain how these prices are arrived at (determined) and the impact of a change in prices on the flows.

ANSWERS TO THE ACTIVITIES

Activity 1

You should agree.

Poor countries have low levels of production, income and spending, while rich countries have high levels of production, income and spending.

Activity 2

2.1 The statement is false.

Households are the owners of all the factors of production. For instance, they own capital through shares they have in companies.

2.2

Labour – wages and salaries

Capital – interest

Natural resources – rent

Entrepreneurship – profit

2.3

a. The statement is true.

The income of households depends on their ownership of the factors of production and how productive these factors are. The more valuable the contribution of the factors of production to total production, the greater the income derived from them.

b. The statement is true.

The aim of households is to satisfy as many needs and wants as possible, and to do that, they need an income which they obtain by taking part in the production of goods and services.

c. The statement is false.

The factors of production are owned by households and not firms.

d. The statement is true.

The reason firms produce goods and services is to make a profit.

Activity 3

3.1 c.

The flow of goods and services from firms to households is a real flow and occurs through the goods market.

The spending flow on goods and services from households to firms is a nominal (monetary) flow.

The flow of the factors of production from households to firms is a real flow through the factor market.

3.2 b.

The income flow from firms to household is a nominal (monetary) flow through the factor market.

The flow of factors of production from households to firms is a real flow through the factor market.

The spending flow on goods and services from households to firms is a nominal (monetary) flow through the goods market.

3.3

a. The statement is true.

As households make more factors of production available, their income from the factors of production increases.

b. The statement is true.

The factors of production flow through the factor market, while spending by households flows through the goods market.

Activity 4

As production by firms decreases, the *real flow* of factors of production from households to firms *decreases* through the *factor market*. As a result, the monetary flow to households *decreases* since the income flow is *smaller* from firms to households. This change in the income flow causes the spending flow by households through the *goods market* to *decrease*. This, in turn, causes the *real flow* of goods and services between firms and households to *decrease*.

CHECKLIST

	Well	Satisfactory	Must redo
Concepts and relationships			
I am able to			
name the three major flows in the economy			
identify the different participants in the economy			
define households			
define firms			
distinguish between the two basic markets in the economy			
distinguish between real and nominal flows			
distinguish between stocks and flows			
Diagrams			
I am able to use a circular flow diagram to			
identify the three major flows in the economy and explain the interdependence between them			
identify the factor and goods market			
distinguish between real flows and nominal flows			
distinguish between the following flows: flow of goods and services flow of spending flow of factors of production flow of income			
explain how the flows change if, for instance, production in the economy changes			

Demand, supply and prices

6

OVERVIEW

Have you ever wondered how things function in our economic system? Let's take the city of Johannesburg as an example:

Apart from the millions that live there, thousands travel to and from this metropolitan beehive of activity every day. All these people must be able to buy food, obtain transport, find accommodation and have access to hundreds of other services on a daily basis in order to survive. How is it possible that the residents of greater Johannesburg can sleep peacefully without fearing some breakdown in the economic services on which their lives depend? Who makes such a massive but efficient organisation possible? Who is the master organiser behind all this?

The answer to the above questions is simply that nobody is responsible.

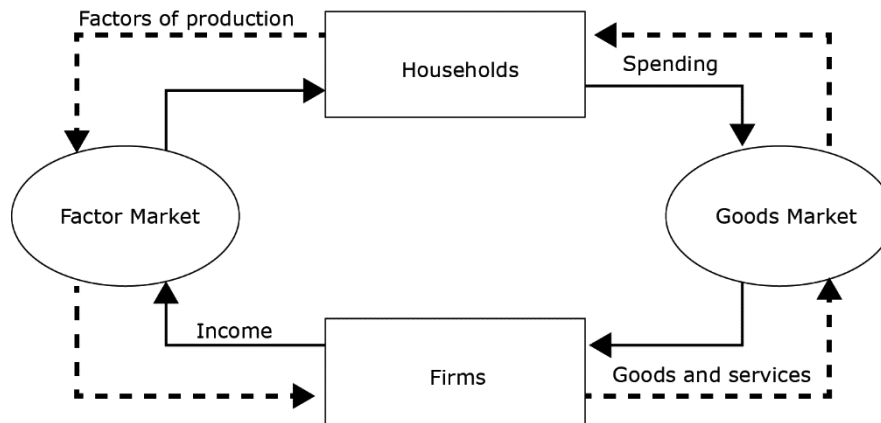
Yes, the answer to all these questions is that no single authority or organisation is responsible for the smooth functioning of the economic system. What in fact happens is that all the millions of actions by consumers, producers and businesses are directed and coordinated by a system of markets and the prices that are established on them. The coordination occurs invisibly in the sense that nobody is consciously aware of the coordinating process. By pursuing their own interests, every player in the economic process ensures the wellbeing of the community at large.

The process may be summed up in the following way:

A market economy is an elaborate mechanism for the unconscious coordination of people, activities and businesses through a system of prices and markets. It is a communication device for pooling the knowledge and actions of millions of diverse individuals. Without central intelligence or computation, it solves a problem that the largest super-computer could not solve today, involving millions of unknown variables and relations. Nobody designed the market; yet it functions remarkably well.

The two crucial words in the above are market and prices. In this unit, we will start building an economic model of a market in which the price of a good or service is determined by the forces of demand and supply.

In our circular flow model, it is in the goods market that households (consumers) buy their goods and services and the producers supply their goods and services. Two active participants in this market are households, as the demanders of goods and services, and firms, as the suppliers of goods and services. **It is through the interaction between the demanders and suppliers of a good or service that the price is determined.** In this unit, we take a closer look at what lies behind demand, supply and the determination of a price in a market.



TOPIC OUTCOME

After you have worked through this learning unit, you should be able to:

- explain and illustrate how the interaction between demand and supply for a good or service determines the price for the good or service in a market

Every good, service or factor of production which can be traded has a market. **A market is any situation where potential buyers and sellers come into contact with one another in order to establish the price and quantity of a good or service that will be bought and sold.** When a person speaks of a market, most people assume it to be a visible concrete market such as a specific building, for example the municipal fresh produce market in Pretoria. The market is not necessarily a specific place or building; it may also be invisible or abstract as in the case of the black market or the labour market. Furthermore, a market does not have to be local, because all potential buyers and sellers throughout the world can communicate by post, telephone, fax or the internet, as in the case of foreign exchange markets, as well as the markets for gold, diamonds and certain raw materials. In these cases, we can speak of world markets.

In 6.1 we unpack the concept "demand" and in 6.2, the concept "supply". In 6.3, we show how the interaction between demand and supply determines the price.

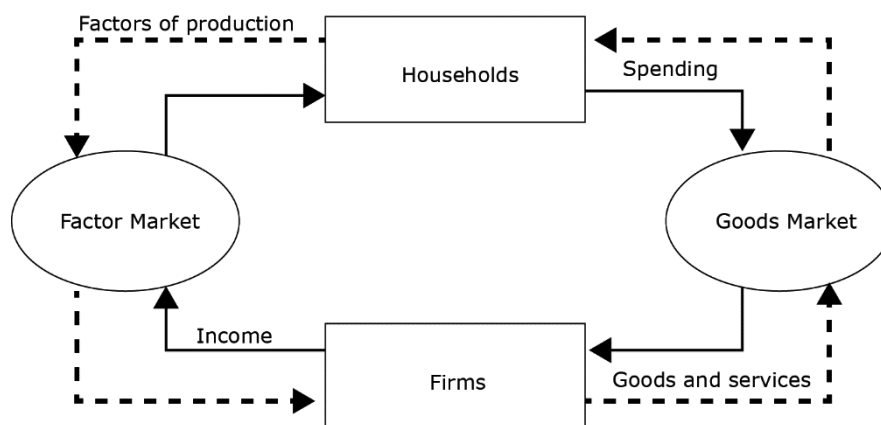
Demand

6.1

OVERVIEW

When we dealt with the economic problem of scarcity, we indicated that an important question that needs to be answered relates to the issue of what good and services need to be produced in order to obtain allocative efficiency. In a market system, this question of what to produce is answered by the behaviour of households through their demand for goods and services.

In our circular flow model, it is in the goods market that households (consumers) buy their goods and services and the producers supply their goods and services. Two active participants in this market are households, as the demanders of goods and services, and firms, as the suppliers of goods and services. In this section of the learning unit, we will take a closer look at the demand and the variables that influence the demand for or goods and services by households.



Demand for goods and services

TOPIC OUTCOME

After you have worked through this section of the learning unit, you should be able to:

- illustrate and explain the concept demand and the variables that influence demand

6.1.1 An economist's definition of demand

After you have worked through this section of the learning unit, you should be able to:

- describe the meaning of demand used in economics

The concept “demand” means different things to different people and economists attach a particular meaning to it.

Which one of the following definitions of demand from the Merriam-Webster dictionary do you think is the closest to an economist's idea of demand?

- ☐ A forceful statement in which you say that something must be done or given to you
- ☐ A strong need for something
- ☐ The ability and need or desire to buy goods and services

In the discussion that follows, you will see that to be part of the demand for something, it is not enough to forcefully ask for, or to have a strong need for it. You also need to back this up with the ability to pay for it.

When we dealt with the economic problem of scarcity, we indicated that that this problem is the result of our unlimited needs and wants that have outstripped our limited resources. This is not the same as saying that our demand for goods and services is unlimited. We all have unlimited needs and wants, but not all of us have the ability or necessary purchasing power to buy the goods and services we need and want. And, according to economists, if you do not have the purchasing power to back up your need or want, you are not part of the demand for a good or service.



Demand must be back up by purchasing power

It is this condition to be able to purchase or ability to pay that gives weight to the economist's definition of demand. This ability to pay for goods and services, in turn, depends on income. The higher the income of a person or household, the more goods and services they can afford to buy, and the more needs and wants they can satisfy.

In economics, we say that a person has the necessary **purchasing power**. Hence to be part of the demand for a good or service, you must have the necessary purchasing power. Without the ability to pay for a good or service, you are excluded from the market. Is this fair? Think about it. We will return to this topic later.

If you are thinking about starting your own business, remember the following:

If you plan to sell a good or service, you must be sure that people not only want it, but are also willing and have the ability to pay for it. If people want a good or service but do not have the ability to pay for it, they are not part of the demand for it. Moreover, if there is no demand for it, then you will not be able to make a profit and your business will fail. For example, only those people who want a car and are willing and able to pay for it, create the demand for cars.

An economist would define the demand for a good or service as follows:

Demand is the quantities of a good or service that potential buyers are willing and able to purchase during a certain period.

The first aspect of the definition that you should note is that it refers to the quantities of a good or service (i.e. how much of a good or service is demanded). We will use the symbol Q_d to denote quantity demanded.

Potential buyers refer to the intentions of the buyers of the good or service and not what they actually do.

Willing to purchase refers to the condition that you are willing to pay for it. If you want something and you have the means to pay for it but you are not willing to pay the price for it, you are not part of the demand for it.

And then there is the important qualification that you must be able to purchase the good or service.

The last part of the definition deals with the time period. For demand to be meaningful, it is necessary for the time period to be stated as the quantity demanded per day, per week, per month and so on. For instance, saying that the quantity of tomatoes demanded is ten tons per week is significantly different from saying it is ten tons per year.

The main aspects of an economist's definition of demand are therefore as follows:

- It differs from needs and wants.
- It indicates willingness to purchase.
- It indicates ability to purchase.
- It is for a specified period.

ACTIVITY 1

1.1 Indicate whether the following statements relating to demand is **true** or **false**:

- | | T | F |
|--|---|---|
| a. Demand is simply another term for wants. In other words, if a consumer demands a good, it simply means that he or she wants the good. | | |
| b. The demand for a product refers to the quantities of the product that potential buyers are willing and able to buy. | | |
| c. Demand refers to the plans of households, not to events that have already occurred. | | |

1.2 Which of the following persons are part of the demand for ice cream?

- a. Ghandi likes ice cream but does not have the ability to pay for it.
- b. Peter likes ice cream and has the ability to pay for it, but is not willing to pay for it.
- c. Luke likes ice cream, has the ability to pay for it and is willing to pay for it.
- d. Joyce has the ability to pay for it but does not like it.

- 1.3 You intend starting a business that supplies chicken burgers in your area. A friend of yours mentions that he thinks it is a good idea because he knows that in this area there are 5 000 people who like chicken burgers. Is this information sufficient to conclude that there is a high demand for chicken burgers in this area?
- Yes.
 - No.

6.1.2 Factors that determine the demand for goods

After you have worked through this section of the learning unit, you should be able to:

- identify the factors that influence the demand for a good or service

Each of us is a consumer of goods and services. Each day, we require certain goods and services to stay alive and we consume goods and services to satisfy some of our needs and wants. The amount of any particular good that we plan to buy depends on many diverse factors.

Think of any product you use on a regular basis. From the following list choose three factors that you think are the most important in determining how much you use of it:

- ☐ your taste for it
- ☐ the quality of it
- ☐ the price of it
- ☐ your income
- ☐ your parents' income

Most of these factors are significant in determining your demand for a good or service.

While there are many factors that influence the demand for goods and services, economists have identified the following as the most important:

- tastes and preferences (represented by the symbol T)
- income (represented by the symbol Y)
- the price of the product (represented by the symbol P_x)
- the number of potential buyers (represented by the symbol N)
- the price of related goods (represented by the symbol P_g)
- substitutes
- compliments
- other factors such as:
 - the weather
 - expected prices

We will discuss each of the above in more detail as we proceed through the learning unit.

You might have noticed that the supply or availability of the good or service is not included in the list of factors. The reason for this is that when we deal with demand, we do not consider supply factors since we are mainly concerned with the intentions of the buyers. Supply factors are dealt with under the topic "supply" and under the topic "market equilibrium", you will see how the forces of demand and supply interact.

Let's take a closer look at the intentions of a buyer:

Assume I have R25 and I decide to buy 5 pieces of chicken at R5 per piece. When I get to the shop, the price is R6 per piece.

Can I still buy 5 pieces for R25?

- ☐ Yes
- ☐ No

Has my intention changed?

- ☐ Yes
- ☐ No

I can no longer buy 5 pieces for R25, but that does not mean my intention has changed, I may still intend to buy 5 pieces of chicken at that price, and will have to keep looking in the market for a willing seller.

Let's say I intend to buy 5 pieces of chicken at R5 per piece but when I get to the shop, it is sold out and I am unable to buy any.

Has my intention changed?

- ☐ Yes
- ☐ No

Once again, my intention has not changed. This is a crucial point. As stated earlier in the definition of demand, here we are dealing with the intention of buyers and not the actual outcome in the market. I intend buying a certain number of pieces of fried chicken based on my taste for it, its price and my income. The fact that when I arrived at the fried chicken outlet they were sold out, did not change my intentions. It did, however, change the outcome in that I was not able to buy it and satisfy my want for it.

ACTIVITY 2

- 2.1 Which of the following is not a factor that determines the demand for ice cream?
- a. The price of ice cream
 - b. The income of households
 - c. The availability of ice cream
 - d. A change in the taste and preference for ice cream due to an advertising campaign for ice cream
- 2.2 Which of the following factors do you think would increase how much of a good or service consumers demand?
- a. An increase in their income
 - b. If they have a greater preference for it
 - c. A decrease in the price of it
 - d. An increase in the number of consumers

6.1.3 Demand equation

After you have worked through this section of the learning unit, you should be able to:

- write the demand equation using symbols

With the above information in the previous section, it is now possible to write a demand equation with the help of the following symbols:

$$Q_d = f(T, Y, P_x, N, P_g, \dots)$$

In words, the above equation states that the quantity demanded of a good or service is a function of taste and preferences (T), income (Y), the price of the good or service (P_x), the number of potential buyers (N), the price of related goods (P_g) and other factors (this is what the three dots ... represent). The other factors are things such as the weather, expected price, income distribution and so forth.

Our dependent variable is the quantity demanded (Q_d), which is influenced by the independent variables (T, Y, P_x , N, P_g , ...) of which there are more than six.

To analyse the impact of these independent variables on the quantity demanded, we will do it one by one. And the first one we will take a closer look at is the relationship between the price of a good or service (P_x) and the quantity demanded (Q_d).

ACTIVITY 3

- 3.1 Indicate which of the following variables are the dependent variables and which are the independent variables given the demand equation.
- a. The price of the good or service.
 - b. The quantity demanded of the good or service.
 - c. The income of households.
 - d. The number of buyers.
- 3.2 Write down the correct symbol for the following variables.
- a. The quantity demanded.
 - b. The price of the good or service.
 - c. Tastes and preferences.
 - d. The number of buyers.
 - e. The price of related goods and services.

6.1.4 Price and quantity demanded

After you have worked through this section of the learning unit, you should be able to:

- describe the relationship between price and quantity demanded
- explain the importance of the *ceteris paribus* condition
- adapt the demand equation to reflect the *ceteris paribus* condition

In this section, we take a closer look at the impact the price of a good or service has on the quantity demanded. In other words, we investigate the relationship between P_x and Q_d .

What do you think people do when the price of a good or service they use increases?

- ☐ They buy more of it.
- ☐ They buy less of it.
- ☐ They buy the same amount.

Before we answer this question, we need to deal with the *ceteris paribus* condition.

To analyse the impact of a change in the price of a good or service on the quantity demanded for it, we need to keep all the other factors that we have listed (income, preferences, weather, etc.) the same by assuming that they remain unchanged. This relates to the *ceteris paribus* assumption.

Ceteris paribus is the Latin expression for “everything else remaining the same”. It is not possible to study the effect of a price change on the quantity demanded if the other factors change at the same time. If more than one factor changes, we would not know which factor causes a change in the quantity demanded.

Our question should therefore have read as follows: "What do you think people do when the price of a good or service they use increases, given the fact that everything else remains the same?"

It is to this relationship between the price of a good or service and the quantity demanded that we now turn, given that the *ceteris paribus* condition holds.

In terms of our demand equation, we put a bar on top of these other variables to indicate that they remain unchanged.

$$Q_d = f(\bar{T}, \bar{Y}, P_x, \bar{N}, \bar{P}_g, \dots)$$

ACTIVITY 4

4.1 A friend of yours who owns a flower-selling business has the following opinion about the law of demand: She does not think that the law of demand is valid for red roses, because during February, when the price of red roses was very high, she sold many more. It therefore seems that there is a positive relationship between the price of red roses and the quantity demanded of it.

Which one of the following is the best response to her argument?

- a. You agree with her and indicate that based on the evidence for red roses, the law of demand does not apply.
- b. You agree with her and argue that the law of demand is only applicable to a few goods and services.
- c. You disagree with her by stating that her information must be incorrect.
- d. You disagree with her and explain that the cause of the increase in the quantity demanded might be the result of some other factor and not the increase in the price.

4.2 The symbol for quantity demanded is _____.

- a. Q_s
- b. Q_d
- c. D
- d. P_x
- e. S

4.3 The symbol for price of a good or service is _____.

- a. P_g
- b. Q_d
- c. D
- d. P_x

6.1.5 Law of demand

In this section, we begin to look at the law of demand which indicates that a negative relationship exists between the price of a good or service and the quantity demanded of it.

After you have worked through this section of the learning unit, you should be able to:

- describe this negative relationship between the price and quantity demanded in words and with the aid of a chain of events

It is summer, you like ice cream and have some money in your pocket to buy ice cream.

If the price of ice cream decreases will you tend to buy more or less ice cream than before the decrease in the price of ice cream?

- ☐ I will buy more
- ☐ I will buy less

If the price of ice cream increases will you tend to buy more or less ice cream than before the decrease in the price of ice cream?

- ☐ I will buy more
- ☐ I will buy less

Most of us with limited income will probably buy less if the price increases and more if the price decreases.

Economists are so confident about the relationship between the price of a good or service and the quantity demanded that they have given it the status of a law, namely the *law of demand*.

The law of demand states the following:

The higher the price of a good or service (all other things remaining the same), the lower the quantity demanded will be, OR the lower the price of a good or service (all other things remaining the same), the greater the quantity demanded will be.

We can therefore expect that if the price of a good or service increases, people intend buying less of it, and if the price decreases, they intend buying more of it, *ceteris paribus*.

The law can also be expressed in terms of a chain of events as follows:

$$\uparrow P_x \rightarrow \downarrow Q_d$$

An increase in the price of a good or service ($\uparrow P_x$) leads to ($\rightarrow$) a decrease in the quantity demanded ($\downarrow Q_d$).

$$\downarrow P_x \rightarrow \uparrow Q_d$$

A decrease in the price of a good or service ($\downarrow P_x$) leads to ($\rightarrow$) an increase in the quantity demanded ($\uparrow Q_d$).

This is known as an inverse or negative relationship.

A negative or inverse relationship indicates that as the one variable (in this case, price) goes down, the other variable goes up (in this case, the quantity demanded).

$$\downarrow P_x \rightarrow \uparrow Q_d$$

The opposite is also true: If the one variable (in this case, price) goes up, the other variable goes down (in this case, the quantity demanded).

$$\uparrow P_x \rightarrow \downarrow Q_d$$

ACTIVITY 5

5.1 The law of demand represents the relationship between the _____ and the _____.

- a. price of related goods; quantity supplied
- b. price of a good or service; quantity supplied
- c. income of households; quantity demanded
- d. price of a good or service; quantity demanded

5.2 The law of demand states that a _____.

- a. higher price leads to a higher quantity demanded for the good, *ceteris paribus*
- b. lower price leads to a lower quantity demanded for the good, *ceteris paribus*
- c. lower price leads to a higher quantity demanded for the good, *ceteris paribus*
- d. higher price leads to a lower quantity demanded for the good, *ceteris paribus*
- e. change in the price has no impact on the quantity demanded.

5.3 Which of the following chain of events represents the law of demand?

- a. $\uparrow P_x \rightarrow \downarrow Q_d$
- b. $\downarrow P_x \rightarrow \downarrow Q_d$
- c. $\uparrow P_x \rightarrow \uparrow Q_d$
- d. $\downarrow P_x \rightarrow \uparrow Q_d$

6.1.6 The law of demand as a schedule

In this section, we present the law of demand as a schedule.

After you have worked through this section of the learning unit, you should be able to:

- interpret the demand schedule and use a demand schedule to explain the law of demand

To demonstrate the law of demand by means of a schedule, we use the demand for fried chicken pieces by a household (individual demand) as an example.

From the description of the law of demand, we know that if the price of fried chicken pieces increases, the quantity of pieces demanded will decrease, and if the price of fried chicken pieces decreases, the quantity of pieces demanded will increase.

The table below is a hypothetical demand schedule for fried chicken pieces by a household comprising three students.

Column 2 shows different prices for fried chicken pieces.

Column 3 shows the quantity of fried chicken pieces that will be demanded at each price during a particular week.

Individual demand for fried chicken pieces		
Combination	Price of fried chicken per piece (rand)	Quantity of fried chicken pieces demanded (per week)
A	7	2
B	6	4
C	5	6
D	4	8
E	3	10
F	2	12
G	1	14

According to this table – given that all the other factors that influence demand remain the same – at a price of R7 per fried chicken piece, the quantity demanded will be two pieces. If the price of fried chicken pieces decreases to R6, the quantity demanded will be four pieces; at a price of R5, the quantity demanded will be six pieces, and so on.

Can you see how the quantity demanded increases as the price of a fried chicken piece decreases? And how the quantity demanded decreases as the price increases?

Note how the information in the table is based on the buyers' intentions. In other words, they are asked how much they plan or intend to purchase at different prices.

ACTIVITY 6

6.1 You are given the following demand schedule for a good or service:

Price per kg	Quantity
R50	500
R40	400
R30	300
R20	200
R10	100

Does this reflect the law of demand?

- a. Yes
- b. No

6.2 The following table indicates the demand for a good or service:

Price per kg	Quantity demanded per kg
R50	100
R40	200
R30	300
R20	400
R10	500

- a. What is the quantity demanded at a price of R50? It is _____ kg.
- b. What is the quantity demanded at a price of R20? It is _____ kg.
- c. The quantity demanded (increases, decreases) as the price declines from R40 to R20.
- d. By how much does the quantity demanded change if the price changes from R40 to R20? It changes by _____ kg.
- e. What happens to the quantity demanded if the price increases from R20 to R50? It decreases by _____ kg.

6.1.7 The law of demand as a demand curve

In this section, we represent the law of demand as a demand curve.

After you have worked through this section of the learning unit, you should be able to:

- draw a demand curve

The demand curve is based on our demand schedule.

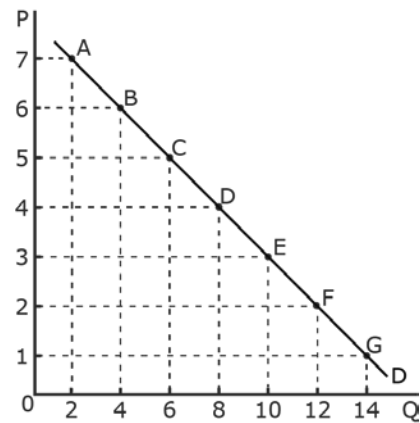
The graph below shows two axes, namely the vertical axis and the horizontal axis. The vertical axis shows the price (P) of a product or service, say fried chicken pieces. It starts at zero and there are seven price intervals (1, 2, 3, 4, 5, 6 and 7).

The horizontal axis measures the quantity demanded (Q_d). There are seven quantity intervals (2, 4, 6, 8, 10, 12 and 14).

Point A in the table corresponds to a price (P) of R7 and a quantity (Q_d) of two pieces of fried chicken, as can be read off from the vertical and horizontal axes respectively. To draw point B, we obtain the point that represents a price of R6 and a quantity of four. To draw point C, we obtain the point that represents a price of R5 and a quantity of six. Points D, E, F and G are obtained in the same way.

Individual demand for fried chicken pieces

Combination	Price of fried chicken per piece (rand)	Quantity of fried chicken pieces demanded (per week)
A	7	2
B	6	4
C	5	6
D	4	8
E	3	10
F	2	12
G	1	14



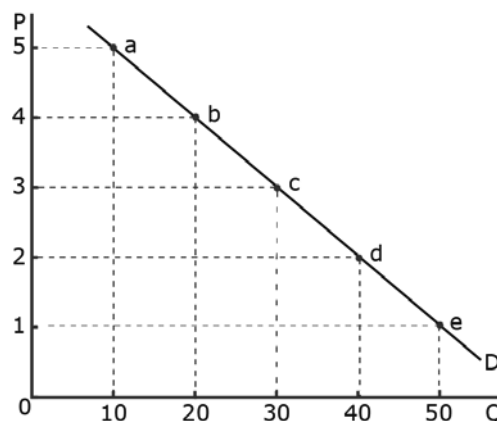
By connecting these points, we obtain a line, shown as D. This is our demand curve for fried chicken.

Note the different steps that are followed to draw the demand curve:

1. Draw the axes.
2. Label the axes.
3. Indicate the intervals and write down the values.
4. Plot points to show the different price and quantity demanded combinations.
5. Join the points to draw the demand curve.
6. Label the curve DD or simply D.

ACTIVITY 7

7.1 Study the following demand curve for packets of cookies and then answer the questions:



- a. Which variable is indicated on the horizontal axis?
- b. Which variable is indicated on the vertical axis?
- c. What is the quantity demanded (in packets of cookies) at a price of R2?
- d. What is the quantity demanded (in packets of cookies) at a price of R5?
- e. What happens to the quantity of packets of cookies demanded when the price declines?
- f. What happens to the quantity of packets of cookies demanded when the price increases?
- g. What relationship is illustrated between the two variables, P and Qd? (negative or positive)
- h. This relationship between P and Qd is so important that it carries the status of a “law” known as the law of _____.
- i. Would there be any shift of the demand curve if the price were to change in this example?
- j. Would there be any movement along the demand curve if the price were to change in this example?
- k. If the price increases, there is a(n) (upward or downward) movement along the demand curve.
- l. If the price decreases, there is a(n) (upward or downward) movement along the demand curve.

7.2 Holding all other things constant, the demand curve _____

- a. shows that the quantity demanded decreases as the price decreases.
- b. shows that the quantity demanded rises when the price falls.
- c. is an upward-sloping curve.
- d. shifts to the right when prices decrease.

7.3 Your task is to draw a demand curve based on the following table using a pen (pencil) and paper:

Price (P)	Quantity demanded (Qd)
7	2
6	4
5	6
4	8
3	10
2	12
1	14

6.1.8 Slope of the demand curve

In this section, we take a closer look at the slope of the demand curve which indicates that a negative or inverse relationship exists between the price of a good or service and the quantity demanded.

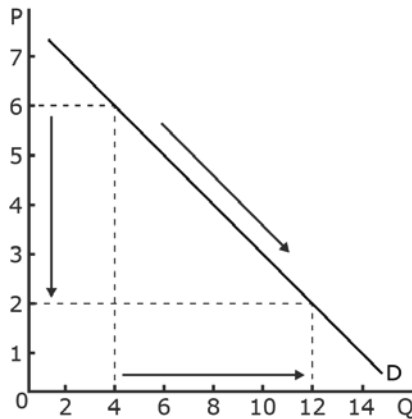
After you have worked through this section of the learning unit, you should be able to:

- explain why the demand curve is downward sloping and clearly distinguish between an upward and downward movement along the demand curve

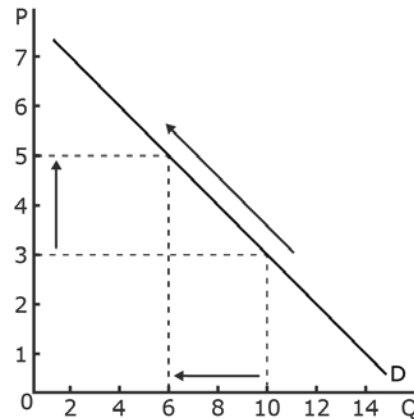
An important property of a demand curve is that it slopes downwards from left to right. This reflects the inverse or negative relationship between the price and the quantity demanded. This downward slope of the demand curve represents the law of demand.

In our example, as the price of fried chicken pieces decreases, the quantity demanded increases. There is thus a downward movement along the demand curve.

As the price of fried chicken pieces increases, the quantity demanded decreases. An upward movement along the demand curve thus takes place.



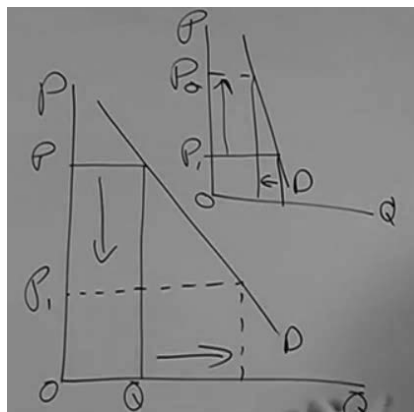
A decrease in the price increases the quantity demanded. This is represented as a downward movement along the demand curve.



An increase in the price decreases the quantity demanded. This is represented as an upward movement along the demand curve.

Free-hand demand curve

We do not always draw a demand curve based on data. In most cases, we draw free-hand demand curves.



Of significance here is the fact that it represents the law of demand, which is the negative or inverse relationship between the price and quantity demanded.

6.1.9 From individual demand to market demand

In this section, we show how the market demand curve is derived from individual demand curves by using individual demand schedules.

After you have worked through this section of the learning unit, you should be able to:

- draw a market demand curve given individual demand schedules

The individual household is one of the most important building blocks and much can be learned from the behaviour of an individual household. However, suppliers are more interested in the market demand for the good and service since the market demand gives them a better idea of the quantities they can expect to sell. The market demand represents the total demand for a good or service during a certain period. In market system, the market demand is one of the fundamental forces that determines the market price of a good or services, and we therefore need to study it in more detail.

To move from individual demand to market demand is quite simple. All that needs to be done is to add the individual demands together.

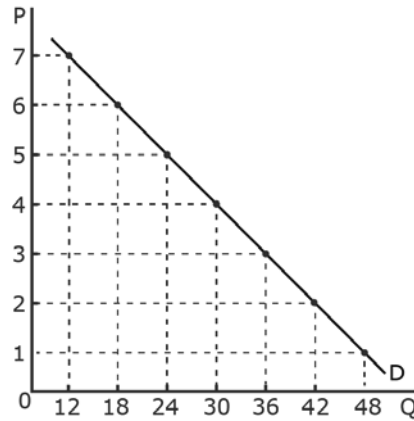
Assuming that the demand for fried chicken not only consists of the demand by our students, which forms a household because they make joint decisions, but also the Khumalo and Venter families, and that their demand for fried chicken pieces is known, the market demand can be arrived at as demonstrated in the following table:

Market demand schedule for fried chicken pieces

Price (R)	Quantity demanded by students	Quantity demanded by the Khumalos	Quantity demanded by the Venters	Market quantity demanded
7	2	4	6	12
6	4	6	8	18
5	6	8	10	24
4	8	10	12	30
3	10	12	14	36
2	12	14	16	42
1	14	16	18	48

At R7, the market quantity demanded is 2 by the students, +4 by the Khumalos and +6 by the Venters, which gives us 12 pieces. Following the same procedure for the rest of the prices, the market quantity demanded at R6 is 18, at R5 it is 24, at R4 it is 30, at R3 it is 36, at R2 it is 42 and at R1 it is 48.

From the data in the table, we can draw the market demand curve for fried chicken pieces. This market demand curve is also downward sloping showing the negative or inverse relationship between the price and the quantity demanded.



Market demand for fried chicken pieces

ACTIVITY 8

Study the following table, which indicates the demand for tomatoes by various households, and then answer the questions:

Demand for tomatoes per week (kg)

Price per kg (R)	Jones	Khumalo	Strydom	Market demand
6	1	2	3	
5	2	4	6	
4	3	6	9	
3	4	8	12	
2	5	10	15	
1	6	12	18	

8.1 Complete the table by calculating the market quantity demanded at each price.

8.2 Use your data to draw the market demand curve.

6.1.10 Non-price factors of demand

In the previous section, we dealt with the relationship between the price and quantity demanded and we presented this relationship as a demand curve. In this section, we start looking at what happens when a non-price factor changes and the impact it has on the demand curve.

After you have worked through this section of the learning unit, you should be able to:

- identify the non-price factors of demand

As you know, it is not only the price of the product that influences the demand for it. There are also other factors, which are referred to as the non-price determinants. *A non-price factor or determinant of demand is any factor other than the price of the good or service that influences the demand for it.*

These are factors such as:

- tastes and preferences (T)
- income (Y)
- the number of potential buyers (N)
- the price of related goods, such as substitutes and complements
- the weather
- the expected price
- income distribution

We will now expand our analysis by including the impact of these non-price factors on the demand for goods and services.

A change in a non-price factor can either increase or decrease the demand for a good or service. When it increases the demand for a good or service, we say that a positive relationship exists between the factor and the demand for goods. When it decreases the demand for a good or service, a negative relationship exists.

ACTIVITY 9

9.1 A non-price factor of demand is ____.

- a. any factor that impacts on demand
- b. any factor other than the price of the good or service that influences demand
- c. the price of the good or service

9.2 Which of the following factors can be regarded as non-price factors for the demand for coffee?

- a. The price of a substitute product such as tea
- b. The price of coffee
- c. The income of households
- d. The taste and preference of households

6.1.11 A change in income

The first non-price factor that we look at is a change in income. We describe the impact of a change in income on demand with an events chain and also distinguish between normal goods and inferior goods.

After you have worked through this section of the learning unit, you should be able to:

- describe the impact of a change in income on demand in words and with the help of a chain of events
- distinguish between normal and inferior goods

Let's start with a question:

What do you think would happen to the demand for fried chicken pieces if the income of households in the market were to increase?

- ☐ It will increase
- ☐ It will decrease
- ☐ It will stay the same

Would you say a positive or negative relationship exists between the income of households and the demand for goods and services?

- ☐ Positive
- ☐ Negative

If my income increases, I buy more; and I think other households would do the same and the market demand would increase. Since an increase in income leads to an increase in demand, we have a positive relationship.

When income increases (all other things remaining the same) in a market, consumers normally buy more of most goods and services; and when income decreases, they normally buy fewer of most goods and services.

We can thus expect to see an increase in the demand for fried chicken pieces if household income increases.

In a chain of events, this is written as follows:

$$\uparrow Y \rightarrow \uparrow D \text{ and } \downarrow Y \rightarrow \downarrow D$$

An increase in income leads to an increase in demand and a decrease in income leads to a decrease in demand. Hence there is therefore a positive relationship between income and the demand for fried chicken pieces.

*When an increase in income leads to an increase in the demand for a good or service, the good is referred to as a **normal good or service**. Fried chicken pieces are therefore a normal good since an increase in income led to an increase in demand.*

*An **inferior good**, however, is a good or service whose demand decreases if income increases. For inferior goods, a negative relationship exists between a change in income and the demand for the good or service.*

Change in income and demand schedule

In this section, we look at how an increase in income has an impact on the market demand schedule for a normal good.

After you have worked through this section of the learning unit, you should be able to:

- describe the impact of an increase in income on the demand schedule

With fried chicken pieces as a normal good (in other words, an increase in income increases the demand for fried chicken pieces), we can now see how a change in income will affect the following demand schedule for fried chicken pieces.

At each price, the quantity demanded is higher. At a price of R7, the quantity demanded is 16 pieces instead of 12 pieces; at a price of R6, the quantity demanded is 22 pieces instead of 18 pieces; at a price of R5, the quantity demanded is 28 pieces instead of 24 pieces; and so on.

Increase in income

Demand and increase in income

Price of fried chicken per piece (rand)	Quantity of fried chicken pieces demanded (per week)	Quantity of fried chicken pieces demanded after an increase in income (per week)
7	12	16
6	18	22
5	24	28
4	30	34
3	36	40
2	42	46
1	48	52

ACTIVITY 10

The following demand schedule indicates what happens to the demand for red meat if the income of households increases:

Price per kg	Quantity demanded (kg) before an increase in income	Quantity demanded (kg) after an increase in income
R50	100	150
R40	200	250
R30	300	350
R20	400	450
R10	500	550

- 10.1 How many kilograms of red meat are demanded at R40 before the increase in income? _____ kgs
- 10.2 How many kilograms of red meat are demanded at R40 after the increase in income? _____ kgs
- 10.3 How many kilograms of red meat are demanded at R20 before the increase in income? _____ kgs
- 10.4 How many kilograms of red meat are demanded at R20 after the increase in income? _____ kgs
- 10.5 It is only at a price of R30 that more red meat is demanded if income increases. True or false?
- 10.6 An increase in income (increases; decreases) the quantity of red meat demanded at each price.
- 10.7 Red meat is an/a (inferior; normal) good.

A change in income: Demand curve

In this section, we deal with the impact of a change in income on the demand curve.

After you have worked through this section of the learning unit, you should be able to:

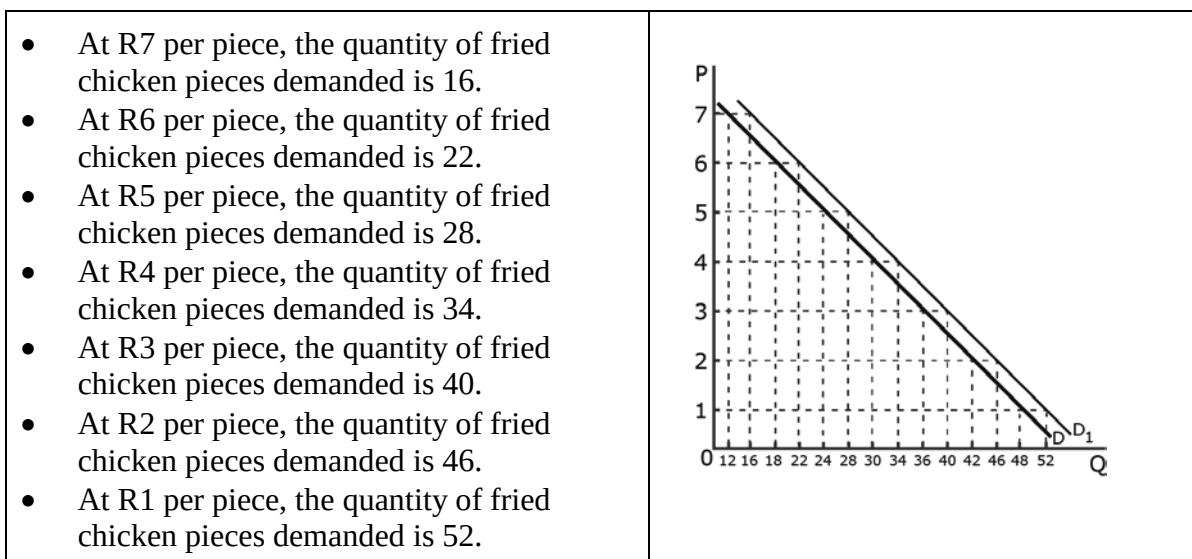
- explain with the aid of a demand curve what happens to demand if the income of households increases or decreases

What do you think would happen to the market demand curve for fried chicken pieces if household income were to increase?

- ☐ It would shift to the left.
- ☐ It would shift to the right.
- ☐ It would remain unchanged.

Let us move on to the next section to see what happens to the demand curve.

From the previous table, we know that at each price, a higher quantity of fried chicken pieces will be demanded if income increases. We now have a new demand curve to indicate the demand for fried chicken pieces at this higher income level.



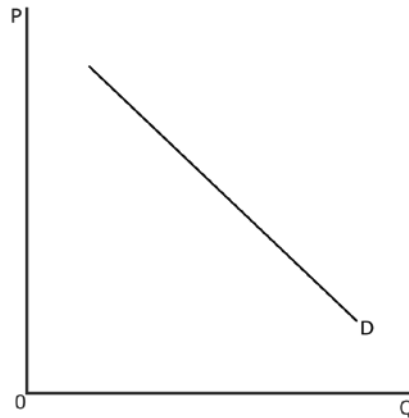
Note again that at each price, the quantity demanded is higher. This is shown by a rightward shift of the whole demand curve (D) to the new demand curve (D_1).

This new demand curve is to the right of the initial demand curve, and a rightward shift of the demand curve for fried chicken pieces has occurred.

The situation illustrated in the figure is referred to as an increase in demand or a shift to the right of a demand curve.

ACTIVITY 11

The following diagram indicates the demand for red meat:



- 11.1 If red meat is a normal good, a decrease in income will _____ the demand for it.
decrease
increase
- 11.2 A decrease in income will cause the demand curve for red meat to shift to the _____.
left
right
- 11.3 A leftward shift of the demand curve indicates that at every price a higher quantity is demanded than before.
True
False

6.1.12 Tastes and preferences: Demand schedule

In this section, we consider the impact of a change in tastes and preferences on the demand for a good or service.

After you have worked through this section of the learning unit, you should be able to:

- describe what happens to the demand schedule if tastes and preferences change

What happens when the tastes and preferences of households change? Our attitude towards goods and services is determined by our tastes and preferences. We like some goods more than others.

What do you think would happen to the Dlamini family's demand for fried chicken pieces if Mr Dlamini, acting on the advice of his doctor, decides to buy less fried chicken per week?

How would this affect the demand schedule for fried chicken pieces?

This would cause

- ☐ a higher quantity demanded at each price
- ☐ a lower quantity demanded at each price
- ☐ no change in quantity demanded at each price

A lower preference for a good or service means less of the good will be demanded at each price, and the position of the demand curve will shift to the left.

Study the following demand schedule to see how a decrease in tastes and preferences will affect the demand for fried chicken pieces.

Demand and change in preferences

Price of fried chicken per piece (rand)	Quantity of fried chicken pieces demanded (per week)	Quantity of fried chicken pieces demanded after the change in preferences (per week)
7	12	6
6	18	12
5	24	18
4	30	24
3	36	30
2	42	36
1	48	42

Can you see how at each price, the quantity demanded for fried chicken pieces is now lower? At a price of R7, the quantity demanded is six pieces instead of 12; at a price of R6, the quantity demanded is 12 pieces instead of 18; at a price of R5, the quantity demanded is 18 pieces instead of 24; and so on.

There is now a lower demand for fried chicken pieces because at each price, a smaller quantity is demanded than before.

Changes in tastes and preferences: Demand curve

In this section, we deal with the impact of a change in tastes and preferences on the demand curve

After you have worked through this section of the learning unit, you should be able to:

- explain with the aid of a demand curve what happens to the demand curve demand if tastes and preferences of households change

What do you think will happen to the market demand curve for fried chicken pieces if the preference for it by households decreases?

This would cause

- ☐ a shift to the left
- ☐ a downward movement along the demand curve
- ☐ a shift to the right

It will shift to the left.

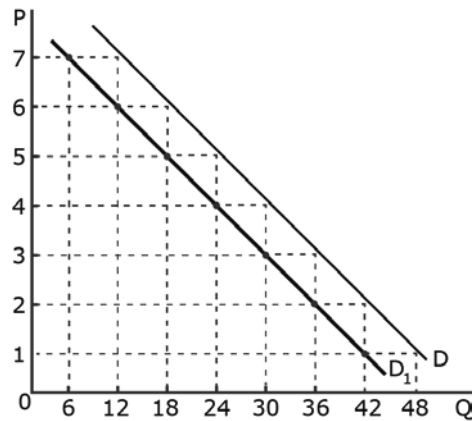
Let's see what happens to the demand curve.

From the previous information, we know that at each price, a lower quantity of fried chicken pieces will be demanded. There is thus a new demand curve for fried chicken pieces. This new demand curve is positioned to the left of the previous demand curve, and a leftward shift has therefore occurred in the demand curve for fried chicken pieces.

Study the new demand curve (D_1) in the following figure:

Can you see the following?

- At R7 per piece, the quantity of fried chicken pieces demanded is 6.
- At R6 per piece, the quantity of fried chicken pieces demanded is 12.
- At R5 per piece, the quantity of fried chicken pieces demanded is 18.
- At R4 per piece, the quantity of fried chicken pieces demanded is 24.
- At R3 per piece, the quantity of fried chicken pieces demanded is 30.
- At R2 per piece, the quantity of fried chicken pieces demanded is 36.
- At R1 per piece, the quantity of fried chicken pieces demanded is 42.



As a general rule, we can now state the following:

A shift of the demand curve occurs when the demand increases or decreases, indicating that at every price, the quantity demanded is different from before the change in demand.

An increase in income causes a rightward shift of the demand curve, indicating that at every price, the quantity demanded is higher.

A decrease in tastes and preferences causes a leftward shift of the demand curve, indicating that at each price, the quantity demanded is lower.

ACTIVITY 12

Businesses spend billions of rand on advertising to influence the tastes and preferences of consumers to ensure that there is a high demand for their products.

12.1 What would happen if, as a result of a major advertising campaign, the demand for chocolate bars were to increase?

- The demand curve would shift to the right.
- The demand curve would shift to the left.
- An upward movement along the demand curve would occur.
- A downward movement along the demand curve would occur.

In the above examples, we observed a change in the position of the demand curve – a rightward shift and a leftward shift.

Before we continue with the impact of non-price factors of demand, we have to distinguish between a **change in demand (a shift of the demand curve)** and a **change in quantity demanded (a movement along the demand curve)**.

6.1.13 Change in quantity demanded and a change in demand

In this section, we make an important distinction between a change in demand, which is a shift of the demand curve, and a change in quantity demanded, which is a movement along the demand curve.

After you have worked through this section of the learning unit, you should be able to explain the following in words and with the aid of demand curves:

- a shift of the demand curve
- a movement along a demand curve
- the impact of a change in the price on the demand curve
- the impact of a change in non-price factors on demand
- the difference between a change in demand and a change in quantity demanded

Will an increase in price cause a decrease in demand or a decrease in quantity demanded?

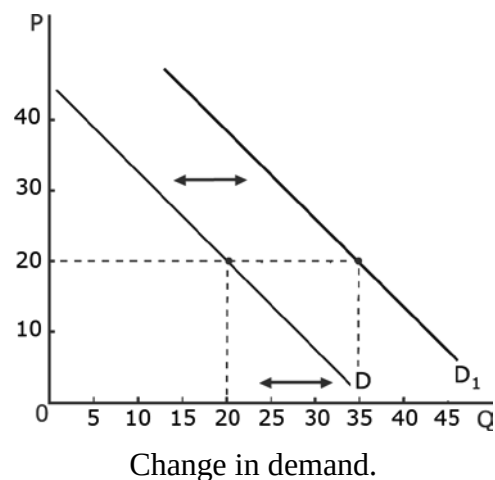
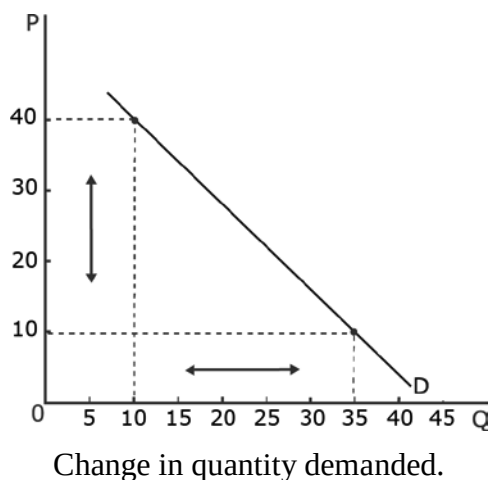
- ☐ A decrease in quantity demanded
- ☐ A decrease in demand

While a decrease in quantity demanded sounds the same as a decrease in demand, there is an important difference, as you will soon see..

Let us recap on the shape (slope) and position (shifts) of the demand curve.

You must be able to distinguish between the following:

- a change in quantity demanded, which is a movement along the demand curve, and
- a change in demand, which is a shift of the demand curve

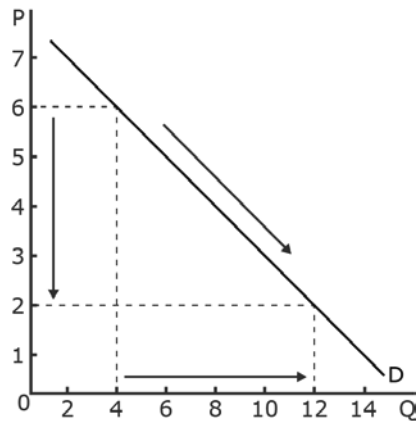


In the previous sections, we made a distinction between price and non-price factors. It is because of this distinction that there is a difference between a change in quantity demanded and a change in demand.

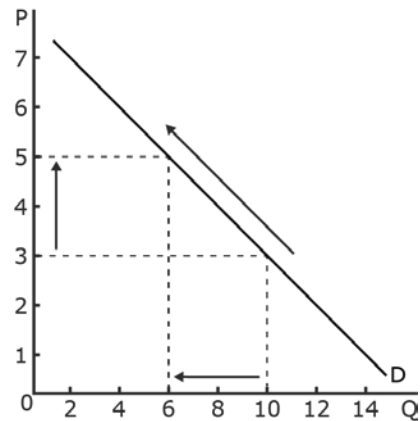
We deal with a change in quantity demanded first.

Changes in quantity demanded

When we dealt with the law of demand, we asked what happens if the price of a good or service changes. We concluded that as the price of a good or service decreases, the quantity demanded will increase, and as the price of a good or service increases, the quantity demanded decreases – *ceteris paribus*.



As the price declines a downward movement occurs



As the price increases an upward movement occurs

A change in the price of a good or service therefore causes a change in the quantity demanded and is represented by a movement along the demand curve for the good or service.

Changes in demand

Let us see how a change in quantity demanded differs from a change in demand.

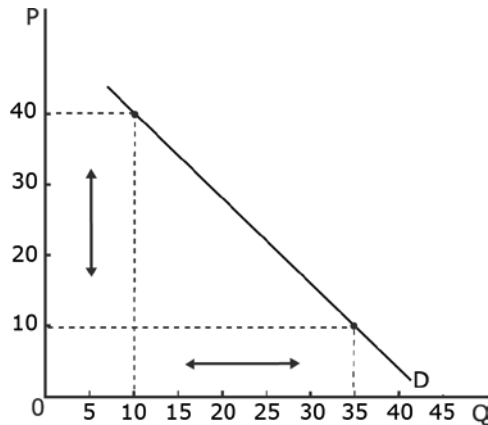
When we dealt with the impact on non-price factors on demand, for example, income and tastes and preferences, we argued that a change in these non-price factors **causes a change in the quantity demanded at each price**. This is the important point: At each price, the quantity demanded is different from before and we have a new demand curve. The position of the demand curve has changed – it has shifted.

When comparing the impact of a change in the price of good or service with a change in a non-price factor of demand, it should be clear that a change in price does not change the quantity demanded at each price. It simply indicates how much is demanded at the new price and a movement along the demand curve occurs, while a change in a non-price factor of demand changes the quantity demanded at each price and a shift of the demand curve occurs.

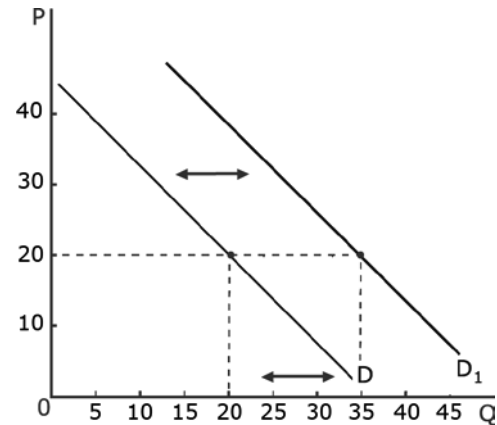
A decrease in the price of a good or service increases the demand for it.

- ☐ True
- ☐ False

The statement is false. To see why, read on.



A change in price causes a change in quantity demanded and is represented as a movement along the demand curve.



A change in non-price factors causes a change in demand and is represented as a shift of the demand curve.

It is because of this difference between the change in quantity demanded and a change in demand that the statement – **a decrease in the price of a good or service increases the demand for it** – is **incorrect**. The reasoning behind this is as follows:

A decrease in the price does not change the relationship between the different prices and quantities demanded. At each price, the same quantities as before are demanded. It simply indicates the quantity that will be demanded at the lower price. Hence there is an increase in the quantity demanded.

A change in any of the non-price factors, however, changes the relationship between the price and quantity demanded. An increase in demand indicates that at each price, a higher quantity than before is demanded – hence we have a new demand curve to the right of the initial demand curve. There is thus an increase in demand.

ACTIVITY 13

13.1 An increase in the price of fried chicken pieces causes a ...

- change in the demand for fried chicken pieces.
- change in the quantity demanded of fried chicken pieces.

13.2 A decrease in the price of fried chicken pieces causes a ...

- movement along the demand curve for fried chicken pieces.
- shift of the demand curve for fried chicken pieces.

13.3 An increase in the price of fried chicken pieces causes a(an) ...

- upward movement along the demand curve for fried chicken pieces.
- downward movement along the demand curve for fried chicken pieces.
- rightward shift of the demand curve for fried chicken pieces.
- leftward shift of the demand curve for fried chicken pieces.

13.4 An increase in the income of households, which is used by them to buy more mobile phones, is represented as a _____ the demand curve for mobile phones.

- movement along
- shift of

- 13.5 A decrease in the price of ice cream causes
- an increase in the demand for ice cream.
 - a decrease in the quantity demanded.
 - a rightward shift of the demand curve.
 - a downward movement along the demand curve.
- 13.6 An increase in the number of people with HIV/AIDS, which causes an increase in the demand for medication, is an example of a
- non-price factor that impacts on the demand for medication.
 - movement along the demand curve for medication.
- 13.7 A severe drought that causes the price of beef to increase, which in turn, causes households to consume less meat, is represented by a
- shift of the demand curve for beef.
 - movement along the demand curve for beef.
- 13.8 Assume that you are at a shop buying a pair of socks. While you are there, they announce that socks are now on sale at 30% less. Based on this, you decide to buy two pairs instead of one pair of socks. Is this a(an)
- increase in demand that shifts the demand for socks to the right?
 - increase in quantity demanded that is a downward movement along the demand curve for socks?
 - decrease in demand that shifts the demand curve for socks to the left?
 - decrease in quantity demanded that is an upward movement along the demand curve for socks?
 - increase in the supply of socks that shifts the supply curve for socks to the right?
- 13.9 If a student receives an increase in his or her allowance and uses part of this allowance to buy more fried chicken pieces each week, ...
- the demand curve for fried chicken pieces will shift to the right.
 - the demand curve for fried chicken pieces will shift to the left.
 - an upward movement along the demand curve will occur.
 - a downward movement along the demand curve will occur.
 - the supply curve of fried chicken pieces will shift to the right.

6.1.14 Price of related goods

In this section, we distinguish between substitutes and complements.

After you have worked through this section of the learning unit, you should be able to:

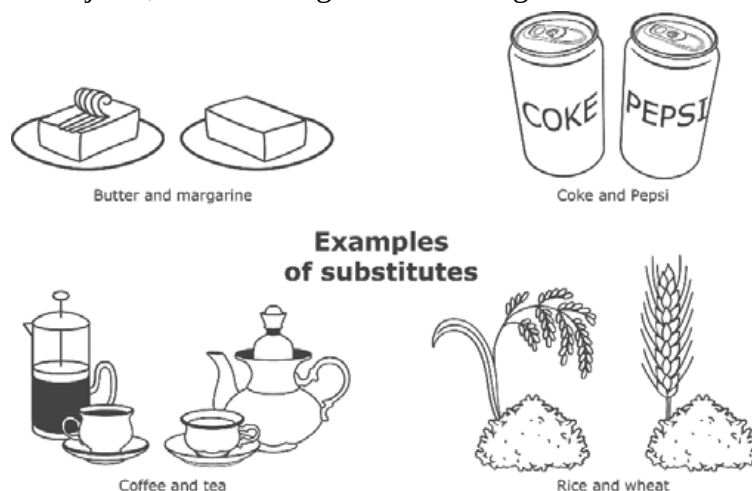
- distinguish between substitutes and complements and give an example of each

There are two kinds of related goods, namely substitutes and complements. These influence the demand for a good or service.

Substitutes

A substitute is a good that can be used in the place of another good without reducing a consumer's level of satisfaction.

The following are examples of substitutes: butter and margarine, beef and mutton, tea and coffee, rice and wheat, cold drinks and fruit juice, and hamburgers and hot dogs.

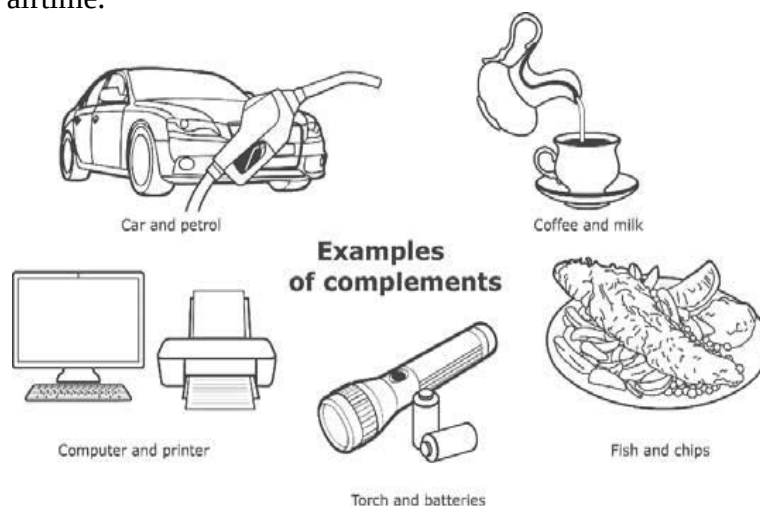


Can you think of any other substitutes?

The Dlamini family likes fried chicken, but they also like chicken burgers. Sometimes, instead of buying fried chicken, they buy chicken burgers. Thus, for the family, chicken burgers are a substitute for fried chicken.

Complements

Complements are goods that are often used jointly (together), for example, fish and chips, pap (mealie meal) and boerewors, motor cars and petrol, coffee and milk, flashlights and batteries, DVD machines and DVDs, and cell phones and airtime.



A change in the price of a substitute

In this section, we study the impact a change in the price of a good have on the demand for its substitute.

After you have worked through this section of the learning unit, you should be able to:

- use demand curves to explain and illustrate how a change in the price of a good has an impact on the demand for its substitute

As shown above, for the Dlamini family, chicken burgers are a substitute for fried chicken. What do you think will happen to the Dlamini's demand for fried chicken pieces if chicken burgers are suddenly sold at a much lower price?

If the price of chicken burgers suddenly decreases, the Dlamini family will probably plan to eat more chicken burgers and fewer fried chicken pieces per week. Their demand for fried chicken pieces will therefore be lower.

In other words, if the price of a substitute good (chicken burgers) decreases, the demand for the other good (fried chicken pieces) usually decreases. In this case, the demand for fried chicken pieces decreases and the demand curve shifts to the left.

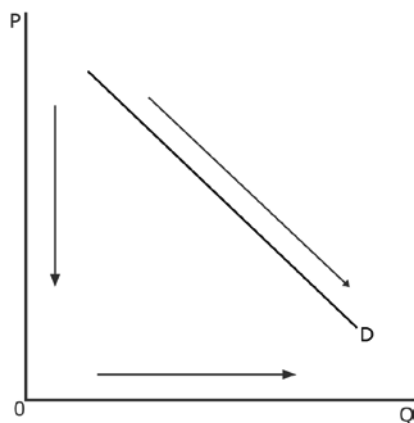


Diagram A: Demand for chicken burgers

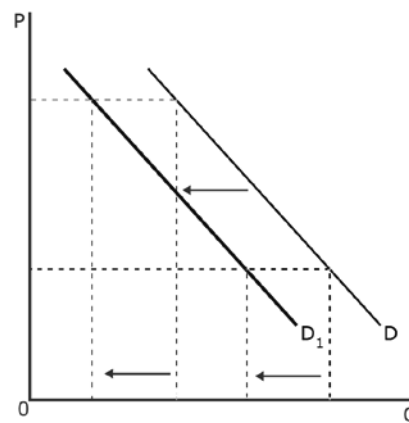


Diagram B: Demand for fried chicken pieces

In diagram A, the demand curve for chicken burgers is given, and in diagram B, the demand curve for fried chicken pieces.

Assume that the price of chicken burgers decreases. How will this influence the demand for chicken burgers and the demand for fried chicken pieces? Looking at the demand for chicken burgers (diagram A), the decrease in the price increases the quantity demanded. There is a downward movement along the demand curve for chicken burgers.

As households switch their consumption from fried chicken pieces to chicken burgers, the demand for fried chicken pieces decreases. The demand curve for fried chicken pieces shifts to the left, indicating that at each price, the quantity of fried chicken pieces is lower.

In other words, if the price of a substitute good (chicken burgers) decreases, the demand for the other good (fried chicken pieces) usually decreases. In this example, the demand for fried chicken pieces decreases and the demand curve shifts to the left.

ACTIVITY 14

14.1 Assume that air travel and travel by bus and car are substitutes. If the price of travel by bus and car decreases, _____.

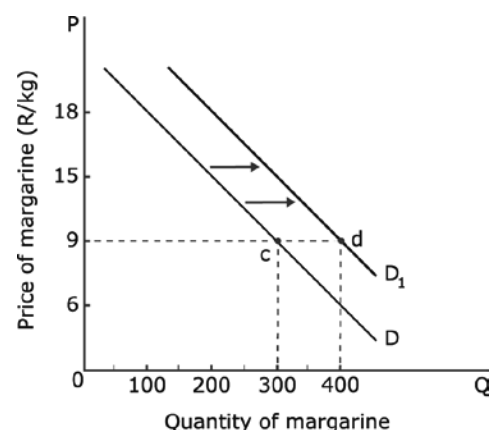
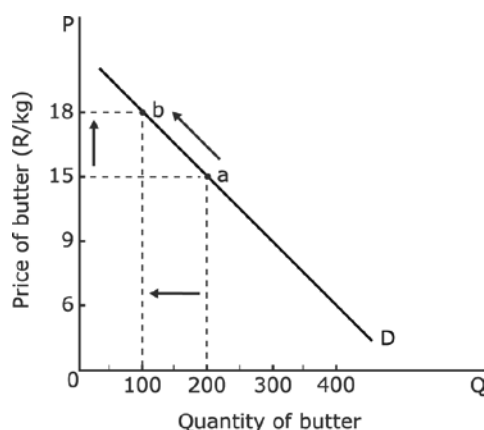
- the demand curve for airline tickets for holiday makers will shift to the left
- the demand curve for airline tickets by holiday makers will shift to the right
- a downward movement along the demand curve for airline tickets by holiday makers will occur
- an upward movement along the demand curve for airline tickets by holiday makers will occur
- the supply curve for airline ticket by holiday makers will shift to the left

14.2 Assume that coffee and tea are substitutes.

Derrick and Thandi are vendors at the station. Derrick sells tea and Thandi coffee. They usually sell these drinks at R5 per cup. However, it is a cold Monday morning and Thandi decides to decrease the price of coffee to R4 a cup.

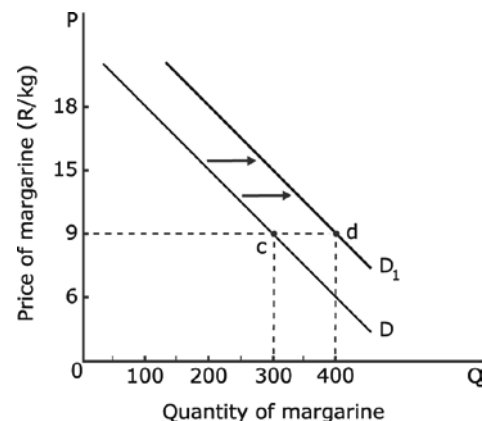
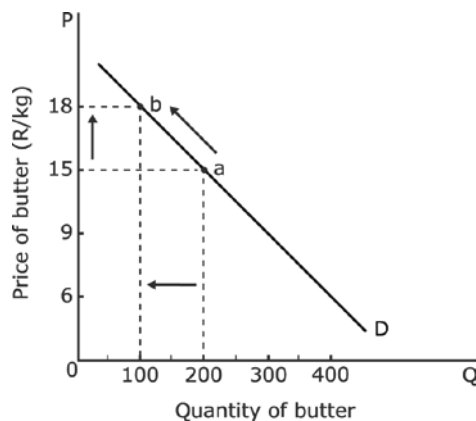
1. What do you think would happen to the demand for tea?
 - a. The demand for tea would decrease.
 - b. The demand for tea would increase.
2. What would happen to the demand curve for tea?
 - a. The demand curve for tea will shift left.
 - b. The demand curve for tea will shift right.
 - c. The demand curve for tea will not shift.
3. Would Thandi sell more cups of coffee than before?
 - a. Thandi will sell more cups of coffee.
 - b. Thandi will sell fewer cups of coffee.
 - c. Thandi will sell the same number of cups of coffee.
4. What would happen to the demand curve for coffee?
 - a. The demand curve for coffee will shift.
 - b. A movement along the demand curve occurs.
5. What advice would you give Derrick about the price of his product?
 - a. Derrick should decrease the price of his product.
 - b. Derrick should increase the price of his product.

14.3 Study the following diagram, which indicates what happens to the demand for margarine if the price of butter increases:



1. An increase in the price of butter from R15 to R18 (increases, decreases) the quantity of butter demanded.
2. The impact of an increase in the price of butter on the quantity of butter demanded is indicated by (an upward movement along the demand curve, downward movement along the demand curve, rightward shift of the demand curve, leftward shift of the demand curve) for butter.

3. Since butter and margarine are substitutes, an increase in the price of butter would cause people to use more margarine.
 - a. True
 - b. False
 4. An increase in the price of butter increases the demand for margarine. This impact on the demand for margarine is indicated by (an upward movement along the demand curve, a downward movement along the demand curve, a rightward shift of the demand curve, a leftward shift of the demand curve) for margarine.
- 14.4 View the following graphs and then read the summary below. In each instance, choose the correct option so the summary describes what you see in the graphs.



According to the above diagram, an increase in the price of butter from R15 to R18 would decrease the quantity demanded for butter from 200 to 100. This would cause the demand curve for margarine to (shift to the left, shift to the right, remain the same), and at every price, the quantity of margarine demanded would be (higher, lower, the same). At a price of R9, the quantity of margarine demanded would (increase from 300 to 400, decrease from 400 to 300, stay the same).

A change in the price of a complement

In this section, we study the impact a change in the price of a good have on the demand for its complement.

After you have worked through this section of the learning unit, you should be able to:

- use demand curves to explain and illustrate how a change in the price of a good impact on the demand for its complement

Mr Dlamini decides to buy cell phones for his children because the price of cell phones has decreased. Will this be a movement along the demand curve for cell phones or a shift of the demand curve for cell phones?

- ☐ A movement along the demand curve
- ☐ A shift of the demand curve

Since it is the price that has decreased, it is a downward movement along the demand curve.

Because his children now also have cell phones, Mr Dlamini buys more airtime per week. Will this be a movement along the demand curve for airtime or a shift of the demand curve for airtime?

- ☐ A movement along the demand curve
- ☐ A shift of the demand curve

Since it is a non-price factor that increases the demand, the demand curve for airtime shifts to the right.

According to the law of demand, a decrease in the price of a good (e.g. a cell phone) will increase the quantity of the good demanded. As more cell phones are demanded and bought, people will also demand more airtime at each price (in other words, if the price of a good decreases, the demand for the complement increases).

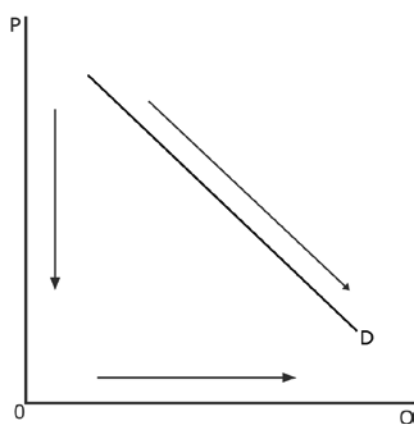


Diagram A: Cell phones

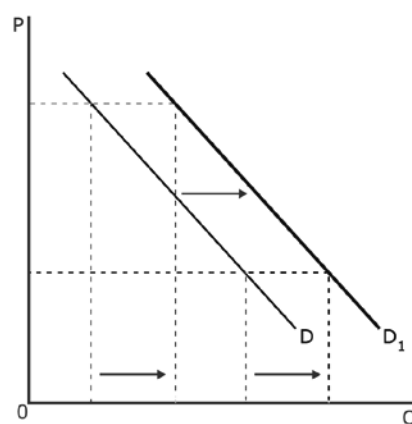


Diagram B: Airtime

In diagram A, the demand curve for cell phones is given, and in diagram B, the demand for airtime.

Assume that the price of a cell phone decreases. How will this influence the demand for cell phones and the demand for airtime? Looking at the demand for cell phones (diagram A), the decrease in the price increases the quantity demanded. There is a downward movement along the demand curve for cell phones.

Because households have more cell phones, their consumption of airtime increases. The demand curve for airtime shifts to the right in diagram B, indicating that at each price, a higher quantity of airtime is demanded.

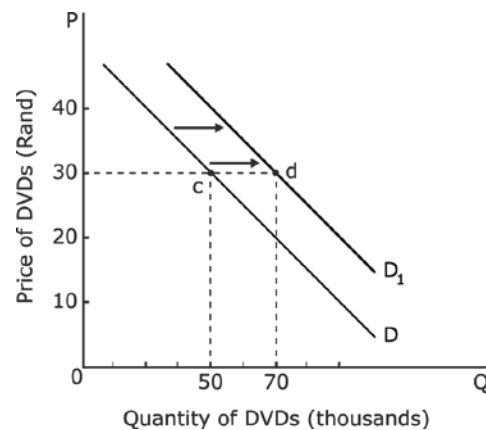
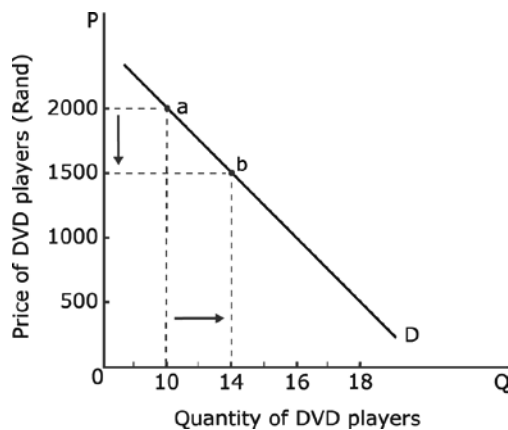
As a general rule, we can state the following:

A decline in the price of a complementary product (cell phones) increases the quantity demanded of it as well as the demand for the complement (airtime).

An increase in the price of a complementary product (cell phones) decreases the quantity demanded of it as well as the demand for the complement (airtime).

ACTIVITY 15

- 15.1 When the Dlamini family buy fried chicken pieces, they also buy chips. Fried chicken pieces and chips are therefore complements.
1. What would happen to the quantity of fried chicken pieces demanded by the Dlamini family if the price of fried chicken pieces were to increase?
 - a. The quantity demanded increases.
 - b. The quantity demanded decreases.
 2. What would happen to the demand for chips if the price of fried chicken pieces were to increase?
 - a. The demand for chips increases.
 - b. The demand for chips decreases.
 3. What then would happen to the demand curve for chips? Would its position shift or would there be a movement along the demand curve?
 - a. The demand curve for chips shifts to the left.
 - b. An upward movement along the demand curve occurs.
- 15.2 Study the following diagram that indicates what would happen to the demand for DVDs if the price of DVD players were to decrease:



- a. A decrease in the price of DVD players from R2 000 to R1 500 (increases; decreases) the quantity of DVD players demanded
- b. The impact of a decrease in the price of DVD players on the quantity of DVD players demanded is indicated by (an upward movement along the demand curve; a downward movement along the demand curve; a rightward shift of the demand curve; a leftward shift of the demand curve) for DVD players.
- c. Is the following statement true or false?
Since DVD players and DVDs are complements, a decrease in the price of DVD players would result in people buying fewer DVDs.
 1. True
 2. False
- d. A decrease in the price of DVD players increases the demand for DVDs. This impact on the demand for DVDs is indicated by (an upward movement along the demand curve; a downward movement along the demand curve; a rightward shift of the demand curve; a leftward shift of the demand curve) for DVDs.

- e. There is a mistake in the following summary. Write down the mistake and what you think the correct version would be.

According to the above diagram, a decrease in the price of DVD players from R2 000 to R1 500 increases the quantity demanded for DVD players from 10 000 to 14 000. This causes the demand curve for DVDs to shift to the right, and at every price, the quantity of DVDs demanded is lower.

6.1.15 The number of potential buyers

In this section, we consider the impact of non-price factors such as the number of buyers on the demand for a good or service.

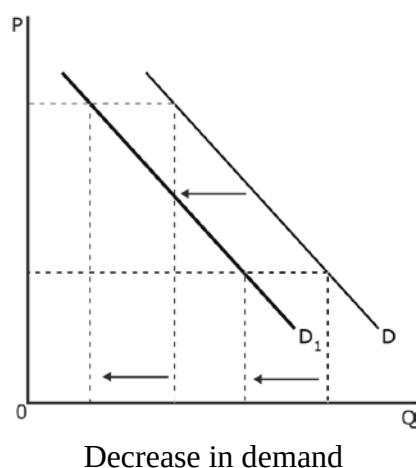
After you have worked through this section of the learning unit, you should be able to:

- explain the impact of the number of buyers on the demand curve

Another non-price factor that we have to consider is how the number of potential buyers affects the demand for a good or service.

What do you think will happen to the demand for fried chicken pieces if there are more potential buyers for fried chicken pieces? This might happen if, for example, there is an increase in the population. The answer is that the demand for fried chicken pieces will increase and the demand curve will shift to the right – indicating that at every price, a higher quantity is demanded.

What happens if there are fewer potential buyers? In this situation, the demand for fried chicken pieces will decrease and the demand curve for fried chicken pieces will shift to the left – indicating that at each price, a lower quantity is demanded.



6.1.16 Expected prices

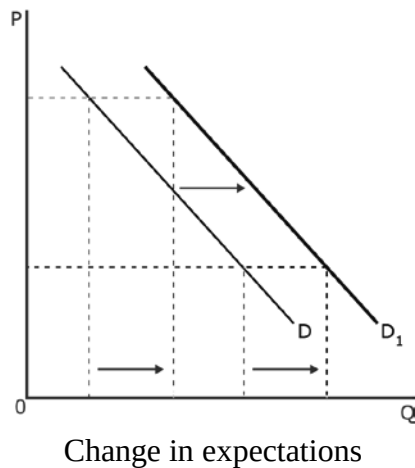
In this section, we consider the impact of non-price factors such as expectations on the demand for a good or service.

After you have worked through this section of the learning unit, you should be able to:

- explain the impact of expectations on demand using the demand curve

If households expect the price of a product to increase in the future, they tend to increase their demand before the price increases.

In South Africa, the petrol price usually changes on the first Wednesday of each month. If the new price is higher, people will try to fill up their cars with petrol before the price increase is implemented. There is thus an increase in the demand for petrol before the expected increase in the price. The demand curve for petrol therefore shifts to the right.



ACTIVITY 16

Complete the table below by selecting the correct effect and impact in brackets:

Determinant	Change	Effect of demand curve	Correct description
Price of the good	Increase	(Upward movement Downward movement Rightward shift Leftward shift)	(Decrease in quantity demanded Increase in quantity demanded Increase in demand Decrease in demand)
	Decrease	(Upward movement Downward movement Rightward shift Leftward shift)	(Decrease in quantity demanded Increase in quantity demanded Increase in demand Decrease in demand)
Price of substitute Indicate what happens to the demand curve for the substitute good	Increase	(Upward movement Downward movement Rightward shift Leftward shift)	(Decrease in quantity demanded Increase in quantity demanded Increase in demand Decrease in demand)
	Decrease	(Upward movement Downward movement Rightward shift Leftward shift)	(Decrease in quantity demanded Increase in quantity demanded Increase in demand Decrease in demand)

Price of complements Indicate what happens to the demand curve for the substitute good	Increase	(Upward movement Downward movement Rightward shift Leftward shift)	(Decrease in quantity demanded Increase in quantity demanded Increase in demand Decrease in demand)
	Decrease	(Upward movement Downward movement Rightward shift Leftward shift)	(Decrease in quantity demanded Increase in quantity demanded Increase in demand Decrease in demand)
Income	Increase	(Upward movement Downward movement Rightward shift Leftward shift)	(Decrease in quantity demanded Increase in quantity demanded Increase in demand Decrease in demand)
	Decrease	(Upward movement Downward movement Rightward shift Leftward shift)	(Decrease in quantity demanded Increase in quantity demanded Increase in demand Decrease in demand)
Potential buyers	Increase	(Upward movement Downward movement Rightward shift Leftward shift)	(Decrease in quantity demanded Increase in quantity demanded Increase in demand Decrease in demand)
	Decrease	(Upward movement Downward movement Rightward shift Leftward shift)	(Decrease in quantity demanded Increase in quantity demanded Increase in demand Decrease in demand)
Expected future price of the good	Increase	(Upward movement Downward movement Rightward shift Leftward shift)	(Decrease in quantity demanded Increase in quantity demanded Increase in demand Decrease in demand)
	Decrease	(Upward movement Downward movement Rightward shift Leftward shift)	(Decrease in quantity demanded Increase in quantity demanded Increase in demand Decrease in demand)

ANSWERS TO THE ACTIVITIES

1.1

a. False.

Demand is the outcome of decisions about which wants to satisfy, given the available means. If you demand something (in the economic sense), it means you intend buying it and that you have the means (i.e. purchasing power) to do so. In other words, when we talk about demand, we are referring to the quantities of a good or service that potential buyers are willing and able to buy.

b. True.

When economists talk about demand, they are referring to the quantities of a good or service that potential buyers are willing and able to buy.

c. True.

It deals with the intentions of households and not what they will actually do.

1.2 c.

Luke is the only person who is part of the demand for ice cream because he wants it, is willing to pay for it and has the ability to do so. Ghandi is not part of the demand since he does not have the ability to pay for it. Peter likes it and has the ability to pay for it, but is not willing to do so. Joyce does not want it and is therefore not part of the demand for it.

1.3 No.

The information is not sufficient since you still need to know whether the people have the willingness and ability to pay for chicken burgers.

Activity 2

2.1 c

Demand refers to the intention of buyers which is not dependent on the availability of the good or service.

2.2 All these factors will increase the quantity that consumers will demand.

Activity 3

3.1

- a. The price of the good or service – independent
- b. The quantity demanded of the good or service – dependent
- c. The income of households – independent
- d. The number of buyers – independent

- 3.2 a. The quantity demanded – Q_d
- b. The price of the good or service – P_x
- c. Tastes and preferences – T
- d. The number of buyers – N
- e. The price of related goods and services – P_g

Activity 4

- 4.1 Your best answer would be d. This relates to the *ceteris paribus* condition. Other things have changed that caused her to sell more red roses. In the case of red roses in February, the reason for the increase in the demand is Valentine's Day.
- 4.2 The symbol for quantity demanded is Q_d .
- 4.3 The symbol for price of a good or service is P_x .

Activity 5

- 5.1 d

The law of demand represents the relationship between the **price of a good or service** and the **quantity demanded**.

- 5.2 c and d

The law of demand states that a **lower price** leads to a **higher quantity demanded**, and a **higher price** leads to a **lower quantity demanded**, *ceteris paribus*.

- 5.3 a and d.

$\uparrow P_x \rightarrow \downarrow Q_d$ and $\downarrow P_x \rightarrow \uparrow Q_d$.)

The law of demand states that a lower price leads to a higher quantity demanded, and a higher price leads to a lower quantity demanded, *ceteris paribus*.

Activity 6

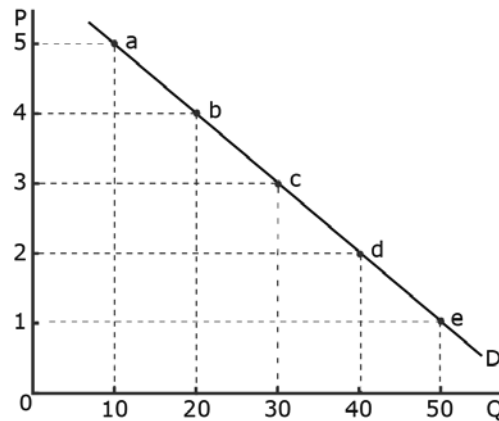
- 6.1 No, it does not reflect the law of demand because it indicates that as the price decreases, the quantity demanded decreases as well. The law of demand states that a **lower price** leads to a **higher quantity demanded**, and a **higher price** leads to a **lower quantity demanded**, *ceteris paribus*.

- 6.2

- a. What is the quantity demanded at a price of R50? It is 100 kg.
- b. What is the quantity demanded at a price of R20? It is 400 kg.
- c. The quantity demanded increases as the price declines from R40 to R20.
- d. By how much does the quantity demanded change if the price changes from R40 to R20? It changes by 200 kg.
- e. What happens to the quantity demanded if the price increases from R20 to R50? It decreases by 300 kg.

Activity 7

7.1

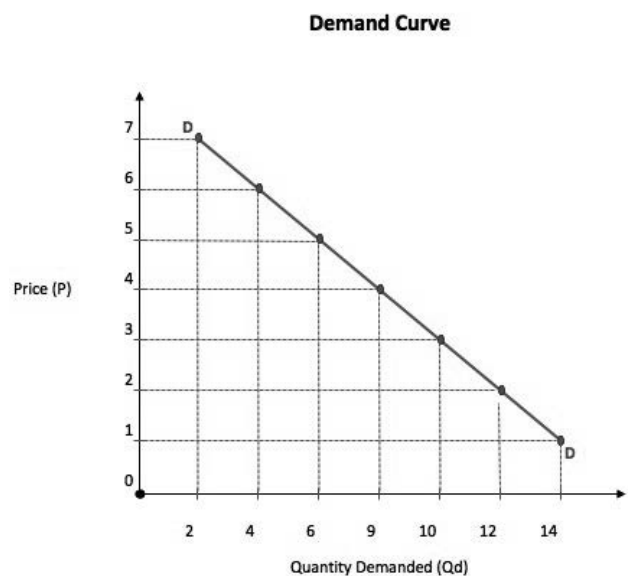
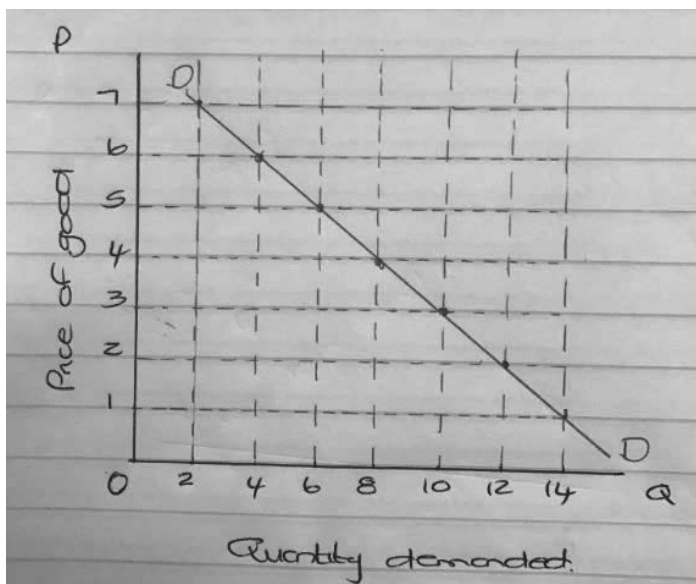
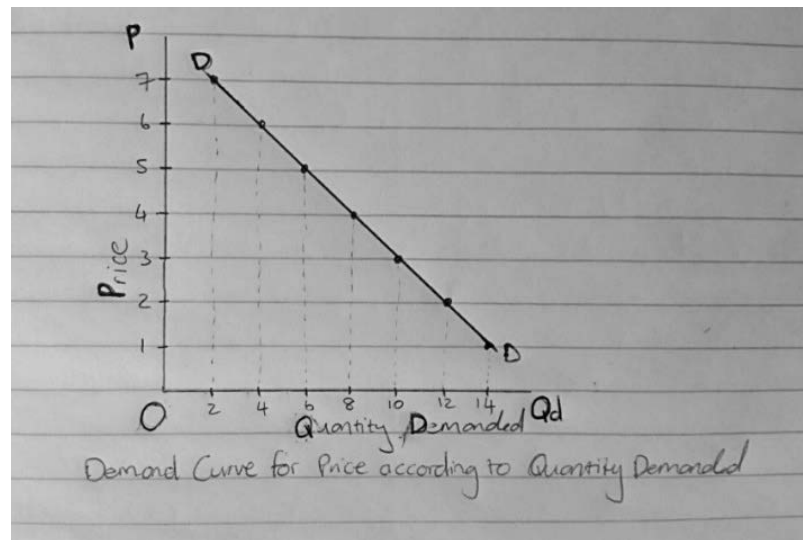


- Which variable is indicated on the horizontal axis? quantity demanded.
- Which variable is indicated on the vertical axis? price
- What is the quantity demanded (in packets of cookies) at a price of R2? 40 packets
- What is the quantity demanded (in packets of cookies) at a price of R5? 10 packets
- What happens to the quantity of packets of cookies demanded when the price declines? It increases.
- What happens to the quantity of packets of cookies demanded when the price increases? It decreases.
- What relationship is illustrated between the two variables (P and Qd)? negative
- The relationship between P and Qd is so important that it carries the status of a “law” known as the law of demand.
- Would there be any shift of the demand curve if the price were to change in this example? No, there is a movement along the curve.
- Would there be any movement along the demand curve if the price were to change in this example? Yes.
- If the price increases, there is an upward movement along the demand curve.
- If the price decreases, there is a downward movement along the demand curve.

7.2 b

The demand curve indicates that the quantity demanded increases as the price decreases, and that the quantity demanded decreases as the price increases. It is a downward-sloping curve and shifts when the non-price determinants of demand change. A change in the price is represented as a movement along the demand curve.

7.3 Here are examples of demand curves from fellow students:

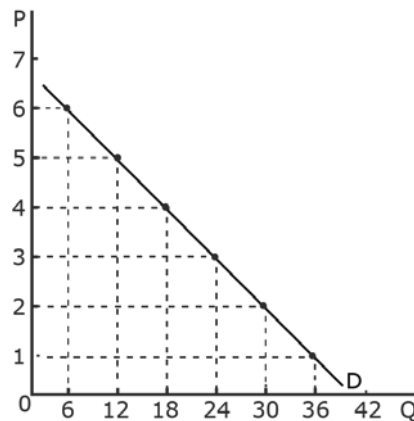


Activity 8

8.1 Demand for tomatoes per week (kg)

Price per kg (R)	Jones	Khumalo	Strydom	Market demand
6	1	2	3	6
5	2	4	6	12
4	3	6	9	18
3	4	8	12	24
2	5	10	15	30
1	6	12	18	36

8.2



Activity 9

9.1 b

It is any factor other than the price of the good or service that influences demand. These are factors such as:

- tastes and preferences (T)
- income (Y)
- the number of potential buyers (N)
- the price of related goods, such as substitutes and complements
- the weather
- the expected price
- income distribution

9.2 a, c, and d

It is any factor other than the price of the good or service that influences demand. It is all the factors except the price of coffee.

Activity 10

- 10.1 How many kilograms of red meat are demanded at R40 before the increase in income? 200 kgs
- 10.2 How many kilograms of red meat are demanded at R40 after the increase in income? 250 kgs
- 10.3 How many kilograms of red meat are demanded at R20 before the increase in income? 400 kgs
- 10.4 How many kilograms of red meat are demanded at R20 after the increase in income? 450 kgs
- 10.5 It is only at a price of R30 that more red meat is demanded if income increases. The statement is false. At every price, a higher quantity of red meat is demanded.
- 10.6 An increase in income increases the quantity of red meat demanded at each price.
- 10.7 Red meat is an/a (inferior; normal) good. It is a normal good because an increase in income increases the demand for it.

Activity 11

- 11.1 Decrease. A normal good indicates that a positive relationship exists between demand and income. A decrease in income will decrease the demand for it, while an increase in income will increase the demand for it.
- 11.2 Left. A decrease in income will decrease the demand, and the demand curve shifts to the left indicating that at each price the quantity demanded is lower.
- 11.3 False. A leftward shift indicates that at every price a lower quantity is demanded.

Activity 12

- 12.1 Through the advertising campaign, tastes and preferences would change, and the demand for chocolate bars would increase and the demand curve for chocolate bars would thus shift to the right.

Activity 13

- 13.1 b

An increase in the price of fried chicken pieces causes a change in the quantity demanded of fried chicken. A change in a non-price factor will cause a change in the demand.

- 13.2 a

A decrease in the price of fried chicken pieces causes a movement along the demand curve. In the case of a decrease in price, it is a downward movement along the demand curve. A shift of the demand curve occurs when a non-price factor changes.

- 13.3 a

An increase in the price of fried chicken pieces causes an upward movement along the demand curve for fried chicken pieces to indicate that as the price increases, the quantity demanded decreases.

- 13.4 b

An increase in the income of households, which is used by them to buy more mobile phones, is represented as a shift of the demand curve for mobile phones since it is a non-price factor that has changed.

- 13.5 d

A decrease in the price of ice cream causes an increase in the quantity demanded and is represented as a downward movement along the demand curve.

- 13.6 a

An increase in the number of people with HIV/AIDS which causes an increase in the demand for medication is an example of a non-price factor.

- 13.7 b

It is a movement because it is the price of beef that has changed, which causes people to consume less beef.

13.8 b

This is a change in the price and therefore a movement along the demand curve. In this instance, the price decreases and a downward movement along the demand curve occurs.

13.9 a

The allowance is part of a non-price factor of demand, and because it is the intention of the student to buy more fried chicken pieces, at each price the demand curve for fried chicken shifts to the right.

Activity 14

14.1 a

If airline travel and travel by bus and car are regarded as substitutes, then a decrease in the cost of travel by bus and car will decrease the demand for airline tickets and the demand curve for airline tickets by holidaymakers will shift to the left.

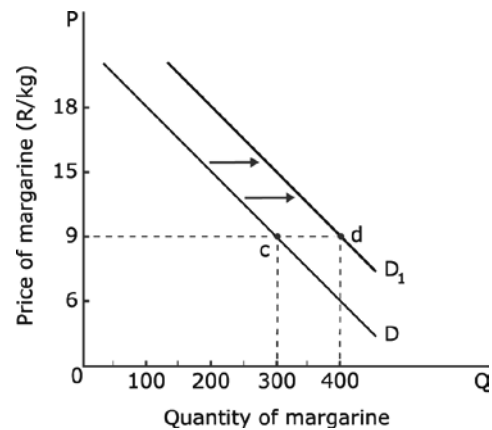
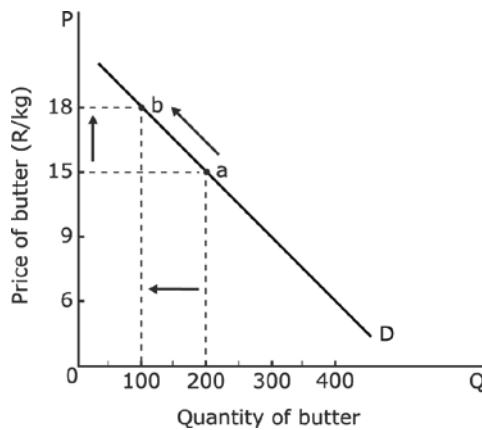
14.2

1. a. The demand for tea decreases since people switch to coffee.
2. a. The demand curve for tea will shift left since at each price, the quantity demanded is lower.
3. a. Thandi will sell more cups of coffee since the price of coffee is lower.
4. b. A movement along the demand curve for coffee takes place since it is a change in the price of coffee.
5. a. Derrick should decrease the price of his product to increase the quantity sold.

14.3

1. An increase in the price of butter from R15 to R18 decreases the quantity of butter demanded.
2. The impact of an increase in the price of butter on the quantity of butter demanded is indicated by an upward movement along the demand curve for butter. Note that it is a change in the price.
3. True
4. An increase in the price of butter increases the demand for margarine. This impact on the demand for margarine is indicated by a rightward shift of the demand curve for margarine.

14.4



According to the above diagrams, an increase in the price of butter from R15 to R18 would decrease the quantity demanded for butter from 200 to 100. This would cause the demand curve for margarine to **shift to the right**, and at every price, the quantity of margarine demanded would be **higher**. At a price of R9, the quantity of margarine demanded would **increase from 300 to 400**.

Activity 15

15.1

- The quantity demanded decreases.
- The demand for chips decreases since less is demanded at each price.
- The demand curve for chips shifts to the left since at each price less is demanded than before.

15.2

- A decrease in the price of DVD players from R2 000 to R1 500 increases the quantity of DVD players demanded.
- The impact of a decrease in the price of DVD players on the quantity of DVD players demanded is indicated by a downward movement along the demand curve for DVD players.
- The statement is false. They will buy more DVDs.
- A decrease in the price of DVD players increases the demand for DVDs. This impact on the demand for DVDs is indicated by a rightward shift of the demand curve for DVDs.
- The mistake is that at every price the quantity demanded of DVDs is not lower, but higher.

Activity 16

Determinant	Change	Effect of demand curve	Correct description
Price of the good	Increase	Upward movement	Decrease in quantity demanded
	Decrease	Downward movement	Increase in quantity demanded
Price of substitute Indicate what happens to the demand curve for the substitute good	Increase	Rightward shift	Increase in demand
	Decrease	Leftward shift	Decrease in demand
Price of complements Indicate what happens to the demand curve for the complement good	Increase	Leftward shift	Decrease in demand
	Decrease	Rightward shift	Increase in demand
Income	Increase	Rightward shift	Increase in demand
	Decrease	Leftward shift	Decrease in demand
Potential buyers	Increase	Rightward shift	Increase in demand
	Decrease	Leftward shift	Decrease in demand
Expected future price of the good	Increase	Rightward shift	Increase in demand
	Decrease	Leftward shift	Decrease in demand

CHECKLIST

	Well	Satisfactory	Must redo
Concepts and relationships			
I am able to			
define demand			
identify the factors that influence the demand for a good or service			
write the demand equation using symbols			
describe the relationship between price and quantity demanded			
explain the importance of the <i>ceteris paribus</i> condition			
describe the law of demand in words and with the aid of a chain of events			
interpret the demand schedule and use a demand schedule to explain the law of demand			
identify the non-price factors of demand			
describe the impact of a change in income on demand in words, with the help of a chain of events and a demand schedule			
distinguish between normal and inferior goods			
distinguish between substitutes and complements			
Diagrams			
I am able to			
(i) show on a diagram			
(ii) explain with or without the aid of a diagram			
draw a demand curve			
explain why the demand curve is downward sloping and clearly distinguish between an upward and downward movement along the demand curve			
draw a market demand curve given individual demand schedules			
explain with the aid of a demand curve what happens to demand if the income of households increases or decreases			
explain with the aid of a demand curve what happens to demand if any of the non-price factors of demand changes			
explain with the aid of demand curve the impact of a change in the price of a substitute			
explain with the aid of demand curve the impact of a change in the price of a complement			

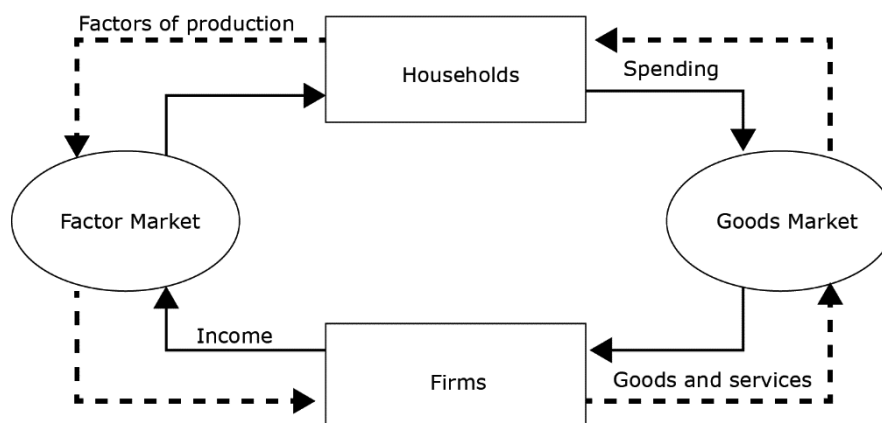
Supply

6.2

OVERVIEW

When we dealt with the economic problem of scarcity, we indicated that an important question that needs to be answered relates to the issue of how to produce goods and services. In a market system this question of how to produce is answered by firms who are responsible for the production of goods and services. We also argued that we require our economic system to be both technically and allocatively efficient. Technical efficiency relates to the effectiveness of firms in the economy to produce goods and services in such a way that the best productive use is made of the factors of production.

In our circular flow model it is in the goods market that households (consumers) buy their goods and services and the producers supply their goods and services. Two active participants in this market are households, as the demanders of goods and services, and firms, as the suppliers of goods and services. In the topic Demand we took a closer look at the demand for goods and services by households. In this section we take a closer look at the supply of goods and services by firms.



Read the following and reflect on the questions that follows:

In the Daily Maverick of 23 August 2017 Simon Mantell express the following opinion on the South African Airways:

The misguided propping up of SAA over the last 15 years to the tune of more than R20-billion is brought into stark relief when one considers that these funds could have built 200,000 RDP houses and that SAA management's latest request for an additional R13-billion injection over the next three years could finance a further 130,000

The 2016 SAA AFS shows operating expenditure of R30-billion with R5.8-billion comprising employee salaries and benefits. The staff complement for the year totalled 10,700 employees and average cost to company per employee is an eye-watering R542,000 per annum.

The salary income statement line item begs two questions:

- What is international best practice in terms of employment numbers per aircraft so as to measure productivity?
- Are salaries, especially at what appears to be a dysfunctional Airways Park “head office”, way above what are market related given the general sub-optimum performance?

International best practice on comparable full service airlines in the USA, Europe and Asia report a ratio of between 120 and 140 employees per aircraft and SAA, with about 190 employees per aircraft, is approximately 46% higher than the average.

To be competitive, SAA would be required to retrench 3,000 employees resulting in at least R1.6-billion being trimmed off the annual salary bill. Market-related pay cuts for those who are the easy riders at Airways Park would see another R400-million saved annually.

Source: <https://www.dailymaverick.co.za/opinionista/2017-08-23-saving-saa-mission-impossible/#.WuLygy5uapo>

Questions for reflection

1. In your view what is the opportunity cost of spending more money on the South African Airways.
2. Should we be spending more money on the South African Airways?
3. Can the South African Airways be regarded as technical efficient?
4. How did the South African Airways get into this situation?

6.2.1 Meaning of supply

In this section, supply of a good or service is described and defined.

After you have worked through this section of the learning unit, you should be able to:

- describe the meaning of supply in words

Behind the decision by firms to supply goods and services is the profit motive. The objective of a firm is to maximise its profits. Any factor that influences the profit of a firm will affect its decision to supply more or less of a product or service.

For our purposes, the supply of a good or service can be defined as follows:

Supply is the quantities of a good or service that potential suppliers are willing and able to supply during a certain period.

In the rest of the learning unit, we use the symbol Q_s to indicate the quantities of a good or service supplied.

ACTIVITY 1

Indicate whether the following statements is **true** or **false**:

- 1.1 Suppliers supply products to the market because they like to do good deeds.
- 1.2 If there is a demand for a product, it will be supplied.
- 1.3 Supply refers to the quantity of a good that is available in a particular shop.
- 1.4 Supply refers to the quantities of a good or service that producers plan to sell at different prices.

T	F

6.2.2 Factors that influence supply

In this section, factors that have an impact on the supply of goods and services are identified.

After you have worked through this section of the learning unit, you should be able to:

- identify the factors that influence the supply of goods and services

All businesses that supply goods and services have to make a number of difficult decisions about the kinds, amounts and prices of the goods and services they wish to supply.

In a market system, businesses only supply goods and services that can make a profit. Likewise, a business will not supply a good or service that cannot make a profit. Even if there is a demand for a good or service, it will only be supplied if a profit can be made. Consequently, the government or other non-profit enterprises usually supply goods and services that private firms regard as unprofitable.

Economists agree that the following factors are the main determinants of the supply of a good or service:

- the price of a good or service (represented by the symbol P_x)
- the prices of inputs, also known as the cost of production (represented by the symbol P_c)
- the prices of alternative goods and services (represented by the symbol P_g)
- the technology needed to make the good (represented by the symbol T)
- the number of suppliers (represented by the symbol N)
- the weather
- expected prices

Apart from the price of the good or service and the number of suppliers, all the other factors are mainly concerned with the cost of production. A firm's supply decision therefore mainly depends on the cost of production and the profits that it can make by supplying the good or service.

ACTIVITY 2

- 2.1 Which of the following is **not** a factor that determines the supply of ice cream?
- The price of ice cream
 - The income of households
 - The prices of inputs, also known as the cost of production
 - The technology needed to make the good
 - The number of suppliers
- 2.2 Which of the following factors do you think would increase how much of a good or service suppliers would supply? Select all the answers you think are relevant.
- A decrease in the cost of production of the good or service
 - An increase in the price of the good or service
 - An increase in the number of suppliers

6.2.3 Supply as an equation

After you have worked through this section of the learning unit, you should be able to:

- write the supply function as an equation

With the above information, it is now possible to write a supply equation as follows, using symbols:

$$Q_s = f(P_x, P_c, T, P_g, N, \dots)$$

In words, the above equation means that the quantity supplied of a good or service (Q_s) is a function of the price of the good or service (P_x), the cost of production (P_c), technology (T), the price of related goods (P_g), the number of suppliers (N) and other factors. The other factors are things such as the weather and expected price.

ACTIVITY 3

- 3.1 Given the supply equation, which is the dependent variable?

$$Q_s = f(P_x, P_c, T, P_g, N, \dots)$$

- 3.2 Write down the symbol for the following supply factors:

Cost of production _____

Technology _____

Number of suppliers _____

Number of other factors _____

6.2.4 Introduction to the law of supply

In this section, we begin to look at the law of supply, which indicates that a positive relationship exists between the price of a good or service and the quantity supplied of it.

After you have worked through this section of the learning unit, you should be able to:

- describe the law of supply in words and with the aid of a chain of events

A crucial factor that influences how much of a good or service will be supplied to the market is the price of the good or service. Let us see how the price of fried chicken pieces influences the quantity supplied by a supplier of fried chicken pieces called Funky Chicken.

What do you think Funky Chicken would do if the price of fried chicken pieces were to increase?

- ☐ It would increase the quantity supplied.
- ☐ It would decrease the quantity supplied.
- ☐ It would not change the quantity supplied.

Funky Chicken would probably supply a greater quantity because it would be profitable to do so. As the price of fried chicken increases, Funky Chicken would plan to supply a larger quantity of fried chicken pieces. This is because by supplying a larger quantity at a higher price, the supplier is able to make a greater profit.

However, what happens if the price of fried chicken pieces decreases?

If the price of chicken pieces decreases, Funky Chicken will plan to supply a lower quantity. This is because by supplying a larger quantity at a lower price, it will make a loss (and may even eventually go out of business).

The law of supply can be therefore be stated as follows:

The higher the price of a good or service (all other things remaining the same), the higher the quantity supplied will be; and the lower the price of a good or service (all other things remaining the same), the lower the quantity supplied will be.

Using the symbol P_x for the price of the product and the symbol Q_s for the quantity supplied, the law of supply can also be written as follows:

$$\uparrow P_x \rightarrow \uparrow Q_s$$

An increase in the price of the product ($\uparrow P$) causes ($\rightarrow$) an increase in the quantity supplied ($\uparrow Q_s$).

$$\downarrow P_x \rightarrow \downarrow Q_s$$

A decrease in the price of the product ($\downarrow P_x$) causes ($\rightarrow$) a decrease in the quantity supplied ($\downarrow Q_s$).

This relationship between the price of a product and the quantity supplied is positive. A positive relationship indicates that if one variable goes up (in this case, the price of the product), the other variable will go up as well (in this case, the quantity supplied of a product). It also implies that if one variable goes down (in this case, the price of the product), the other variable will go down as well. The variables move in the same direction.

ACTIVITY 4

4.1 Choose the correct option in brackets.

Given that all other things (remain the same; change), if the price of a good or service increases, the quantity supplied will (decrease; increase), and if the price of a good or service decreases, the quantity supplied will (increase; decrease). This indicates that a (negative; positive) relationship exists between the price of the good and the quantity supplied.

4.2. Which of the following represents the law of supply in symbols?

- a. $\uparrow P_x \rightarrow \downarrow Q_d$
- b. $\downarrow P_x \rightarrow \downarrow Q_s$
- c. $\downarrow P_x \rightarrow \uparrow Q_s$
- d. $\uparrow P_x \rightarrow \uparrow Q_s$
- e. $\uparrow P_x \rightarrow \downarrow Q_s$

6.2.5 The law of supply as a schedule

After you have worked through this section of the learning unit, you should be able to:

- interpret the supply schedule and use a supply schedule to explain the law of supply

The law of supply, like the law of demand, can be expressed by means of a supply schedule. A supply schedule is a table that indicates the quantity of a product supplied at each price.

The table below is a hypothetical supply schedule for fried chicken pieces by an individual supplier called Funky Chicken. The second column contains different prices for fried chicken pieces. The third column contains the quantity of fried chicken pieces that Funky Chicken plans to supply at each price during a particular week.

Supply schedule for fried chicken pieces

Combination	Price of fried chicken per piece (rand)	Quantity of fried chicken pieces supplied (per week)
A	7	14
B	6	12
C	5	10
D	4	8
E	3	6
F	2	4
G	1	2

According to this table (given the fact that all the other factors that influence supply stay the same), at a price of R7 per fried chicken piece, the quantity supplied will be 14. If the price of fried chicken pieces

decreases to R6, the quantity supplied will be 12; at a price of R5, the quantity supplied will be 10; and so on.

Can you see how the quantity supplied decreases as the price of a fried chicken piece decreases? And how the quantity supplied increases if the price increases?

This supply schedule demonstrates the law of supply – showing that as the price increases, the quantity supplied increases; and as the price decreases, the quantity supplied decreases.

ACTIVITY 5

The following table indicates the supply of dried red meat (known as biltong in South Africa):

Price per kg	Quantity supplied in kg
R50	500
R40	400
R30	300
R20	200
R10	100

- What is the quantity supplied at a price of R50?
- The quantity supplied (increases; decreases) as the price declines from R40 to R20.
- By how much does the quantity supplied change if the price changes from R40 to R20? It changes by _____ kilograms.
- What happens to the quantity supplied if the price increases from R20 to R50? It increases by _____ kilograms.

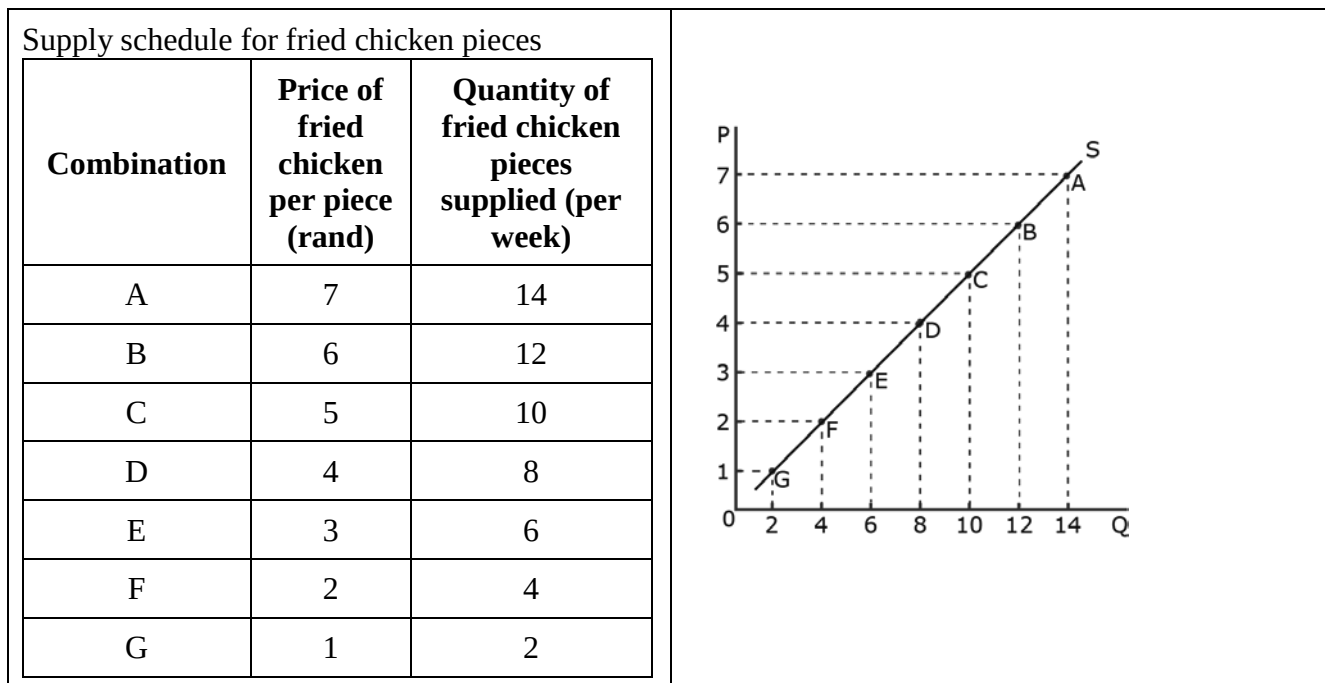
6.2.6 The law of supply as a graph

After you have worked through this section of the learning unit, you should be able to:

- draw a supply curve based on data in a supply schedule and use it to explain the law of supply

It is also possible to demonstrate the law of supply by using a graph. To do this, you have to use the information in the supply schedule. Study the graph below to see how the information in the table is plotted as points. When the points are joined, we have a supply curve.

The vertical axis shows the price (P) of a product or service, for example, fried chicken pieces, and it is labelled “Price”. The horizontal axis measures the quantity supplied (Qs) and it is labelled “Quantity supplied”.



The first point corresponds to a price (P) of R7 and a quantity (Qs) of 14 pieces of fried chicken, as can be seen from the vertical axis and horizontal axis respectively.

To obtain the second point, we obtain the point that represents a price of R6 and a quantity of 12. To draw the next points, we obtain the point that represents a price of R5 and a quantity of 10; the point that represents a price of R4 and a quantity supplied of 8; and so on.

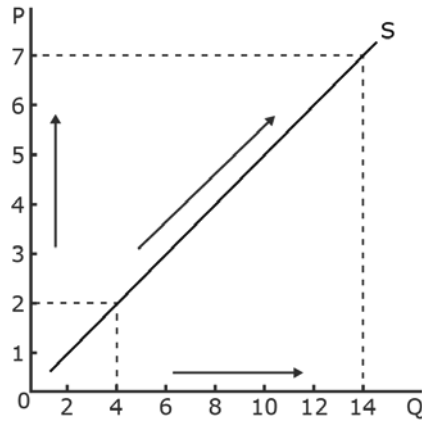
By connecting these points, we obtain a line (shown as S). This, then, is our supply curve for fried chicken pieces.

Look carefully at the supply curve above. Can you see how the supply curve is labelled S? The supply curve shows how many pieces of fried chicken producers are planning to sell at each price. As you can see, the supply curve slopes upwards from left to right, showing a positive relationship between the price and quantity supplied.

Interpreting a supply curve

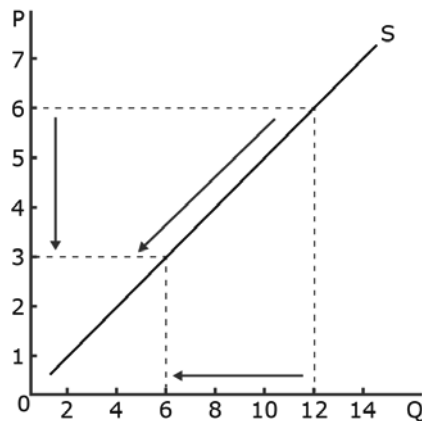
The following are important aspect of the supply curve you should take note of:

- how the supply curve represents the law of supply
- how an upward movement along the supply curve occurs when the price of a fried chicken piece increases



Upward movement along a supply curve

- how a downward movement along the supply curve occurs when the price of a fried chicken piece decreases



Downward movement along a supply curve

ACTIVITY 6

6.1 Use the following supply schedule to draw a supply curve:

Price of cookies (per packet)	Number of packets of cookies supplied
1	10
2	20
3	30
4	40
5	50

6.2 Use your supply curve and answer the following questions:

- Which variable is indicated on the horizontal axis?
- Which variable is indicated on the vertical axis?
- What is the quantity supplied (in packets of cookies) at a price of R2?

- d. What is the quantity supplied (in packets of cookies) at a price of R5?
- e. What happens to the quantity of packets of cookies supplied when the price declines? It (decreases; increases; stays the same).
- f. What happens to the quantity of packets of cookies supplied when the price increases? It (decreases; increases; stays the same).
- g. A (negative; positive) relationship is illustrated between the two variables (P and Q_s)?
- h. This relationship between P and Q_s is so important that it carries the status of a “law” which is referred to as the law of (demand; supply).
- i. Would there be any shift of the supply curve if the price were to change in this example?
- j. Would there be any movement along the supply curve if the price were to change in this example?
- k. If the price increases, is there an upward or downward movement along the supply curve?
- l. If the price decreases, is there an upward or downward movement along the supply curve?

From individual supply to market supply

After you have worked through this section of the learning unit, you should be able to:

- draw a market supply curve given individual supply schedules

While we can learn a lot from individual supply schedules and curves, it is the market supply that we need to understand to grasp how the market price is determined. The market supply schedule can be obtained, as in the case of the market demand schedule, simply by the addition of the individual supply schedules.

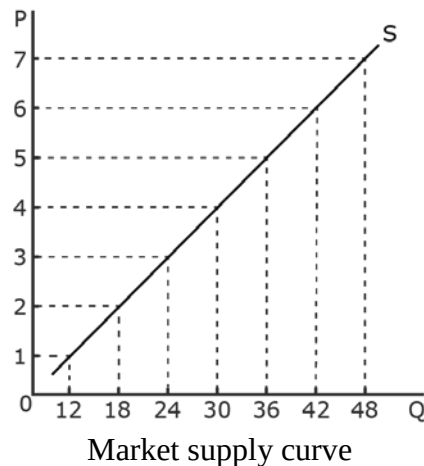
To illustrate: It is assumed that there are only three suppliers of fried chicken pieces, namely Funky Chicken, King Chicken and Magic Fried Chicken.

Market supply schedule for fried chicken pieces

Price (rand)	Quantity supplied by Funky Chicken	Quantity supplied by King Chicken	Quantity supplied by Magic Fried Chicken	Market quantity supplied
7	14	16	18	48
6	12	14	16	42
5	10	12	14	36
4	8	10	12	30
3	6	8	10	24
2	4	6	8	18
1	2	4	6	12

At R7, the market quantity supplied is 14 by Funky Chicken + 16 by King Chicken + 18 by Magic Fried Chicken, which gives us a total of 48 pieces. Following the same procedure for the rest of the prices, the market quantity supplied at R6 is 42; at R5 it is 36; at R4 it is 30; at R3 it is 24; at R2 it is 18; and at R1 it is 12.

From the data in the table, we can draw the market supply curve for fried chicken pieces. This market supply curve is also upward sloping showing the positive relationship between the price and the quantity supplied.



6.2.7 Non-price factors of supply

After you have worked through this section of the learning unit, you should be able to:

- identify the non-price factors of supply

Non-price supply factors are all those factors, apart from the price of the good, that influence the supply of the good.

These are factors such as the:

- price of inputs (cost of production)
- prices of alternative goods
- technology needed to make the good
- expected prices
- number of suppliers

Let us consider the impact of a change in the price of inputs (cost of production).

The price of inputs (cost of production)

After you have worked through this section of the learning unit, you should be able to:

- identify factors that have an impact on the cost of production and describe what happens to the supply schedule if the cost of production changes

Things like land, capital and labour are needed to make products. Businesses pay for these things (which are called the factors of production), and this payment forms part of the cost of production.

For example, the labour used in producing something is paid for through wages, and wages are calculated as part of a business's cost of production. A business will only be willing to supply a product to the market if it can cover its cost of production.

The following are examples of the cost of production for fried chicken suppliers:

- the price of chickens bought from chicken farmers
- the price of the oil used for frying
- the wages of employees
- the cost of electricity used to run the ovens
- the cost of rent for the building
- the interest the supplier pays on capital
- the profit the supplier makes

Any increases in the price of inputs will affect a business's cost of production. For example, an increase in the wages that fried chicken suppliers pay for labour will increase the cost of producing fried chicken pieces. Fried chicken suppliers will therefore have to charge a higher price to supply the same quantity of fried chicken pieces to the market as they did before.

The supply schedule and cost of production

If the cost of production increases, it means that at each price, fried chicken suppliers will now supply a lower quantity than before. The supply of fried chicken pieces will therefore decrease.

The relationship between the price of inputs and supply can be illustrated by using a supply schedule.

Study the supply table to see how an increase in the cost of production will affect the supply schedule for fried chicken pieces.

Supply schedule for fried chicken pieces

Price of fried chicken per piece (rand)	Quantity of fried chicken pieces supplied (per week)	Quantity of fried chicken pieces supplied after the cost of production increases (per week)
7	48	44
6	42	38
5	36	32
4	30	28
3	24	20
2	18	14
1	12	8

Can you see how at each price, the quantity of fried chicken pieces supplied is lower?

At a price of R7, the quantity supplied is 44 instead of 48 pieces; at a price of R6, the quantity supplied is 38 instead of 42 pieces; at a price of R5, the quantity supplied is 32 instead of 36 pieces; and so on.

ACTIVITY 7

Study the table below, which represents the supply schedule for cold drinks before and after an increase in the price of inputs. Then answer the following questions:

Increase in cost of production

Price of cold drinks (rand)	Quantity of cold drinks supplied (per week)	Quantity of cold drinks supplied after the cost of production increases (per week)
7	140	130
6	120	110
5	100	90
4	80	70
3	60	50
2	40	30
1	20	10

- How many cold drinks are suppliers prepared to supply at a price of R6 before the increase in costs?
- How many cold drinks are suppliers prepared to supply at a price of R6 after the increase in costs?
- How many cold drinks are suppliers prepared to supply at a price of R2 before the increase in costs?
- How many cold drinks are suppliers prepared to supply at a price of R2 after the increase in costs?
- Are the suppliers prepared to supply more or fewer cold drinks at every price after an increase in cost?

The supply curve and an increase in cost of production

After you have worked through this section of the learning unit, you should be able to:

- explain with the aid of a supply curve what happens to supply if the cost of production increases or decreases

If there is an increase in the cost of production of fried chicken pieces, what do you think will happen to the supply curve for fried chicken pieces?

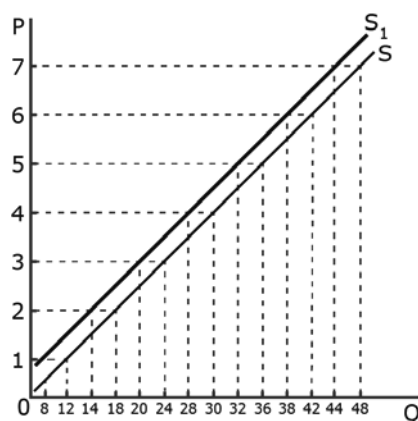
- ☐ The supply curve will shift to the right.
- ☐ The supply curve will shift to the left.
- ☐ There is an upward movement along the supply curve.
- ☐ There is a downward movement along the supply curve.

From the table below, we know that at each price, a lower quantity of fried chicken pieces will be supplied if the cost of production increases.

Supply schedule for fried chicken pieces

Price of fried chicken per piece (rand)	Quantity of fried chicken pieces supplied (per week)	Quantity of fried chicken pieces supplied after the cost of production increases (per week)
7	48	44
6	42	38
5	36	32
4	30	28
3	24	20
2	18	14
1	12	8

We now have a new supply curve to indicate the supply of fried chicken pieces at this higher cost of production. This new supply curve (S_1) is positioned to the left of the initial supply curve and a leftward shift in the position of the supply curve for fried chicken pieces has occurred.



Increase in cost of production and supply curve

Can you see the following?

- At a price of R7, the quantity supplied is lower at 44.
- At a price of R4, the quantity supplied is lower at 28.
- At a price of R2, the quantity supplied is lower at 14.
- At each price, the quantity supplied is lower.
- A leftward shift of the supply curve has occurred.

Note that at each price, the quantity supplied is lower. This is shown by a leftward shift of the whole supply curve (S) to the new supply curve (S_1).

Impact of technology on the supply curve

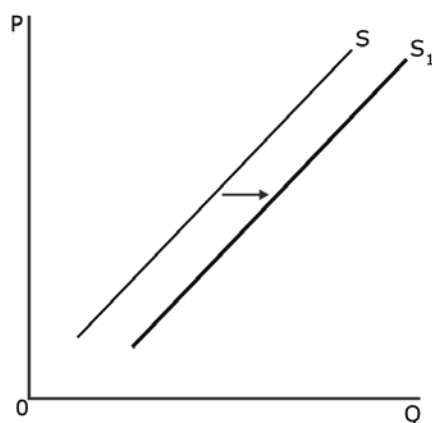
After you have worked through this section of the learning unit, you should be able to:

- explain with the aid of a supply curve what happens to supply if technology changes

A technological advance that decreases the cost of production is an important factor that can influence the supply of a product. In this section, we take a closer look at the impact of technology on supply.

If, for example, a new type of deep fryer is designed that uses less electricity and less oil to fry the chicken pieces, it will mean that the cost of producing fried chicken pieces will be lower (i.e. less electricity and less oil will be used). Fried chicken producers will therefore be able to supply more fried chicken pieces than before at the same price.

In our supply curve for fried chicken pieces, the impact of technology is illustrated by a rightward shift of the supply curve.



An increase in supply causes a rightward shift of the supply curve

At each price, the quantity supplied is higher than before and the supply curve shifts to the right.

6.2.8 A change in supply and a change in quantity supplied

After you have worked through this section of the learning unit, you should be able to:

- distinguish between a change in supply and a change in quantity supplied

In the same way that we distinguished between a change in demand and a change in the quantity demanded, we can distinguish between a change in supply and a change in the quantity supplied.

An increase in price will cause _____

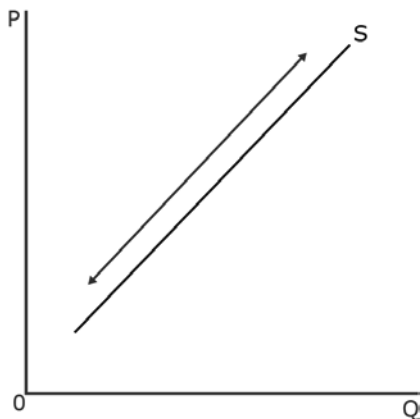
- ☐ an upward movement along the supply curve.
- ☐ a downward movement along the supply curve.
- ☐ a rightward shift of the supply curve.
- ☐ a leftward shift of the supply curve.

A change in the price causes a movement along the supply curve. An increase in price causes an upward movement along the supply curve.

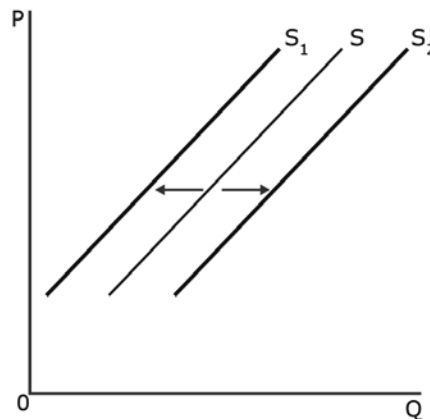
A decrease in the cost of production will cause _____

- ☐ an upward movement along the supply curve.
- ☐ a downward movement along the supply curve.
- ☐ a rightward shift of the supply curve.
- ☐ a leftward shift of the supply curve.

A change in a non-price factor causes a shift of the supply curve. A decrease in the cost of production implies that at every price, a higher quantity is supplied and the supply curve shifts to the right.



A change in price causes a change in quantity supplied and is represented as a movement along the supply curve



A change in non-price factors causes a change in supply and is represented as a shift of the supply curve

ACTIVITY 8

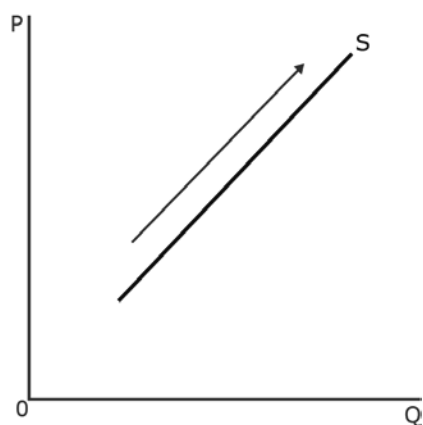
8.1 Indicate whether the following statements is **true** or **false**:

- a. An increase in the price of potatoes will result in an increase in the supply of potatoes (i.e. a rightward shift of the supply curve).
- b. A decrease in the price of potatoes will result in a downward movement along the supply curve (i.e. a decrease in the quantity of potatoes supplied)..
- c. An upward movement along a supply curve is called an increase in supply.
- d. A change in the price of guavas will not cause the supply curve for guavas to shift.

T	F

8.2 Choose the correct option to describe each of the diagrams below.

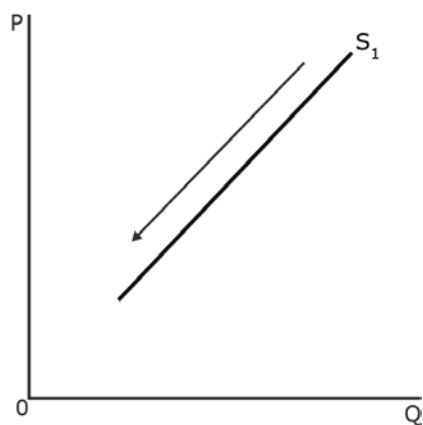
1.



This diagram indicates

- a. an increase in price of the product.
- b. an increase in input prices for the product.
- c. a decrease in the price of the product.

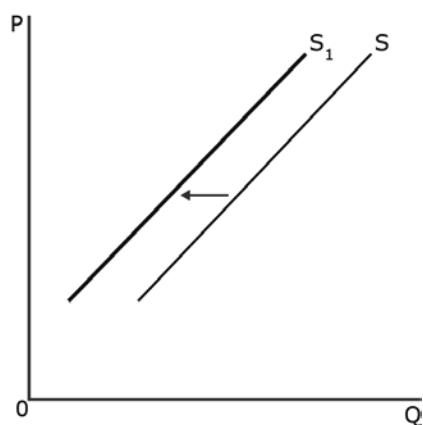
2.



This diagram indicates

- a. an increase in price of the product.
- b. an increase in input prices for the product.
- c. a decrease in the price of the product.

3.



This diagram indicates

- a. an increase in price of the product.
- b. an increase in input prices for the product.
- c. a decrease in the price of the product.

6.2.8 The price of other goods

After you have worked through this section of the learning unit, you should be able to:

- distinguish between substitutes in production and complements in production.
- explain with the aid of supply curves the impact of change in the price of a substitute in production has on its related good.
- explain with the aid of supply curves the impact of a change in price of complement in production has on its related good.

Under the price of other goods, we can distinguish between substitutes in production (alternative goods) and between complements in production (joint goods).

Substitutes in production

Substitutes in production refer to the fact that it is possible to produce different goods with the same resources. When producers decide what to produce, they always consider the prices of alternative outputs that they can produce with the same resources.

Farmers producing maize will, for instance, take the price of soya beans into account when they decide how much land to allocate to the production of maize.

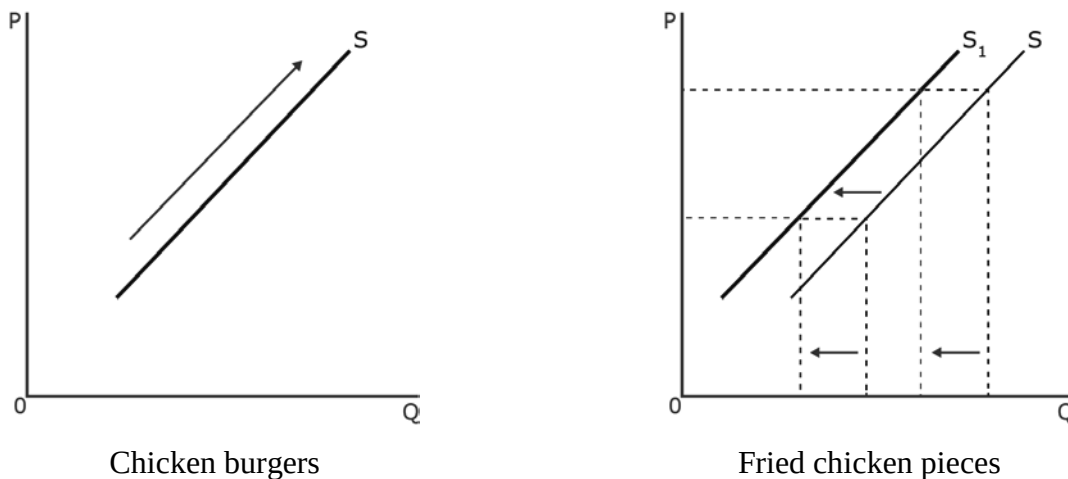
An increase in the price of soya beans relative to that of maize will reduce the supply of maize. Because it is more profitable for farmers to produce soya beans, they will shift more of their resources to producing soya beans.

Using many of the same resources, fried chicken producers can make and supply a range of products (e.g. chicken burgers or chicken wraps). They need to figure out which of these products they should supply in order to make the highest profit.



They also need to take into account that if the price of a substitute in production (an alternative product) such as chicken burgers increases, it might be profitable for them to switch to supplying chicken burgers instead of continuing with their present line of business, namely supplying fried

chicken pieces. This switch will cause a decline in the supply of fried chicken pieces. The supply curve for the current product will therefore shift to the left, thus showing that supply has decreased. This is illustrated in the following diagram:



An increase in the price of a substitute in production (chicken burgers) will lead to a decline in the supply of the other good (fried chicken pieces), and the supply curve for fried chicken pieces will shift to the left. At the same price and every other price, a lower quantity will be supplied than before the increase in the price of a substitute in production.

Complements in production

Some products are produced jointly (e.g. sugar and molasses, wheat and bran, lead and zinc, beef and leather, cotton and cotton seed).

Complements-in-production are two or more goods that are jointly *produced* using a given resource.

An increase in the supply of the major product (beef) results in an increase in the supply of the complement in production (leather), and the supply curve for the by-product shifts to the right. At every price, a greater quantity is supplied than before the increase in the supply of the major product.

ACTIVITY 9

9.1 Match the diagrams on the right to the appropriate description on the left.

- a. The change in the supply of a product if the price of its substitute in production increases

Diagram _____

- b. The change in the supply of a complement in production if the price of the related product decreases

Diagram _____

Diagram A

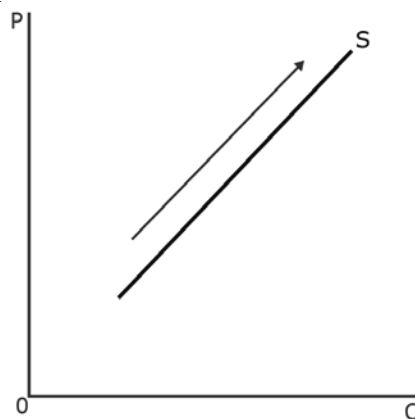


Diagram B

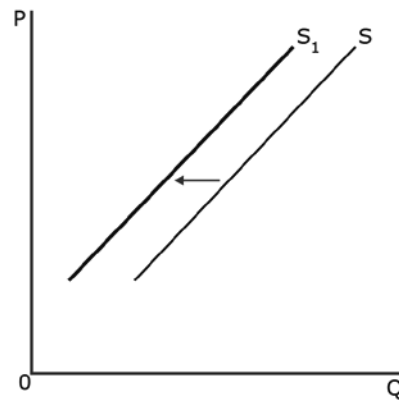
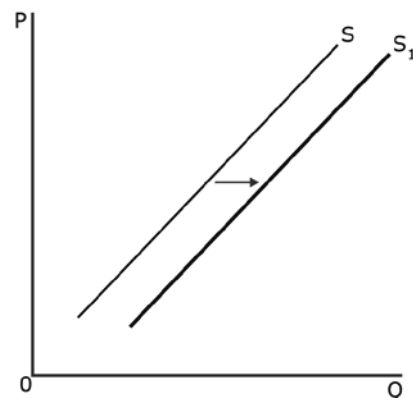


Diagram C



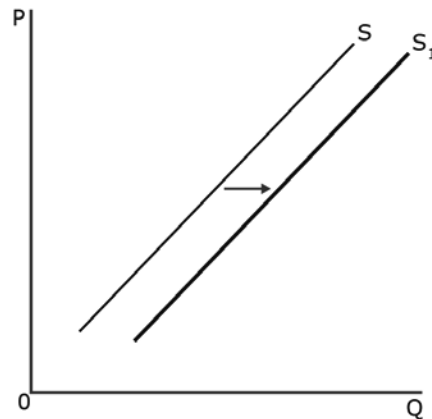
- 9.2 On the basis of the following information on the profits to be made from selling either fried chicken pieces or chicken burgers or fried fish, decide whether the supplier should sell fried chicken pieces, chicken burgers or fried fish.
- The profits from selling fried chicken pieces amount to R10 000 per month.
 - The profits from selling chicken burgers amount to R12 000 per month.
 - The profits from selling fried fish amount to R8 000 per month.
- a. The supplier should be selling fried chicken pieces.
 - b. The supplier should be selling chicken burgers.
 - c. The supplier should be selling fried fish.
- 9.3 What do you think would happen to the supply of fried chicken pieces if the price of chicken burgers were to rise and suppliers decided to switch some of their production to the production of chicken burgers?
- a. The demand for fried chicken pieces would decrease.
 - b. The demand for fried chicken pieces would increase.
 - c. The supply of fried chicken pieces would decrease.
 - d. The supply of fried chicken pieces would increase.
- 9.4 Would the supply curve for fried chicken pieces shift to the left or to the right if suppliers were to decide to produce more chicken burgers and fewer fried chicken pieces?
- a. It would shift to the right.
 - b. It would shift to the left.

6.2.9 Number of suppliers

After you have worked through this section of the learning unit, you should be able to:

- explain with the aid of diagrams the impact of non-price factors such as the number of suppliers and the weather on supply

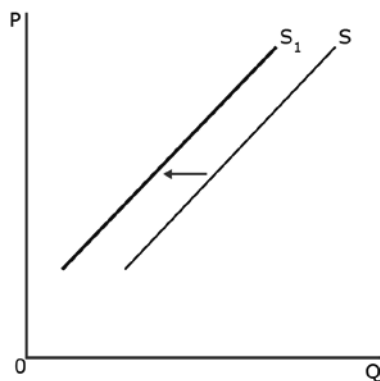
If more businesses decide to produce fried chicken pieces, the quantity supplied to the market at each price will increase and the supply curve will shift to the right. However, a decline in the number of suppliers will reduce the supply of fried chicken pieces and the supply curve will shift to the left.



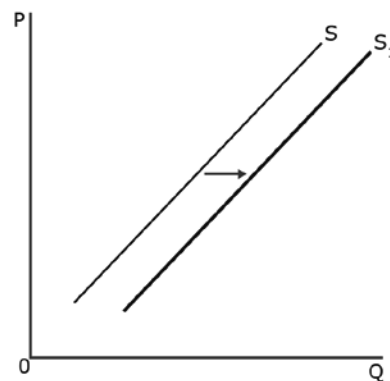
An increase in the number of suppliers

The weather

Weather also plays a key role in the supply of certain goods such as maize, meat and fresh produce. While a drought will cause a decline in the supply of these goods (the supply curve for the goods will shift to the left), good rains will lead to an increase in these goods (the supply curve will shift to the right).



A decrease in supply



An increase in supply

ACTIVITY 10

Complete the table below by indicating what happens to the supply curve.

You must indicate whether there is an upward movement along, a downward movement along, a rightward shift or a leftward shift of the supply curve.

You must also give a correct description of the effect. You must indicate whether there is a decrease in the quantity supplied, an increase in the quantity supplied, an increase in supply or a decrease in supply.

		Supply curve	Effect
Price of the good	Increase		
	Decrease		
Cost of production	Increase		
	Decrease		
Substitutes goods in production	Price increase		
	Price decrease		
Technology	Improvement		
Number of sellers	Increase		
	Decrease		
Expected prices	Increase		
	Decrease		

ANSWERS TO THE ACTIVITIES

Activity 1

1.1 False

The objective of the business is to maximise profits, and it is for this reason that suppliers are willing to supply goods and services.

1.2 False

Demand is important, but firms will only supply a product if they can make a profit from it. Even if there is a demand and it is not possible to make a profit, firms will not be willing to supply the product.

1.3 False

Supply refers to the quantities of a good or service that all potential suppliers are willing and able to supply during a certain period.

1.4 True

Supply refers to the quantities of a good or service that potential suppliers are willing and able to supply during a certain period.

Activity 2

2.1 b

The income of households is a demand factor. *Supply is the quantities of a good or service that potential suppliers are willing and able to supply during a certain period.*

2.2 a, b and c

All these factors would increase the quantity that would be supplied by suppliers.

Activity 3

3.1 The dependent variable is Q_s . The other variables (P_x , P_c , T , P_g and N) are the independent variables.

3.2

Cost of production P_c

Technology T

Number of suppliers N

Number of other factors ...

Activity 4

4.1 Given that all other things **remain the same** if the price of a good or service increases, the quantity supplied will **increase**, and if the price of a good or service decreases, the quantity supplied will **decrease**. This indicates that a **positive** relationship exists between the price of the good and the quantity supplied.

4.2 b and d.

$\downarrow P_x \rightarrow \downarrow Q_s$

$\uparrow P_x \rightarrow \uparrow Q_s$

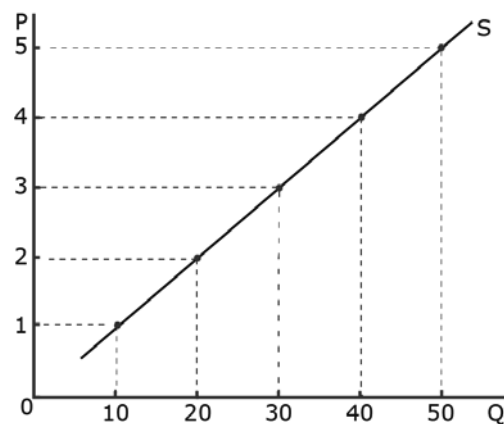
The law of demand states that the *higher the price of a good or service (all other things remaining the same), the higher the quantity supplied will be* ($\uparrow P_x \rightarrow \uparrow Q_s$); and *the lower the price of a good or service (all other things remaining the same), the lower the quantity supplied will be* ($\downarrow P_x \rightarrow \downarrow Q_s$).

Activity 5

- a. 500
- b. decreases
- c. 200
- d. 300

Activity 6

6.1



6.2

- a. quantity
- b. price
- c. 20
- d. 50
- e. decreases
- f. increases

- g. positive
- h. supply
- i. No, it only shifts if a non-price factor changes.
- j. yes
- k. upward
- l. downward

Activity 7

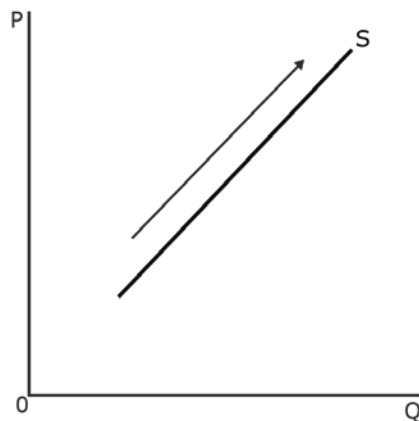
- a. 120
- b. 110
- c. 40
- d. 30
- e. fewer

Activity 8

8.1

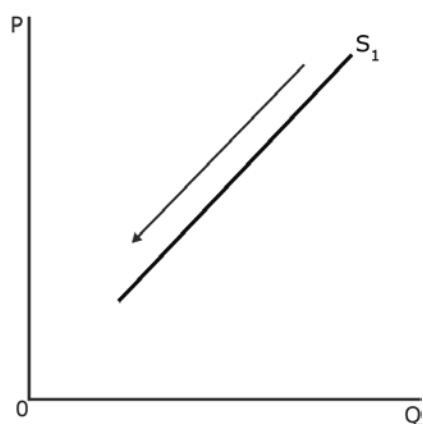
- a. False.

A change in the price causes a change in quantity supplied and causes an upward movement along the supply curve.



b. True.

A decrease in the price of potatoes will result in a downward movement along the supply curve (i.e. a decrease in the quantity of potatoes supplied).



c. False.

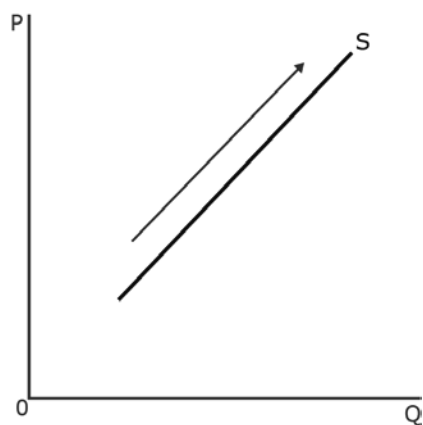
An upward movement along the supply curve indicates that an increase in price increases the quantity supplied.

d. True.

A change in price causes a movement along the supply curve.

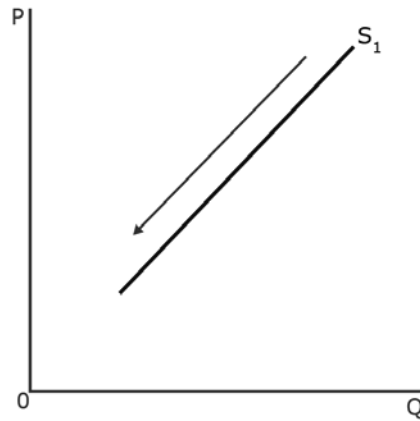
8.2

1. a.



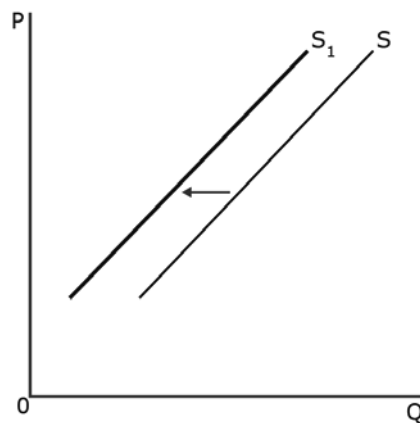
This diagram shows an **upward movement** along the supply curve, which indicates an **increase in the price** of the product.

2. c



This diagram shows a **downward movement** along the supply curve, which indicates a **decrease in the price of the product**.

3. b



This diagram shows a **leftward shift** of the supply curve, which indicates an **increase in input prices** for the product.

Activity 9

9.1

- a. Diagram B.
- b. Diagram C.

9.2 b

Since the profits from selling chicken burgers are the highest, the supplier should be selling chicken burgers.

9.3 c

The supply of fried chicken pieces would decrease because less would be supplied at each price.

9.4 b

A leftward shift of the supply curve indicates that at each price less is supplied.

Activity 10

		Supply curve	Effect
Price of the good	Increase	Upward movement along	Increase in quantity supplied
	Decrease	Downward movement along	Decrease in quantity supplied
Cost of production	Increase	Shifts to the left	Decrease in supply
	Decrease	Shifts to the right	Increase in supply
Substitutes goods in production	Price increase	Shifts to the left	Decrease in supply
	Price decrease	Shifts to the right	Increase in supply
Technology	Improvement	Shifts to the right	Increase in supply
Number of sellers	Increase	Shifts to the right	Increase in supply
	Decrease	Shifts to the left	Decrease in supply
Expected prices	Increase	Shifts to the left	Decrease in supply
	Decrease	Shifts to the right	Increase in supply

CHECKLIST

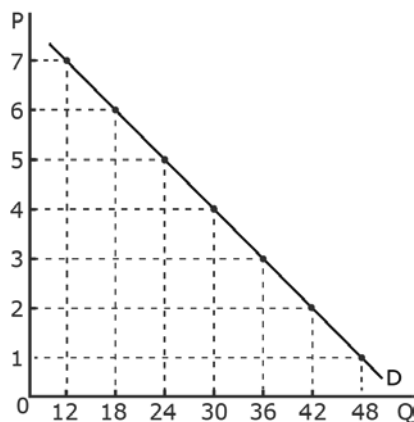
	Well	Satisfactory	Must redo
Concepts and relationships			
I am able to			
define supply			
identify the factors that influence the supply of a good or service			
write the supply equation using symbols			
describe the relationship between price and quantity supplied			
describe the law of supply in words and with the aid of a chain of events			
interpret the supply schedule and use a supply schedule to explain the law of demand			
identify the non-price factors of supply			
describe the impact of a change in cost of production on supply in words, with the help of a chain of events and a demand schedule			
distinguish between substitutes in production and complements in production.			
identify the factors that influence the supply of a good or service			
Diagrams			
I am able to			
(i) show on a diagram			
(ii) explain with or without the aid of a diagram			
draw a supply curve			
explain why the supply curve is upward sloping and clearly distinguish between an upward and downward movement along the supply curve			
draw a market supply curve given individual supply schedules			
explain with the aid of a supply curve what happens to supply if the cost of production changes			
explain with the aid of a supply curve what happens to supply if any of the non-price factors of supply changes			
explain with the aid of a supply curve the impact of a change in the price of a substitute in production			
explain with the aid of a supply curve the impact of a change in the price of a complement in production			

Market equilibrium

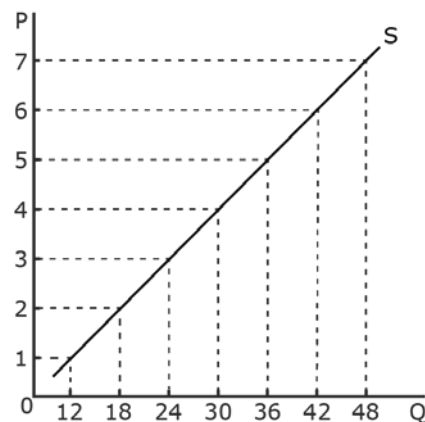
6.3

OVERVIEW

You now know what supply and demand curves look like and what they stand for, but when you examine these curves on their own, you will still not know precisely at what price fried chicken pieces will be traded on the market. We merely analysed various hypothetical prices to see how consumers (as demanders) and producers (as suppliers) will react to them. Hence the exact prices at which transactions will be concluded have yet to be determined.



Market demand



Market supply

In this section of the learning unit we will deal with the determination of the price of a good or service through the interaction of the forces of demand and supply.

TOPIC OUTCOME

Topic outcome

After you have worked through this section of the learning unit, you should be able to:

- illustrate and explain how the price of a good or service is determined by the interaction of demand and supply

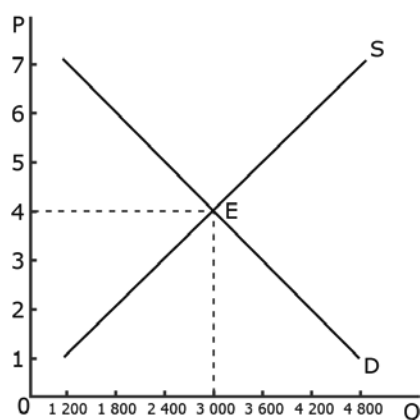
6.3.1 Meaning of market equilibrium

After you have worked through this section of the learning unit, you should be able to:

- describe the concept market equilibrium with the aid of demand and supply curves

An equilibrium position indicates a position of rest, because the behaviour of both buyers and suppliers is unchanging (at rest). At an equilibrium price, buyers are able to purchase the quantity of a product they plan to buy, and suppliers are supplying the quantity of a product they plan to supply.

In our market diagram, this position is reached at point E where the price is set at a level where the quantity demand is equal to the quantity supplied.



Market equilibrium ($Q_d = Q_s$)

6.3.2 Adjustment to equilibrium

After you have worked through this section of the learning unit, you should be able to:

- explain the adjustment process to equilibrium if the price of a good or service is higher or lower than the equilibrium price

Excess supply or surplus

To explain how market equilibrium is reached, you have to understand what happens in the market if the price of a good is set at such a level that the plans of buyers and suppliers are different. This can occur when the price of a product is set at too high a level. When this happens, suppliers will supply a higher quantity of a product than buyers are prepared to buy. As a result, there will be excess supply or a surplus of the product on the market. In terms of fried chicken pieces, this means that the quantity of fried chicken pieces supplied is more than the quantity demanded.

In a surplus situation, even though buyers are still able to buy the quantity of a product they wish to purchase, suppliers become frustrated because they cannot sell the quantity that they plan to sell at the given price. To get rid of their surplus, some suppliers start to change their behaviour – by offering a lower price to buyers. Soon other suppliers follow, and the price of the good or service will decrease. And as the price decreases buyers are willing to purchase a larger quantity. The price of the good will continue to decrease until the market reaches equilibrium (where quantity demanded is equal to quantity supplied) which is indicated at point E in the above diagram.

Excess demand or shortage

The opposite occurs when the price of a product is set at too low a level. In this situation, buyers will demand a higher quantity than suppliers are willing to or plan to supply. Excess demand or a shortage will thus be created in the market.

During a shortage, suppliers can sell the quantity of a product that they plan to sell. Now buyers will become frustrated – they will not be able to obtain the quantity of the product they wish to purchase at this low price. To acquire the product, some buyers will begin to change their behaviour – they will start to offer to buy the product at a higher price. The price of the product will therefore start to increase. And as the price start to increase suppliers will be willing to supply a higher quantity. This increase in the price of the product will continue until the market is again in equilibrium (where the quantity demanded is equal to the quantity supplied).

ACTIVITY 1

1.1 Indicate whether the following statements relating to market equilibrium is **true** or **false**:

	T	F
a. A market is in equilibrium if the quantity demanded is equal to the quantity supplied.		
b. At any price above the equilibrium price, there will be an excess demand for the good in question.		
c. Excess demand for a good will put downward pressure on the price of the good.		
d. If the price of television sets is lower than the equilibrium price, there will be an excess demand for television sets.		
e. If the price of running shoes is above the equilibrium price, there will be an excess supply of running shoes.		

1.2. Indicate whether the following represents an excess demand (shortage), an excess supply (surplus) or equilibrium, and what would happen to the price in this situation:

	Excess demand/excess supply/equilibrium	Price increase/price decrease/ price unchanged
Buyers are frustrated		
Suppliers are frustrated		
Both buyers and suppliers are satisfied		

6.3.3 Market equilibrium as a schedule

After you have worked through this section of the learning unit, you should be able to use demand and supply schedules to identify and describe:

- market equilibrium
- excess supply or surplus
- excess demand or shortage

We will now demonstrate market equilibrium with the help of market demand and supply schedules.

The table below shows the price, the market quantity demanded for and the market quantity supplied of fried chicken pieces. In column 5, we will indicate whether excess demand, excess supply or market equilibrium exists, while in column 6, we will indicate whether there is upward pressure, downward pressure or no pressure at all (neutral) on prices.

Demand and supply schedules for fried chicken pieces

1	2	3	4	5	6
	Price (rand)	Quantity demanded	Quantity supplied	Position	Pressure on prices
A	7	1 200	4 800		
B	6	1 800	4 200		
C	5	2 400	3 600		
D	4	3 000	3 000		
E	3	3 600	2 400		
F	2	4 200	1 800		
G	1	4 800	1 200		

Let us first identify the market equilibrium position. Market equilibrium occurs at a price where the quantity demanded is equal to the quantity supplied.

Study the above table to see if you can identify at what price the quantity demanded is equal to the quantity supplied. In other words, at what price does equilibrium occur?

It is not at R7, because at R7, the producers supply a quantity of 4 800 pieces to the market (as can be seen in column 4). The quantity demanded by consumers, however, is only 1 200 pieces (as indicated in column 3). This is clearly not an equilibrium position.

Market equilibrium is also not at a price of R2. At R2, the producers supply a quantity of 1 800 pieces to the market (as indicated in column 4). The quantity demanded by consumers, however, is more at 4 800 (as indicated in column 3). This is clearly not an equilibrium position.

We could continue trying other prices, but by now, the answer should be obvious.

A state of balance between the quantity supplied by suppliers and the quantity demanded by consumers is only reached at situation D, where the price is R4 and the quantity demanded = the quantity supplied = 3 000.

Demand and supply schedules for fried chicken pieces

1	2	3	4	5	6
	Price (rand)	Quantity demanded	Quantity supplied	Position	Pressure on prices
A	7	1 200	4 800		
B	6	1 800	4 200		
C	5	2 400	3 600		
D	4	3 000	3 000	Equilibrium	Neutral
E	3	3 600	2 400		
F	2	4 200	1 800		
G	1	4 800	1 200		

In economics, we refer to this point as market equilibrium (where the equilibrium price is R4 and the equilibrium quantity is 3 000). At this point, none of the participants have any incentive to change their behaviour because they are content with the situation.

Here the price is at equilibrium because there is no tendency for the price to fall or rise. In all probability, this equilibrium price will not be reached immediately and oscillation (movement back and forth) around the right level may occur until equilibrium is finally reached and the quantity demanded is equal to the quantity supplied.

Excess supply

Excess supply occurs when the quantity supplied is more than the quantity demand.

Demand and supply schedules for fried chicken pieces

1	2	3	4	5	6
	Price (rand)	Quantity demanded	Quantity supplied	Position	Pressure on prices
A	7	1 200	4 800		
B	6	1 800	4 200		
C	5	2 400	3 600		
D	4	3 000	3 000	Equilibrium	Neutral
E	3	3 600	2 400		
F	2	4 200	1 800		
G	1	4 800	1 200		

Study the above table to see if you can identify positions of excess supply.

Let us see what happens at a price of R6. At R6, the quantity supplied is 4 200 while the quantity demanded is 1 800. This gives us excess supply or surplus of $4\,200 - 1\,800 = 2\,400$. Similarly, at a price of R7, the quantity supplied is 4 800 and the quantity demanded is 1 200 – giving us excess supply of 3 600; at a price of R5, the excess supply is 1 200 (i.e. $3\,600 - 2\,400$).

Demand and supply schedules for fried chicken pieces

1	2	3	4	5	6
	Price (rand)	Quantity demanded	Quantity supplied	Position	Pressure on prices
A	7	1 200	4 800	Excess supply (3 600)	Downward
B	6	1 800	4 200	Excess supply (2 400)	Downward
C	5	2 400	3 600	Excess supply (1 200)	Downward
D	4	3 000	3 000	Equilibrium	Neutral
E	3	3 600	2 400		
F	2	4 200	1 800		
G	1	4 800	1 200		

Can this excess supply prevail in the long run? The answer is “no”, and the reasoning is as follows:

In a situation of excess supply, even though buyers are still able to buy the quantity of a product they wish to purchase, suppliers become frustrated because they cannot sell the quantity they plan to sell at the given price. To get rid of their surplus, some suppliers start to change their behaviour – by offering a lower price to buyers. Soon other suppliers follow, and the price of the good or service declines. And as the price declines buyers are willing to purchase more. The price of the good will continue to decline until the market reaches equilibrium (where the quantity demanded is equal to the quantity supplied).

Downward pressure is therefore exerted on the price until equilibrium is reached. This information is added to the above table in column 6.

Excess demand

Excess demand occurs when the quantity demanded is more than the quantity supplied. In the market, this occurs when the price is lower than the market equilibrium price.

We can now complete our table by identifying positions of excess demand. Excess demand occurs at any price lower than R4.

Let us see what happens at a price of R1. At R1, the quantity demanded is 4 800, while the quantity supplied is 1 200. This gives us excess demand or shortage of $4\,800 - 1\,200 = 3\,600$. Similarly, at a price of R2, the quantity demanded is 4 200 and the quantity supplied is 1 800, giving us excess demand of 2 400. At a price of R3, the excess demand is 1 200 (i.e. $3\,600 - 2\,400$).

Demand and supply schedules for fried chicken pieces

1	2	3	4	5	6
	Price (rand)	Quantity demanded	Quantity supplied	Position	Pressure on prices
A	7	1 200	4 800	Excess supply (3 600)	Downward
B	6	1 800	4 200	Excess supply (2 400)	Downward
C	5	2 400	3 600	Excess supply (1 200)	Downward
D	4	3 000	3 000	Equilibrium	Neutral
E	3	3 600	2 400	Excess demand	Upward
F	2	4 200	1 800	Excess demand	Upward
G	1	4 800	1 200	Excess demand	Upward

Can this excess demand prevail in the long run? The answer is “no”, and the reasoning is as follows:

In a situation of excess demand, even though sellers are selling the quantity of the product they wish to sell, buyers become frustrated because they are not able to buy the quantity they plan to buy at the given price. To obtain the good, some buyers start to change their behaviour – by offering a higher price to sellers. Soon, other buyers follow, and the price of the good or service increases. And as the price increases, suppliers are willing to supply a greater quantity. The price of the good will continue to increase until the market reaches equilibrium (where the quantity demanded is equal to the quantity supplied).

Upward pressure is therefore exerted on the price until equilibrium is reached. We can add this information to our table in column 6.

ACTIVITY 2

In the table below, the demand and supply schedule for a brand of soft drink at various prices is provided.

Complete the table by indicating in column 4 whether excess demand, excess supply or equilibrium exists, and indicating in column 5 the pressure on prices (downward, upward or neutral).

Demand and supply schedule for a brand of soft drink

1	2	3	4	5
Price (rand)	Quantity demanded	Quantity supplied	Excess demand/equilibrium/excess supply	Impact on prices downward/upward/neutral
10	100	900		
9	200	800		
8	300	700		
7	400	600		
6	500	500		
5	600	400		
4	700	300		
3	800	200		

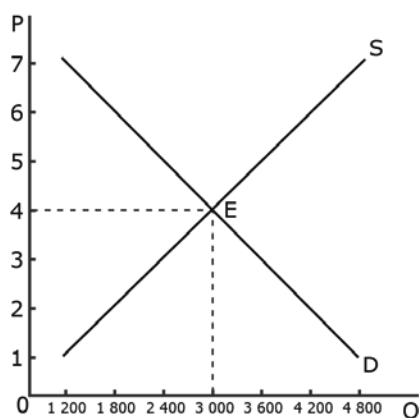
6.3.4 Market equilibrium as a graph

After you have worked through this section of the learning unit, you should be able to use demand and supply curves to identify and describe:

- market equilibrium
- excess supply or surplus
- adjustment process if an excess supply exists
- excess demand or shortage
- adjustment process if an excess demand exists

The equilibrium price is the only price that can persist in the long run. It is the price where the quantity that is voluntarily supplied and the quantity that is voluntarily demanded are equal.

The market demand curve represents the plans of the buyers, while the supply curve represents the plans of the suppliers.



Market equilibrium

Can you see where market equilibrium occurs on the graph?

Can you see how it is represented?

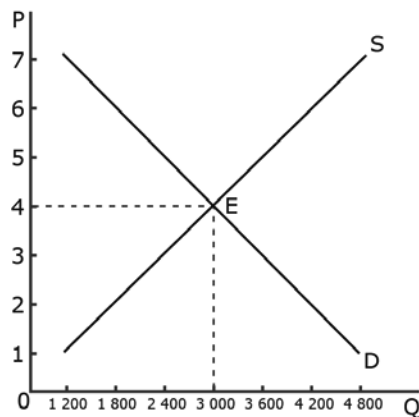
Market equilibrium occurs at a price of R4. It is represented by the intersection of the demand and supply curves at point E. This intersection tells you that at a price of R4, the quantity demanded = quantity supplied = 3 000.

Note that in this market there is only one equilibrium position (also referred to as the market clearing position) namely point E.

Excess supply (surplus)

At any price above the equilibrium price, say, R6, there will be excess supply (surplus).

Study the following diagram and consider the questions that follows:



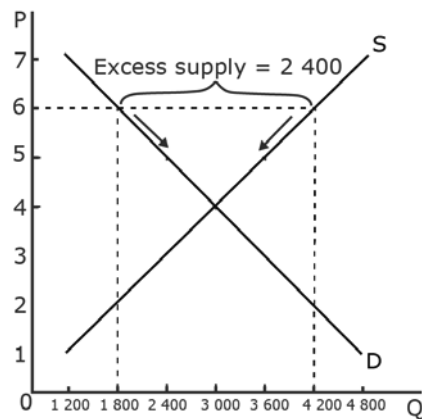
What is the quantity demanded at R6?

What is the quantity supplied at R6?

Is there an excess demand or excess supply?

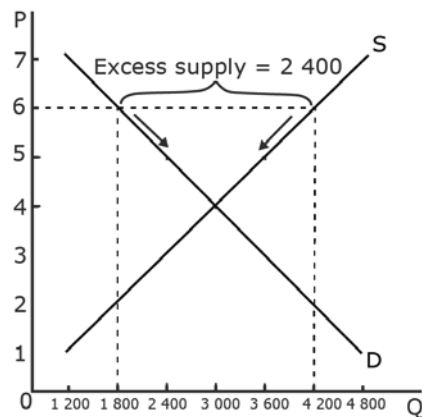
Will an excess supply put upward or downward pressure on the price?

At R6, the quantity demanded is 1 800, the quantity supplied is 4 200 and an excess supply of 2 400 exists, which puts downward pressure on the price.



This will force the price down.

Study the following diagram and consider the questions that follows:



What is the quantity demanded at R5?

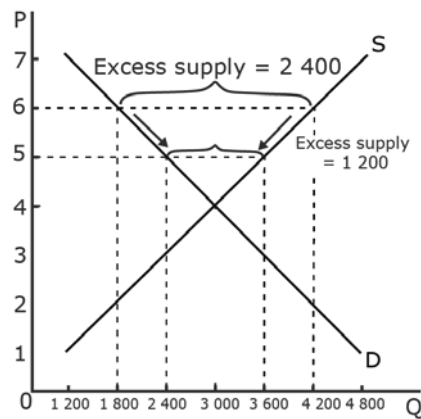
What is the quantity supplied at R5?

Is there an excess demand or excess supply?

Will an excess supply put upward or downward pressure on the price?

What happened to the excess supply as the price decreases from R6 to R5?

As the price is reduced, to R5, the quantity supplied will decrease to 3 600, and the quantity demanded will increase to 2 400. The excess supply is therefore 1 200, and becomes less and less as the price falls.



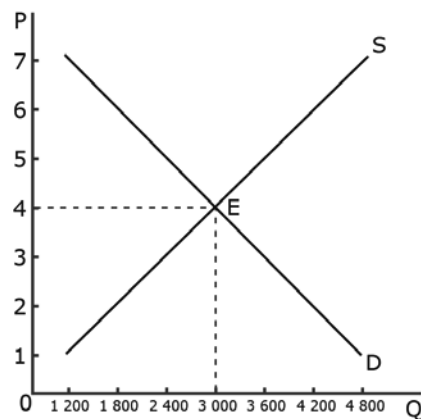
Adjustment process

The arrows point downwards to show the direction in which the price will move because of the competition between sellers. As long as excess supply exists, the price of a good will go down. This, in turn, will increase the quantity demanded and decrease the quantity supplied of a product. Hence the price of a product will continue to decrease until an equilibrium position is reached at R4, where the quantity supplied = quantity demanded = 3 000. At this equilibrium price and quantity, the plans of buyers match those of suppliers.

Excess demand (shortage)

There will be excess demand (shortage) at any price that is lower than the equilibrium price.

Study the following diagram and consider the questions that follows:



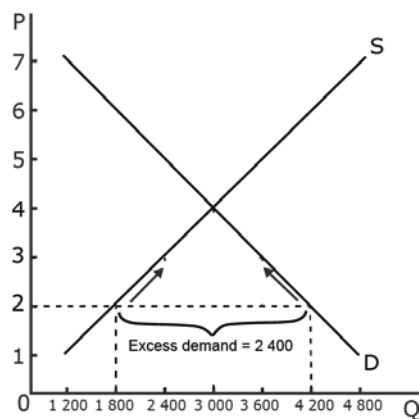
What is the quantity demanded at R2?

What is the quantity supplied at R2?

Is there an excess demand or excess supply?

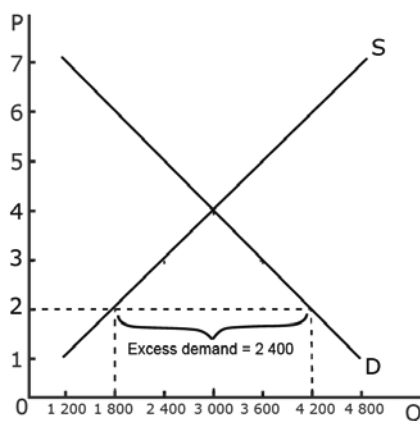
Will an excess demand put upward or downward pressure on the price?

The quantity demanded is 4 200, the quantity supplied is 1 800 and an excess demand of 2 400 exists, which puts upward pressure on the price.



The upward pressure will force the price up.

Study the following diagram and consider the questions that follows:



What is the quantity demanded at R3?

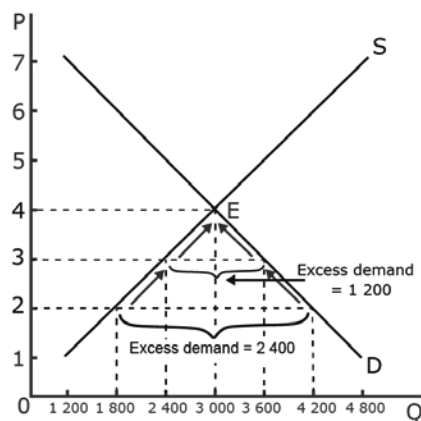
What is the quantity supplied at R3?

Is there an excess demand or excess supply?

Will an excess demand put upward or downward pressure on the price?

What happened to the excess demand as the price increases from R2 to R3?

As the price increases to R3, the quantity demanded is 3 600, and the quantity supplied is 2 400, giving us an excess demand of 1 200. As the price increases, excess demand becomes less and less.

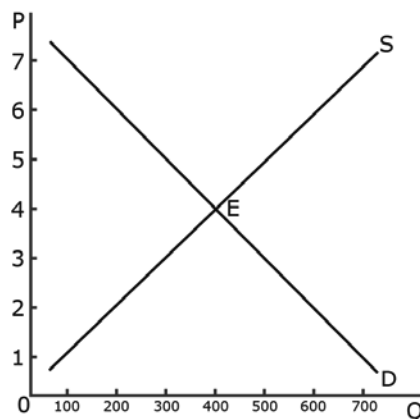


Adjustment process

The arrows point upwards to show that the anxiety of buyers about buying the product will put upward pressure on the price. As long as excess demand exists, the price of a good will go up. This, in turn, will decrease the quantity demanded and increase the quantity supplied of a product. This trend will continue until an equilibrium position is reached at R4, where the quantity demanded = quantity supplied = 3 000. At this equilibrium price and quantity, the plans of buyers match those of suppliers.

ACTIVITY 3

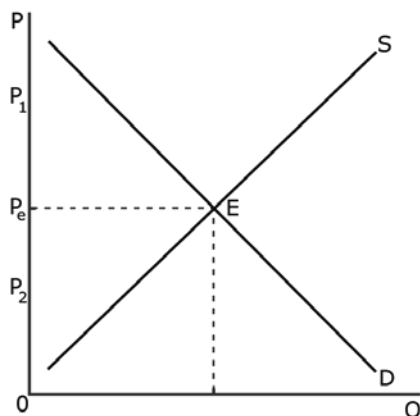
3.1 Study the following diagram and answer the questions:



- Equilibrium occurs at a price of R _____, where the quantity demanded is _____ and the quantity supplied is _____.
- At a price of R7, the quantity demanded is _____ and the quantity supplied is _____. There is therefore an (excess demand; excess supply) of _____, and the price will (decrease; increase).
- At a price of R5, the quantity demanded is _____ and the quantity supplied is _____. There is therefore an (excess demand; excess supply) of _____, and the price will (decrease; increase).
- As the price decreases, the quantity demanded (increases; decreases) and the quantity supplied (increases; decreases).

- e. At a price of R_1 , the quantity demanded is _____ and the quantity supplied is _____. There is therefore an (excess demand; excess supply) of _____, and the price will (decrease; increase).
- f. At a price of R_2 , the quantity demanded is _____ and the quantity supplied is _____. There is therefore an (excess demand; excess supply) of _____, and the price will (decrease; increase).
- g. As the price increases, the quantity demanded (increases; decreases) and the quantity supplied (increases; decreases).

Study the following diagram and answer the questions 3.2 to 3.4:



- 3.2 If the price is at P_1 , the price _____.
 - a. will rise as a result of excess demand
 - b. will fall because of excess supply
 - c. is at its equilibrium level
 - d. cannot be determined from the information provided
- 3.3 If the price is at P_2 , the price _____.
 - a. will rise as a result of excess demand
 - b. will fall because of excess supply
 - c. is at its equilibrium level
 - d. cannot be determined from the information provided
- 3.4 If the price is at P_e , the price _____.
 - a. will rise as a result of excess demand
 - b. will fall because of excess supply
 - c. is at its equilibrium level
 - d. cannot be determined from the information provided

6.3.5 Price determination explained by means of equations

After you have worked through this section of the learning unit, you should be able to:

- to calculate the equilibrium price and equilibrium quantity

We have seen that demand, supply and market equilibrium can be expressed using words, schedules and diagrams. We are now introducing a fourth method – the use of mathematical equations. The

mathematical approach is characterised by the fact that symbols and equations are used instead of schedules or diagrams.

The demand function

The linear equation of a straight line is given by

$$y = a + bx$$

where y = the dependent variable

x = the independent variable

a and b are the intercept and the slope

When we discussed the demand in section 6.1 we saw that the quantity demanded is a function of a number of variables:

$$Q_d = f(T, Y, P_x, N, P_g, \dots)$$

The law of demand only looks at the relationship between price and quantity demanded. We can therefore re-write the equation as

$$Q_d = f(P_x) \text{ ceteris paribus}$$

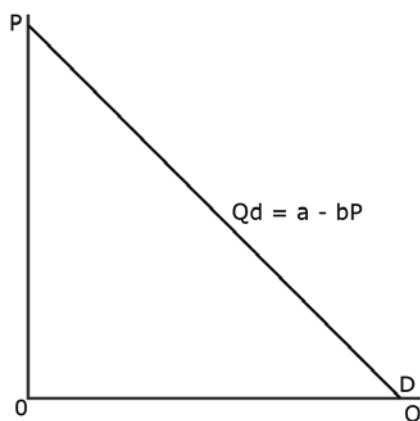
The equation reads as follows: "The quantity demanded of good A is a function of the price of good A, all other factors remaining constant." This simply means that the quantity demanded is determined by the price.

From the law of demand we also know that there is a negative relationship between price and quantity demanded. Thus, we can represent a linear demand curve by the following equation:

$$Q_d = a - bP$$

Note the negative sign denoting the negative relationship between P and Q_d .

Graphically this is shown by a downward sloping demand curve

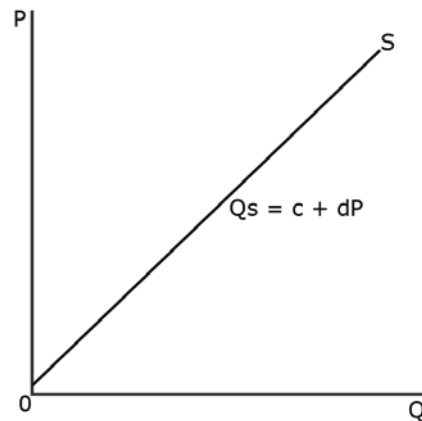


Students with a mathematics background will know that it is customary in mathematics to plot the independent variable along the X-axis while the dependent variable is plotted along the Y-axis. Economics deviates from this rule - the independent variable P is plotted along the vertical or Y-axis and the dependent variable Q along the horizontal or X-axis.

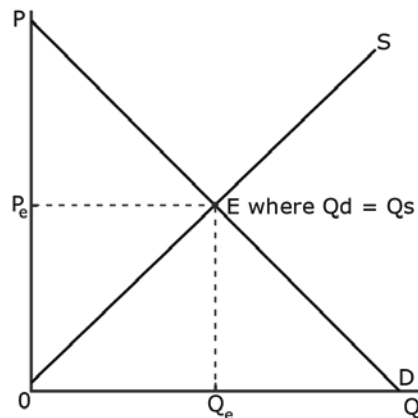
Similarly, the equation for a linear equation supply curve is

$$Q_s = c + dP$$

In this instance, the positive sign denotes the positive relationship between price and quantity supplied. Graphically it is shown by an upward sloping supply curve.



The equilibrium price and equilibrium quantity are determined where the demand and supply curves intersect (where the quantity demanded is equal to the quantity supplied):



Mathematically the equilibrium price and equilibrium quantity can be determined by setting the demand equation equal to the supply equation and then solve P and Qd.

Suppose the demand and supply curves are represented by the following equations: $Q_d = 50 - 8P$ and $Q_s = -17,5 + 10P$.

At equilibrium quantity demand equals quantity supplied or $Q_d = Q_s$. We were given the equations for $Q_d (= 50 - 8P)$ and $Q_s (= -17,5 + 10P)$, thus at equilibrium

$$\begin{aligned} Q_d &= Q_s \\ 50 - 8P &= -17,5 + 10P \\ 50 + 17,5 &= 10P + 8P \\ 67,5 &= 18P \end{aligned}$$

or

$$\begin{aligned} 18P &= 67,5 \\ P &= 3,75 \end{aligned}$$

Thus, the equilibrium price is 3,75. To find the equilibrium quantity we need to substitute the equilibrium price (3,75) into either the Q_d or Q_s equations.

If we use the equation for the demand curve:

$$\begin{aligned}Q_d &= 50 - 8P \\&= 50 - 8(3,75) \\&= 50 - 30 \\&= 20\end{aligned}$$

If the equation for the supply curve is used the equilibrium quantity is also 20:

$$\begin{aligned}Q_s &= -17,5 + 10P \\&= -17,5 + 10(3,75) \\&= -17,5 + 37,5 \\&= 20\end{aligned}$$

ACTIVITY 4

- 4.1 Calculate the equilibrium price and quantity if the demand and supply curves are represented by the following equations: $Q_d = 100 - P$ and $Q_s = 50 + P$.

ANSWERS TO THE ACTIVITIES

Activity 1

1.1

a. True.

A market is in equilibrium if there is no tendency for things to change, and this happens when the quantity demanded is equal to the quantity supplied.

b. False.

At any price above the equilibrium price, there will be an excess supply.

c. False.

Excess demand for a good will put upward pressure on the price of the good.

d. True.

A price lower than the equilibrium price leads to an excess demand or shortage.

e. True.

A price higher than the equilibrium price leads to an excess supply or surplus.

1.2

	Excess demand/excess supply/equilibrium	Price increase/price decrease/price unchanged
Buyers are frustrated	Excess demand	Price increase
Suppliers are frustrated	Excess supply	Price decrease
Both buyers and suppliers are satisfied	Equilibrium	Price unchanged

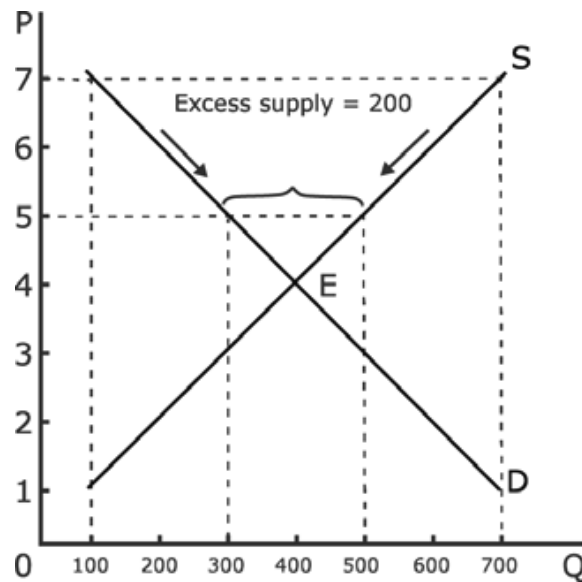
Activity 2

1	2	3	4	5
Price (rand)	Quantity demanded	Quantity supplied	Excess demand/equilibrium/excess supply	Impact on prices downward/upward/neutral
10	100	900	Excess supply	Downward
9	200	800	Excess supply	Downward
8	300	700	Excess supply	Downward
7	400	600	Excess supply	Downward
6	500	500	Equilibrium	Neutral
5	600	400	Excess demand	Upward
4	700	300	Excess demand	Upward
3	800	200	Excess demand	Upward

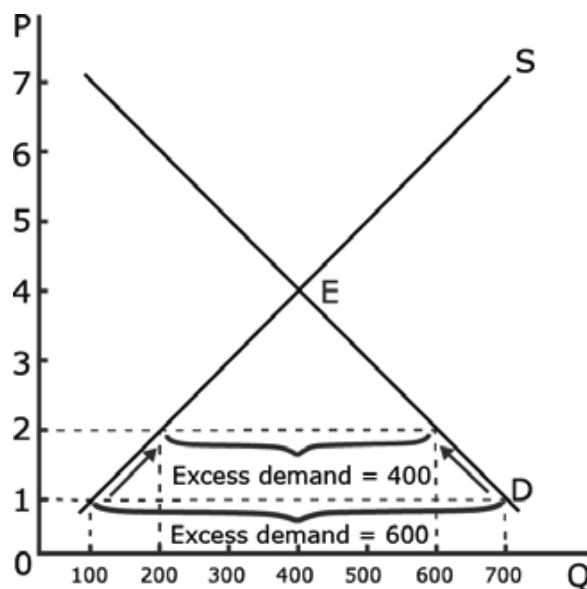
Activity 3

3.1

- Equilibrium occurs at a price of R4 where the quantity demanded is 400 and the quantity supplied is 400.
- At a price of R7, the quantity demanded is 100 and the quantity supplied is 700. There is thus an excess supply of 600, and the price will decrease.
- At a price of R5, the quantity demanded is 300 and the quantity supplied is 500. There is thus an excess supply of 200, and the price will decrease.
- As the price decreases, the quantity demanded increases and the quantity supplied decreases.

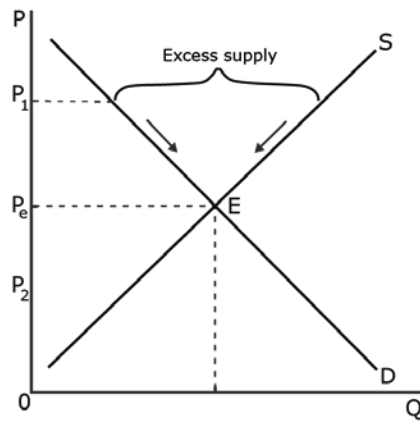


- At a price of R1, the quantity demanded is 700 and the quantity supplied is 100. There is thus an excess demand of 600, and the price will increase.
- At a price of R2, the quantity demanded is 600 and the quantity supplied is 200. There is thus an excess demand of 400, and the price will increase.
- As the price increases, the quantity demanded decreases and the quantity supplied increases.



3.2

- b. P_1 is higher than the equilibrium price and causes an excess supply.



3.3

- a. P_2 is lower than the equilibrium price and causes an excess demand.

3.4

- c. The quantity demanded is equal to the quantity supplied.

Activity 4

4.1

At equilibrium:

$$\begin{aligned} Q_d &= Q_s \\ 100 - P &= 50 + P \\ 100 - 50 &= P + P \\ 50 &= 2P \\ 2P &= 50 \\ P &= 25 \end{aligned}$$

Substitute $P = 25$ into:

$$\begin{aligned} Q_d &= 100 - P \\ &= 100 - (25) \\ &= 100 - 25 \\ &= 75 \end{aligned}$$

CHECKLIST

	Well	Satis- factory	Must redo
Concepts and relationships			
I am able to			
explain market equilibrium			
explain the difference between excess demand and excess supply			
explain in word and with the aid of demand and supply schedules the adjustment process to equilibrium if the price of a good or service is higher or lower than the equilibrium price			
Diagrams			
I am able to			
(i) show on a diagram			
(ii) explain with or without the aid of a diagram			
market equilibrium			
excess supply or surplus			
adjustment process if an excess supply exists			
excess demand or shortage			
adjustment process if an excess demand exists			
Calculations			
I am able to calculate the equilibrium price and quantity			

Consumer and producer surplus

7

OVERVIEW

In the section on the economic problem, we have indicated that the fundamental problem that we as a society face is how to ensure that our scarce resources are used in such a way that the maximum number of needs and wants are satisfied. We have then indicated that this require not only technical efficiency but also allocative efficiency.

In the section on Demand, Supply and Prices, we have shown how we as consumers indicate our willingness to purchase a good or service through our demand for it and how suppliers indicate their willingness to supply a good or service through the supply of it. We then proceeded to show how through the interaction between demand and supply a market equilibrium is established where the price is set at such a level that the quantity demanded is equal to the quantity supplied.

What we do in this section is to indicate that this market equilibrium position is indeed a position where the welfare of both the consumers and the producers are maximised and that at any other price or quantity, society is worse off.

TOPIC OUTCOME

After you have worked through this learning unit, you should be able to:

- explain and illustrate with the aid of a diagram why total consumer surplus and total producer surplus is maximised at the market equilibrium position

7.1 Consumer surplus

After you have worked through this section of the learning unit, you should be able to:

- describe consumer surplus and illustrate total consumer surplus using a diagram

Read the following about the consumer surplus created by Uber:

Economics 101 Proved Right, Thanks to Uber

by Bianca Disanto – October 14, 2016

In addition to mapping its demand curve, the depth and variety of data that Uber has collected over the years has allowed for consumer surplus to be accurately quantified for the first time. Consumer surplus is the economic term used to describe the difference between how much total utility or value you place on getting a good or service versus the price you actually paid for it. In other words, if you have ever purchased something and thought: "I would have paid a lot more

for that," the difference between the maximum price you would have paid and the price you were charged is your consumer surplus.

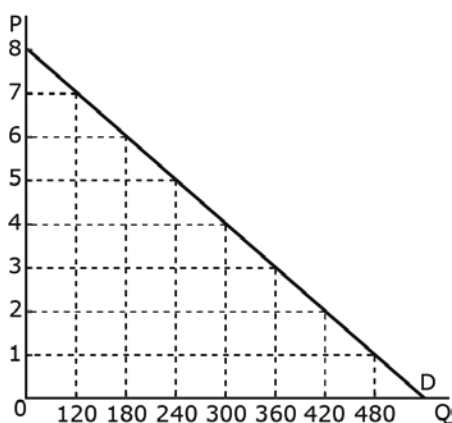
Consumer surplus, like the demand curve, is a definition that appears in every economic textbook but is one that has not been able to be accurately quantified — until now. Since Uber has been able to trace how much people are willing to pay for their rides, they have also been able to determine how much they have "saved" consumers.

The results of these consumer surplus calculations are telling. When the co-author of the New York Times bestselling book "Freakonomics", Steven Levitt, worked with Uber, he determined that the company has generated \$7 billion in consumer surplus in New York, Los Angeles, San Francisco and Chicago alone. This illustrates that the benefit Uber offers to consumers far outweighs the losses incurred by taxi cab drivers in those cities.

Adapted from: <http://www.thehoya.com/economics-101-proved-right-thanks-to-uber/>

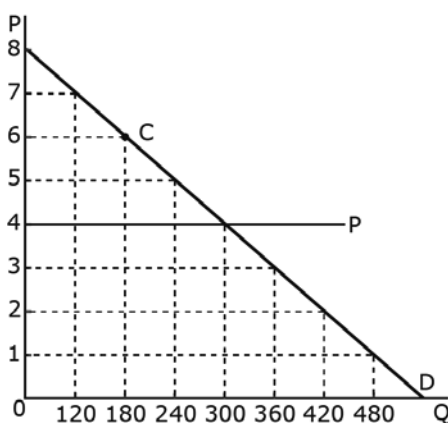
Demand gives us an indication of the willingness and ability of buyers to purchase a good or service.

If you study the demand curve below, you will see that at a price of R8 for a fried chicken piece, no one is willing to purchase fried chicken pieces. At a price of R7, people are willing to purchase a quantity of 120, and if the price drops to R6, they are willing to purchase 180. If the price continues to drop to R3, they are willing to purchase a quantity of 360. As the price decreases, buyers are willing and able to purchase more, which is consistent with the law of demand.



The lower the price the greater the willingness to purchase

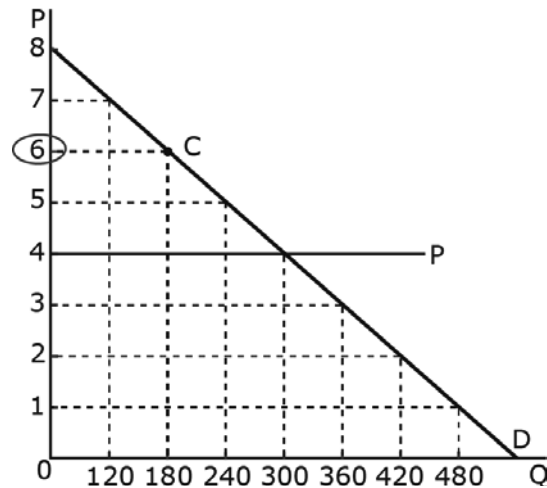
Assuming that the market price of a piece of fried chicken is R4, consider the position at point C in the following diagram:



At point C, what are buyers willing to pay for a piece of fried chicken?

- ☐ R6
- ☐ R5
- ☐ R4

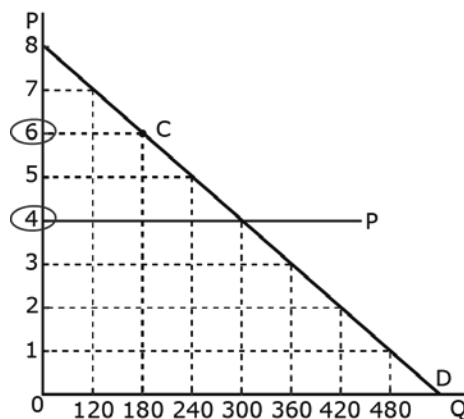
At point C, they are willing to pay R6 for a piece of fried chicken. This R6 indicates the value they believe they receive from the product.



Given that the market price is R4 and people are willing to pay R6 for a piece of fried chicken, how much do they pay for it at point C?

- ☐ R6
- ☐ R5
- ☐ R4

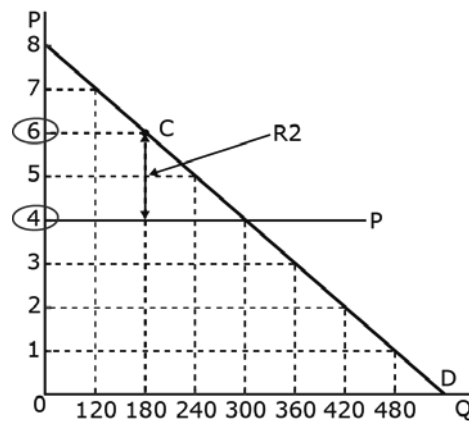
At point C, they are paying the market price, namely R4, but they are willing to pay R6 – which is a measure of what they consider the value of the product to be.



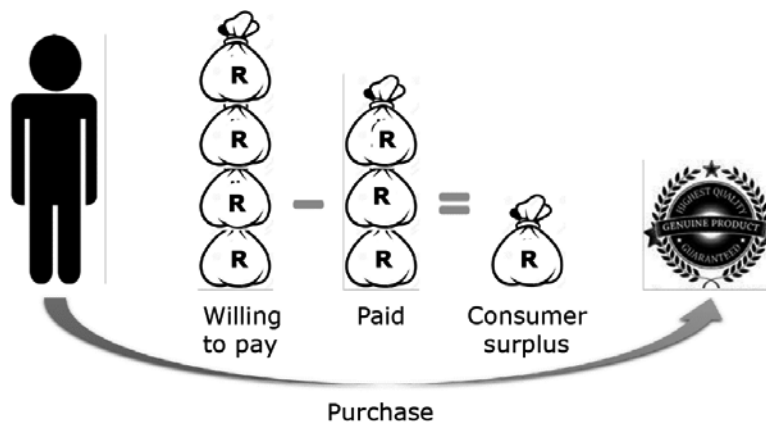
What is the difference between what they are willing to pay for a piece of fried chicken at point C, and the price they actually pay?

- ☐ R3
- ☐ R2
- ☐ R1

The difference between what they are willing to pay for a piece of fried chicken (R6), and what they actually pay (R4) is R2, which is the consumer surplus for a piece of fried chicken at this point.

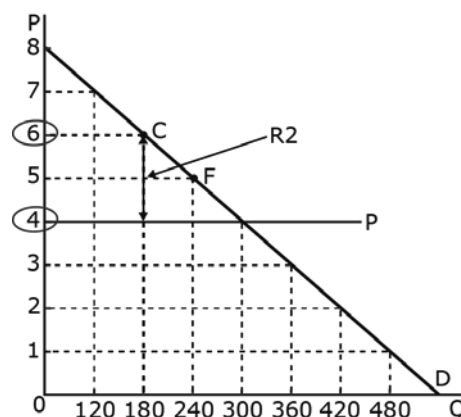


Consumer surplus can therefore be defined as the difference between what consumers pay and the value they receive, as measured by the maximum price they are willing to pay.

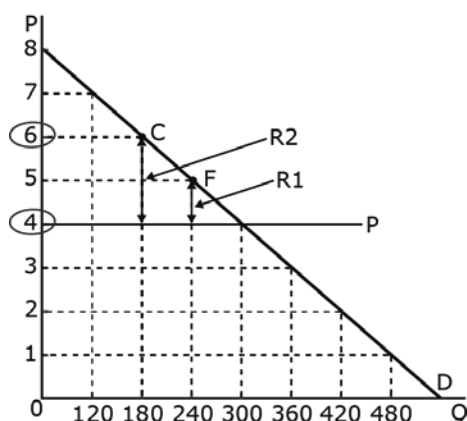


What is the consumer surplus for a piece of fried chicken at point F?

- ☐ R3
- ☐ R2
- ☐ R1



At point F, the difference between what they are willing to pay for a piece of fried chicken (R5), and what they actually pay (R4) is R1, which is the consumer surplus for a piece of fried chicken at this point.



With the consumer surplus defined as the difference between what consumers pay and the value they receive, as measured by the maximum price they are willing to pay, we can now deal with the total consumer surplus.

Do the following activity to see if you have grasped the concept of consumer surplus:

ACTIVITY 1

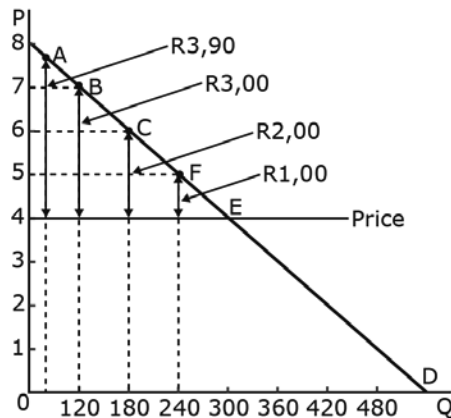
Assume the market price of an ice cream is R12 and you are willing to pay R17 for an ice cream.

- 1.1 If I am willing to pay R17 for an ice cream and the market price is R12, then the value in rand terms I receive is R _____.
- 1.2 I am prepared to pay R ____ for an ice cream.
- 1.3 The price I paid is R ____ for an ice cream.
- 1.4 My consumer surplus is R ____ for an ice cream.
- 1.5 If for some reason your willingness to pay for an ice cream decreases from R17 to R15 and the market price of ice cream is R12, what happens to your consumer surplus?

My consumer surplus (decreases, increases, stay the same).

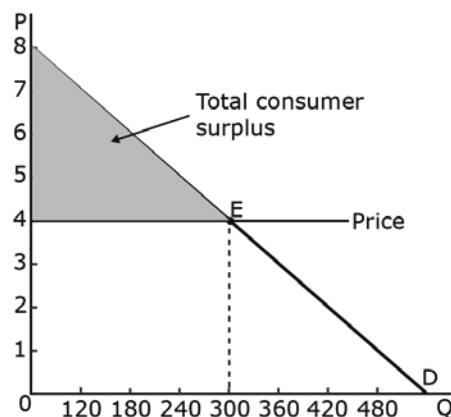
Total consumer surplus

According to our demand curve, at a price of R4, buyers are willing and able to buy 300 pieces of fried chicken. What it also indicates is that for up to 300 pieces, buyers are paying less for a piece of fried chicken than they are actually willing to pay. For instance, at a point such as point B, some buyers are willing to pay R7, but they are only paying R4. They therefore have a surplus of R3 per unit. Similarly, a buyer who is willing to pay say R7,90, which can be indicated as point A, will have a surplus of R3,90 per unit.



By adding up all the consumer surpluses at the different prices, we can derive the total consumer surplus at a market price of R4.

Using this demand curve, total consumer surplus at a market price of R4 can therefore be represented by the grey triangular (4-8-E) area between the demand curve, which indicates the maximum prices buyers are prepared to pay, and the horizontal line (which indicates the market price of R4), as indicated in the following diagram:

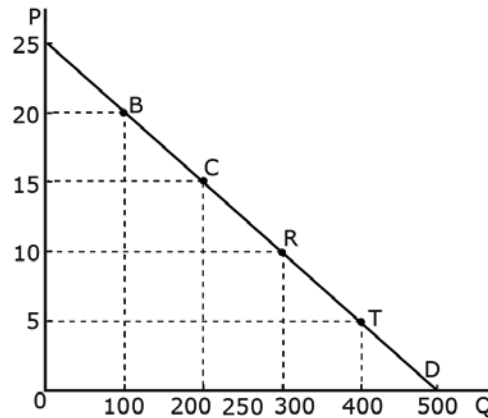


ACTIVITY 2

- 2.1 Which one of the following best describes consumer surplus?
- The price a consumer is willing to pay for a product
 - The cost of producing a unit
 - The profit the firm makes on a product
 - The difference between the price paid for a product and the price the consumer is willing to pay
- 2.2 You are interested in buying a used car and you see one for R80 000 at a second-hand car dealer. You decide that you are not willing to pay R80 000 for it, but only R75 000. The salesman is desperate to sell the car, and after estimating what you are more or less willing to pay, the two of you settle on R73 000.

What is your consumer surplus for this car? R_____

2.3 The following graph shows the market demand for ice cream:



- If the market price is R10, what is the consumer surplus per unit for a quantity of 200?
R_____
- If the market price is R10, what is the consumer surplus per unit for a quantity of 100?
R_____
- What area represents the total consumer surplus if the market price is R10?

- What area represents the total consumer surplus if the market price is R15?

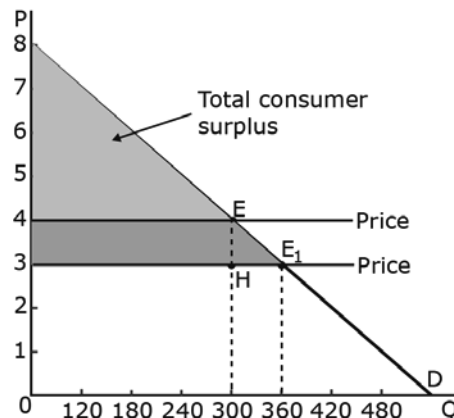
A change in price and consumer surplus

After you have worked through this section of the learning unit, you should be able to:

- illustrate and explain with the aid of a diagram what happens to total consumer surplus if the price change

What happens to the total consumer surplus if the price decreases from R4 to, say, R3? According to our demand curve, the quantity demanded increases to 360. Consumer surplus increases because there are new buyers of fried chicken pieces, and existing buyers are paying a lower price. This causes an increase in the total consumer surplus.

In terms of our diagram, the following happens:



At R3, the existing 300 buyers pay less and their consumer surplus therefore increases. This increase in consumer surplus is indicated by the area 3-4-E-H. The increase in consumer surplus because of the

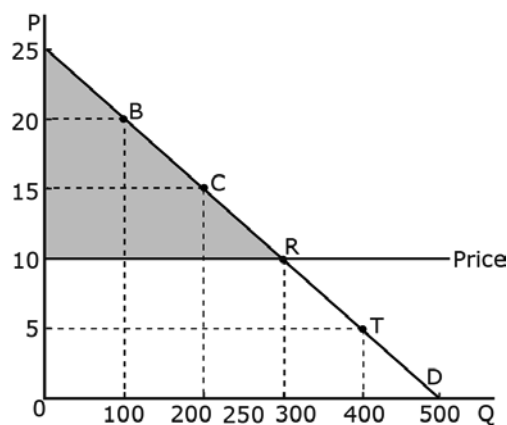
new buyers is indicated by the triangle E-H-E₁. The total consumer surplus at R3 is therefore given by the triangle 3-8-E₁.

The total consumer surplus gives us a measure of the consumers' economic welfare in terms of the goods and services they buy and consume, and the greater the consumer surplus, the greater their economic welfare will be.

Do the following activity to see if you understand what happens to consumer surplus when the price changes:

ACTIVITY 3

3.1 The following diagram indicates the market demand for ice cream and the consumer surplus at a market price of R10:



- Use the diagram to illustrate what happens to total consumer surplus if the price increases to R15.
- Use the diagram to illustrate the consumer surplus lost because fewer people are buying ice cream.
- Use the diagram to illustrate the consumer surplus lost because existing buyers are paying a higher price.

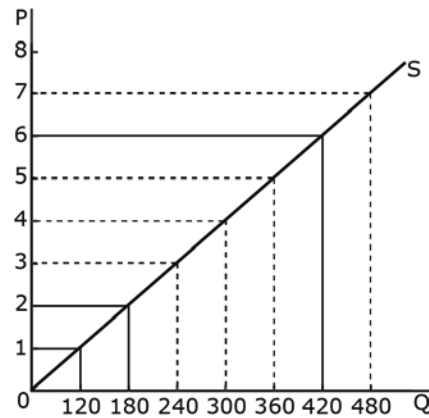
7.2 Producer surplus

After you have worked through this section of the learning unit, you should be able to:

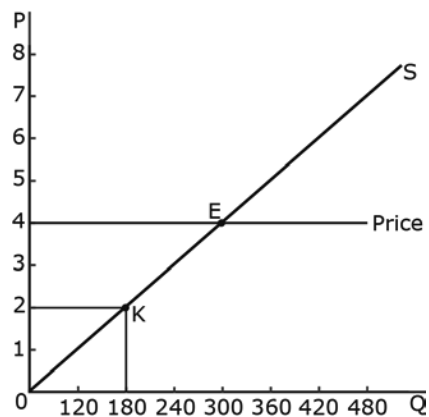
- describe producer surplus and illustrate using a diagram total producer surplus

We have seen that supply gives us an indication of the quantities of a good or service that suppliers are willing and able to supply. We have also argued that suppliers will not be willing to supply a good or service if they cannot cover the cost of the good or service and make a profit.

The supply curve below for fried chicken pieces indicates that if the price is zero, then the quantity supplied is zero. If the price is R1, then suppliers are willing and able to supply a quantity of 120; and if the price increases to R2, they are willing and able to supply 180 pieces of fried chicken. As the price rises to R6, the quantity supplied increases to 420. An increase in price increases the willingness and ability of suppliers to supply a higher quantity, which is consistent with the law of supply.



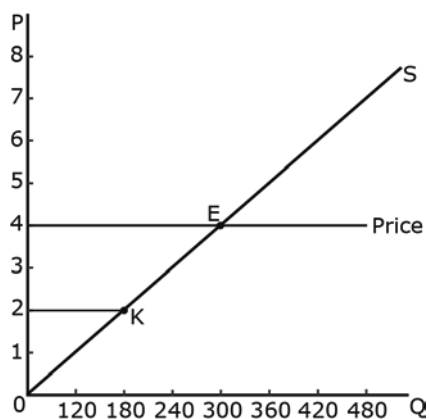
Assuming that the price of a piece of fried chicken is R4, consider the position at point K in the following diagram:



At point K, what price are sellers willing to accept for a piece of fried chicken?

- ☐ R4
- ☐ R3
- ☐ R2

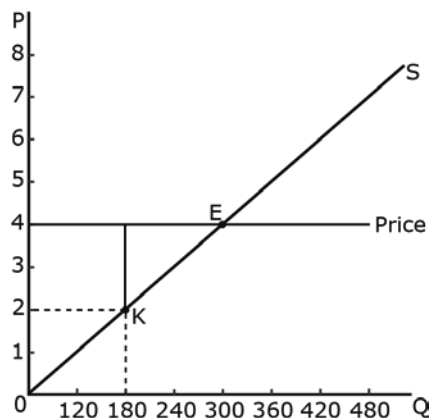
At point K, they are willing to accept R2 for a piece of fried chicken, as indicated by the supply curve.



Given that the market price is R4, how much would the supplier obtain for a piece of fried chicken at point K?

- ☐ R6
- ☐ R5
- ☐ R4

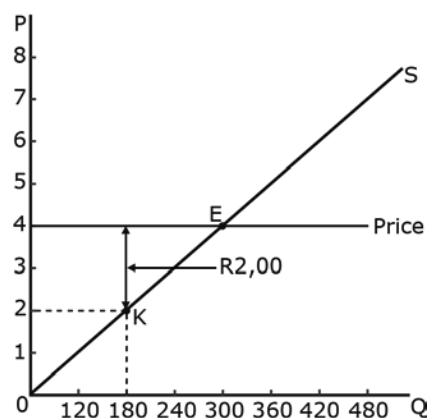
At point K, they would obtain R4 for a piece of fried chicken.



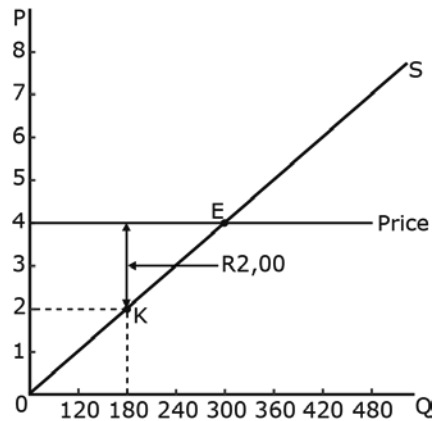
What is the difference between what suppliers receive for a piece of fried chicken at point K and what they are willing to accept for it?

- ☐ R3
- ☐ R2
- ☐ R1

The difference between what they receive (R4) and what they are willing to accept (R2) is R2 (R4 – R2), which is the producer surplus per unit at point K.



This difference between what suppliers are willing to accept and what they actually receive is the producer surplus. We can now formally **define producer surplus as the difference between the amount the producer receives and the minimum amount the producer is willing to accept.**



In the above diagram, at point K, the minimum amount is R2 and the producer receives R4. The producer surplus is therefore R2 per unit.

With the producer surplus defined as the difference between the amount the producer receives and the minimum amount the producer is willing to accept, we can now continue identifying the total producer surplus.

Do the following activity to see if you have grasped the concept of producer surplus:

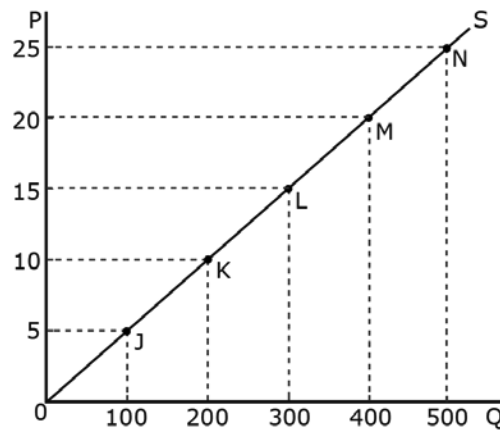
ACTIVITY 4

- 4.1 Assume you are an ice cream seller and you are willing to accept R10 for an ice cream and the market price is R17.
- What is the minimum price you are willing to accept for the ice cream?
R_____
 - What is the price you receive for the ice cream?
R_____
 - What is your producer surplus on the ice cream?
R_____
- 4.2 If for some reason the minimum price you are willing to accept for an ice cream increases from R10 to R12, while the market price is R17, what happens to your producer surplus?

My producer surplus _____.

- decreases
- increases
- stays the same

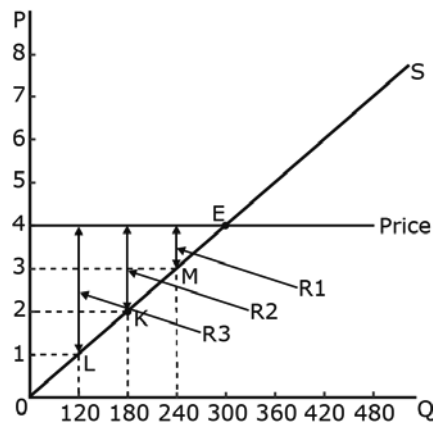
4.3 The following graph indicates the market supply for ice cream:



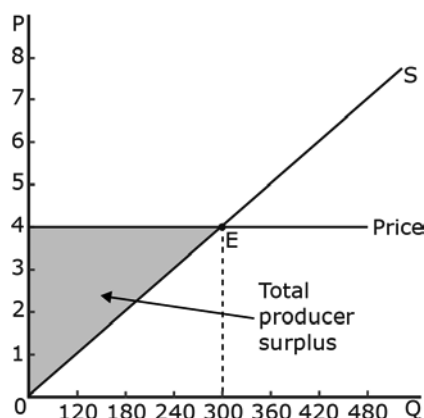
- If the market price is R15, what is the producer surplus per unit for a quantity of 200?
- If the market price is R20, what is the producer surplus per unit for a quantity of 200?

Total producer surplus

According to this supply curve, at a price of R4, producers are willing and able to supply 300 pieces of fried chicken. What it also indicates is that for up to 300 pieces, producers are paid more for a piece of fried chicken than they are willing to accept for it. A point such as K indicates that while suppliers are willing to accept R2 but are paid R4, giving them a surplus of R2 per unit. At a point such as L, they are willing to accept R1 but are paid R4, giving them a surplus of R3. And at a point such as M, they are willing to accept R3 but are paid R4, giving them a surplus of R1 per unit.



Using the supply curve, total producer surplus at a market price of R4 can therefore be represented by the grey triangular area (0-4-E) between the supply curve, which indicates the minimum prices suppliers are prepared to accept, and the horizontal line (which indicates the market price of R4) that they are actually receiving.



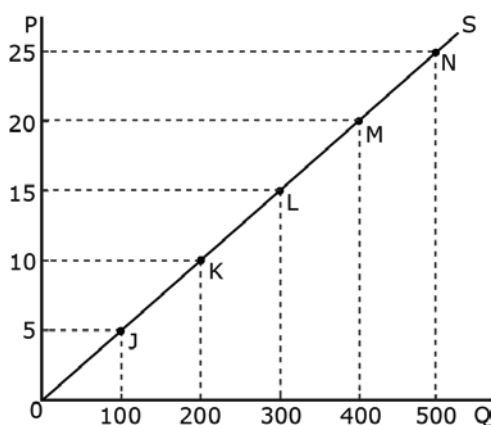
Do the following activity to see if you have grasped the concept of total producer surplus:

ACTIVITY 5

5.1 Which one of the following best describes producer surplus?

- The price a consumer is willing to pay for a product
- The difference between the price the producer is willing to accept and the price the consumer is actually paying
- The profit the firm makes on a product
- The difference between the price paid for a product and the price the consumer is willing to pay

5.2 Use the following diagram to identify the total producer surplus at ...



- R10
- R15

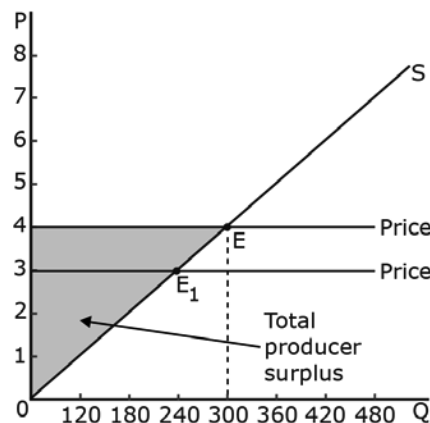
A decrease in price and total producer surplus

After you have worked through this section of the learning unit, you should be able to:

- illustrate and explain with the aid of a diagram what happens to total producer surplus if the price change

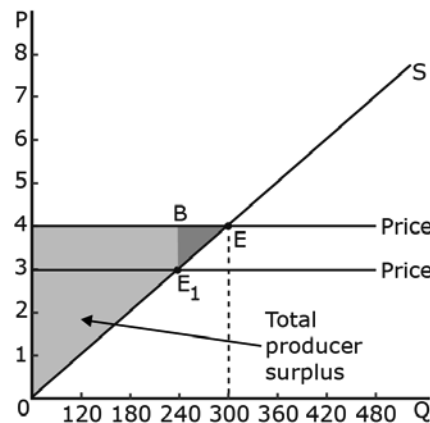
What happens to the producer surplus if the market price decreases to, say, R3?

According to our supply curve, the quantity supplied decreases to 240. Producer surplus therefore decreases since producers are selling fewer pieces of fried chicken and receiving a lower price for them.



The total producer surplus therefore decreases from the area 0-4-E to 0-3-E₁.

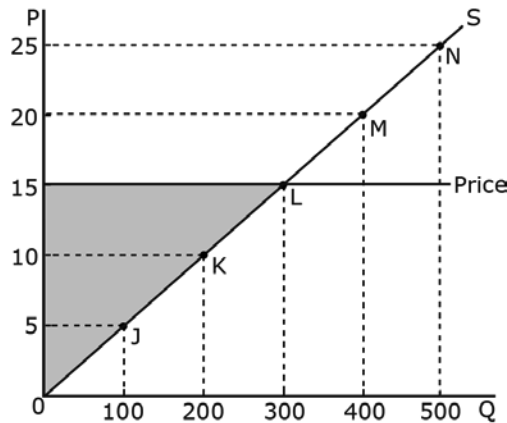
The loss due to selling less is indicated by the area E₁-B-E. The loss in the producer surplus due to receiving a lower price is indicated by the area 3-4-B-E₁.



Do the following activity to see if you understand what happens to producer surplus if the price changes:

ACTIVITY 6

6.1 The following diagram indicates the market supply for ice cream and the producer surplus at a market price of R15.



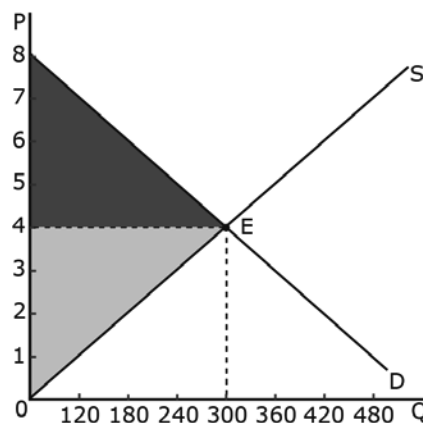
- a. If the market price increases from R15 to R20, the producer surplus will (increase, decrease, stay the same) since producers are selling (less, more) ice cream and receiving a (lower, higher) price for it.
- b. The producer surplus at R20 is the area _____.
- c. The change in the producer surplus if the price increases from R15 to R20 is represented by the area _____.

7.3 Market equilibrium and consumer and producer surpluses

After you have worked through this section of the learning unit, you should be able to:

- explain and illustrate with the aid of a diagram why total consumer surplus and total producer surplus is maximised at the market equilibrium point

Market equilibrium exists where the quantity demanded is equal to the quantity supplied. In the diagram below, this is indicated at point E. At point E, the equilibrium price is R4 and the equilibrium quantity is 300.



The consumer surplus and producer surplus are also indicated in the above diagram.

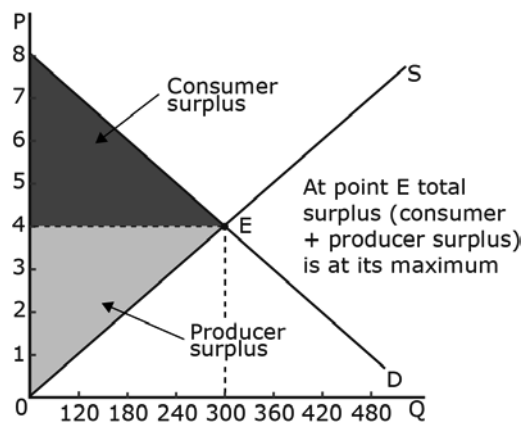
Which triangle represents the consumer surplus at equilibrium?

Total consumer surplus at a market price of R4 is represented by the triangular (4-8-E) area between the demand curve, which indicates the maximum prices buyers are prepared to pay, and the horizontal line, which indicates the market price of R4.

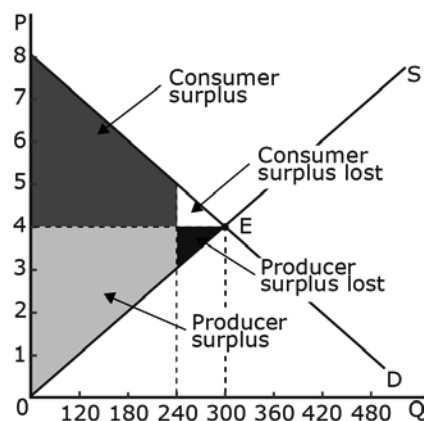
Which triangle represents the producer surplus at equilibrium?

Total producer surplus at a market price of R4 is represented by the grey triangular area (0-4-E) between the supply curve, which indicates the minimum prices suppliers are prepared to accept, and the horizontal line (which indicates the market price of R4) that they are actually receiving.

An important point to note about the consumer and producer surpluses at equilibrium is that it is the point where the total surplus (consumer surplus + producer surplus) is maximised. Given the demand and supply curve at any other output or price level, the consumer and producer surpluses will be less.



Take an output level of 240 units in the diagram below. At this output level of 240 units, the consumer surplus is the dark grey area, while the producer surplus is the light grey area. As indicated in the diagram, the consumer surplus and producer surplus at an output level of 240 units are less than the consumer and producer surpluses at an output level of 300 units. By increasing production from 240 to 300, both the consumer surplus and producer surplus increase.



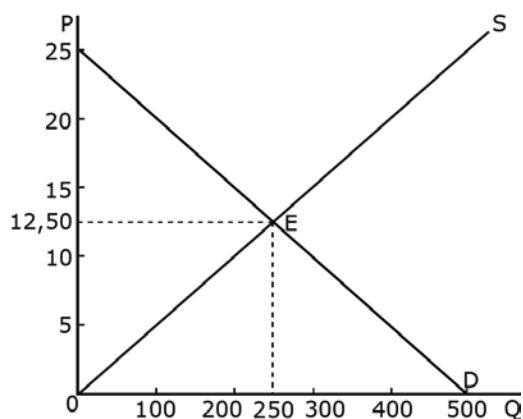
In the above diagram, the consumer surplus lost at a quantity of 240 is the white triangle, while the producer surplus lost is the black triangle.

At an equilibrium such as E, it is impossible to further increase the total producer and consumer surplus, and it is therefore the point where the consumer and producer surpluses are maximised.

Do the following activity to see if you understand this section on market equilibrium and consumer and producer surpluses:

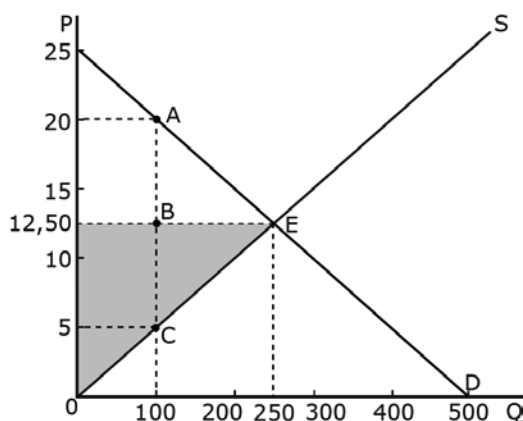
ACTIVITY 7

7.1 The following graph indicates the market for ice cream:



- Which area represents the total consumer surplus?
- Which area represents the total producer surplus?
- At which point is the total surplus (consumer plus producer surplus) maximised?

7.2 Study the following diagram and answer the questions:



- If the quantity of ice cream is 100, which area indicates the consumer surplus lost?
- If the quantity of ice cream is 100, which area indicates the producer surplus lost?

ANSWERS TO THE ACTIVITIES

Activity 1

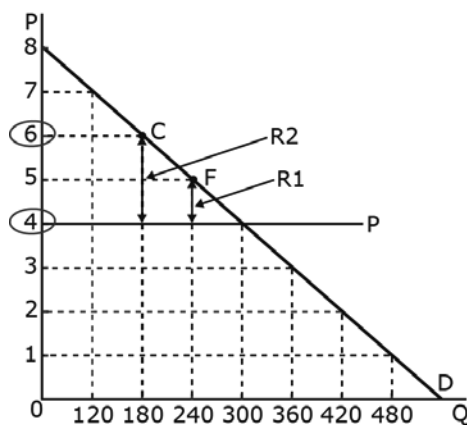
- 1.1 Since you are willing to pay R17 for an ice cream, the value you receive is also R17.
- 1.2 If you are willing to pay R17 for an ice cream, that is the amount you are prepared to pay.
- 1.3 If the market price is R12, that is the price you will pay for it.
- 1.4 Your consumer surplus is R5. It is the difference between what you pay, R12, and the value that you receive, R17, which is the maximum price you are willing to pay.
- 1.5 Since consumer surplus is the difference between what you pay and the value you receive, your consumer surplus in this case will decrease from R5 to R3.

At a willingness of R17 and a market price of R12, your consumer surplus is $R17 - R12 = R5$. At a willingness to pay of R15 and a market price of R12, your consumer surplus is $R15 - R12 = R3$.

Activity 2

- 2.1 The correct alternative is d.

Consumer surplus is the difference between what consumers pay and the value they receive, as measured by the maximum price they are willing to pay.



The price a consumer is willing to pay is part of the consumer surplus. You however also need to know what the actual price paid is because consumer surplus is the difference between what consumers pay and the value they receive, as measured by the maximum price they are willing to pay.

The cost of producing the unit has something to do with the producer surplus.

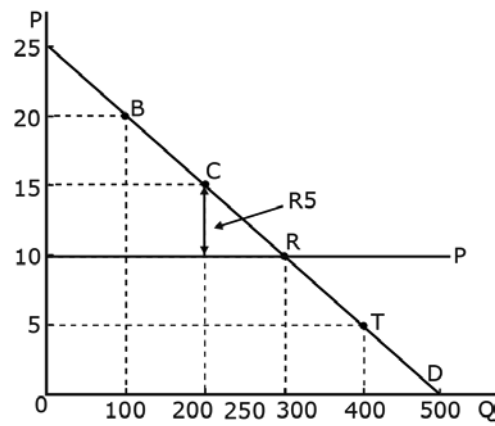
- 2.2 Your consumer surplus is R2 000.

It is the difference between what you are willing to pay, which is R75 000, and the amount you actually pay, which is R73 000, which gives you R2 000.

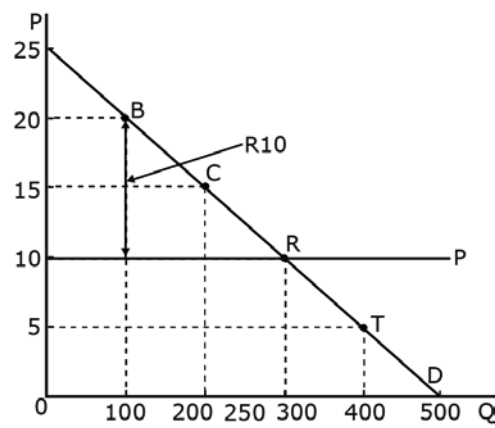
So next time you buy a second-hand car, let the salesman think that the amount you are willing to pay is less than your real willingness to pay.

2.3

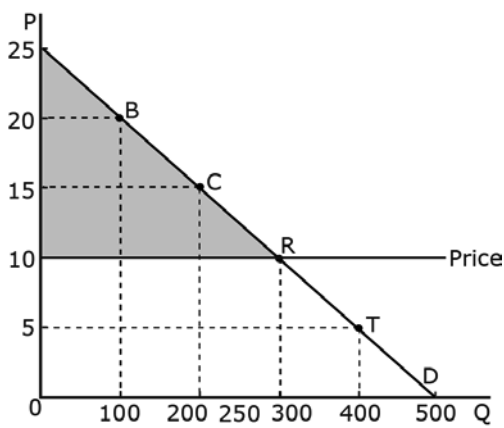
- a. It is R5.



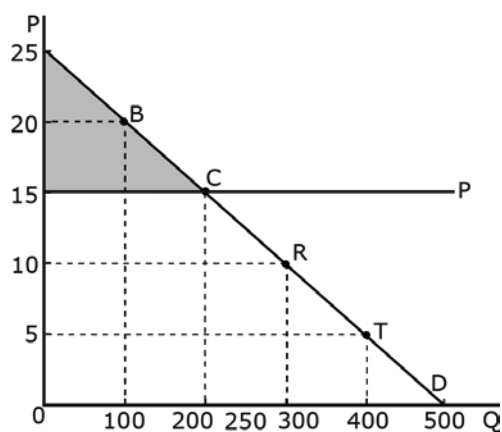
- b. It is R10.



- c. It is the area 10-25-R.



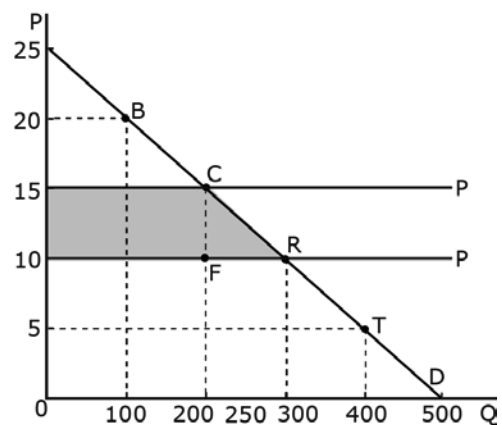
- d. It is the area 15-25-C



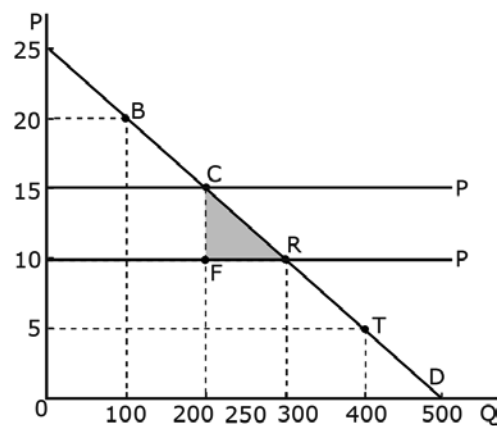
Activity 3

3.1

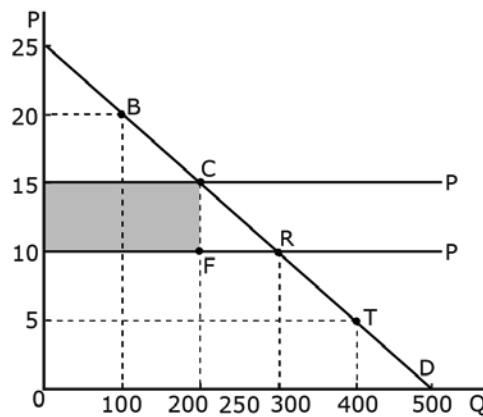
- a. An increase in the price decreases the consumer surplus. The consumer surplus that is lost is indicated by the area 10-15-C-R.



- b. The loss in consumer surplus because less people are buying ice cream is the area F-C-R.



- c. The consumer surplus lost because existing buyer pay a higher price is the area 10-15-C-F.



Activity 4

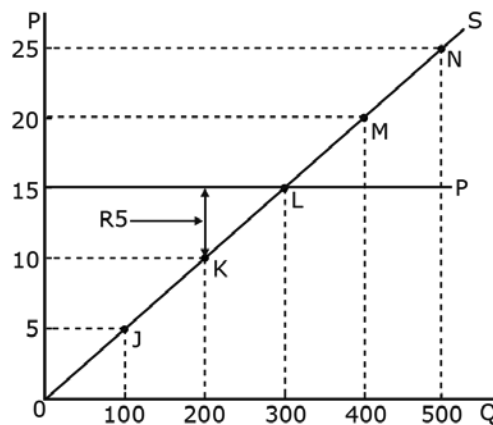
4.1

- R10. The minimum price you are prepared to accept is R10.
- R17. Since the market price is R17, this is the price you receive.
- R7. Your producer surplus is R7 which is the difference between the market price of R17 and the minimum price of R10 you are prepared to accept.

4.2 Your producer surplus decreases from R7 to R5.

4.3

- The price the producer is willing to sell it for is R10. The surplus is therefore $R15 - R10 = R5$.



- The price the producer is willing to sell it for is R10. The surplus is therefore $R20 - R10 = R10$.

Activity 5

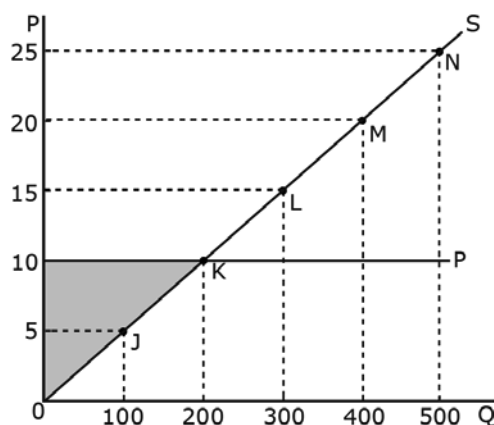
5.1

The correct option is b. The producer surplus can be defined as the difference between the price the producer is willing to accept and the price the consumer is actually paying.

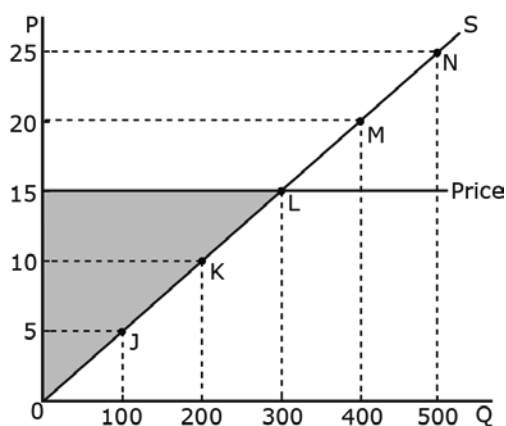
Included in the price the producer is willing to accept is the profit. Producer surplus is more than profit only – it is the difference between the price the producer is willing to accept and the price the consumer is actually paying.

5.2

- a. It is 0-10-K. The producer surplus is the area between the supply curve, which indicates the minimum prices sellers are prepared to accept, and the horizontal line, which indicates the market price.



- b. It is 0-15-L. The producer surplus is the area between the supply curve, which indicates the minimum prices sellers are prepared to accept, and the horizontal line, which indicates the market price.

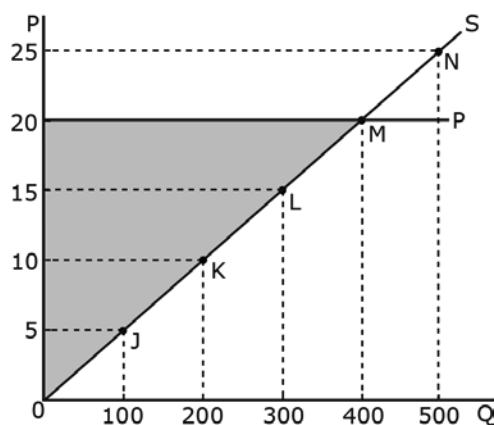


Activity 6

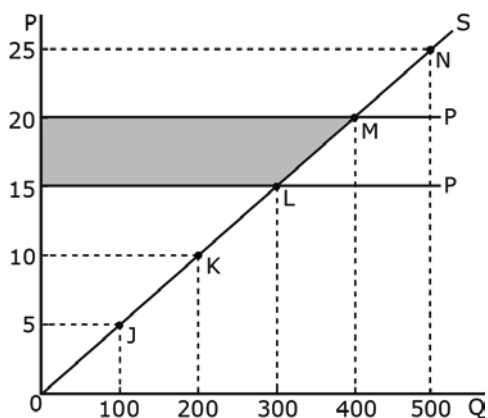
6.1

- a. If the market price increases from R15 to R20, the producer surplus will increase, since producers are selling more ice cream and receiving a higher price for it.

- b. The producer surplus at R20 is the area 0-20-M, as indicated in the following diagram:



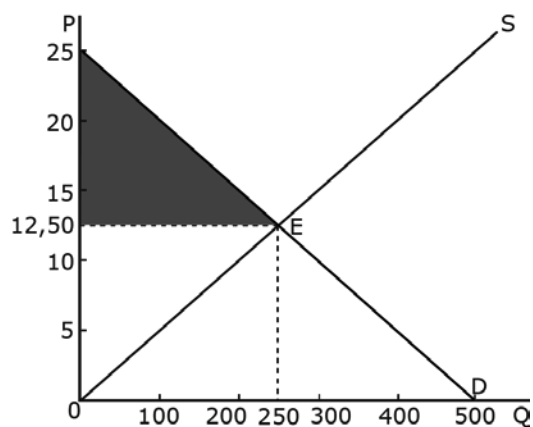
- c. The change in the producer surplus if the price increases from R15 to R20 is represented by the area 15-20-M-L, as indicated in the diagram below.



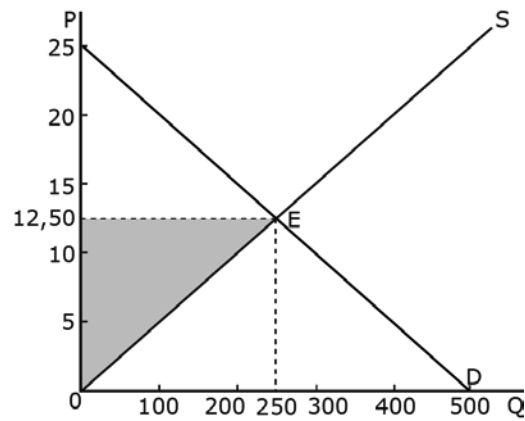
Activity 7

7.1

- a. Total consumer surplus is indicated by the area 12,50-25-E.



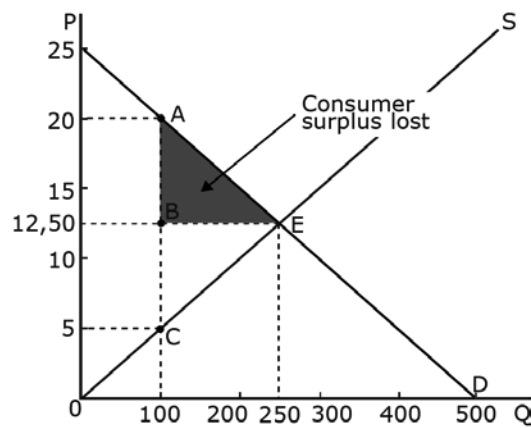
- b. Total producer surplus is indicated by the area 0-12,50-E.



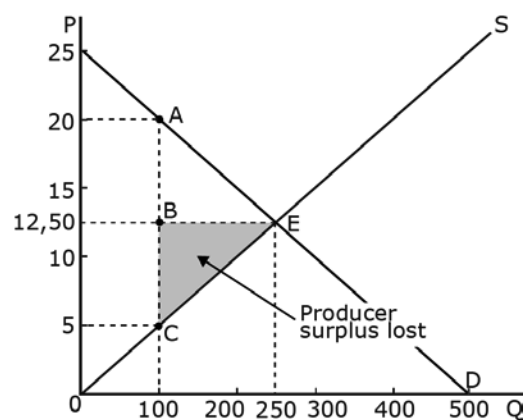
- c. It is at point E that total consumer and producer surplus is maximised.

7.2

- a. It is the area B-A-E.



- b. It is the area C-B-E.



CHECKLIST

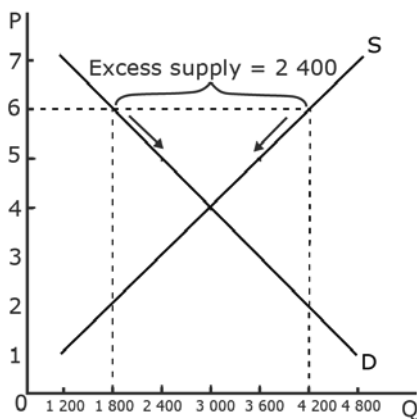
	Well	Satisfactory	Must redo
Concepts and relationships			
I am able to			
describe consumer surplus			
describe producer surplus			
Diagrams			
I am able to			
(i) show on a diagram			
(ii) explain with or without the aid of a diagram			
total consumer surplus			
what happens to total consumer surplus if the price change			
total producer surplus			
what happens to total producer surplus if the price change			
why total consumer surplus and total producer surplus is maximised at the market equilibrium position			

Changes in demand and supply 8

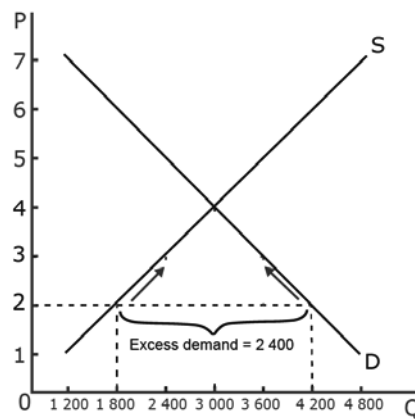
OVERVIEW

Previously, we explained the factors that influence the demand for goods and services, particularly how a change in the price affects the quantity demanded. We also explained the factors that influence the supply of goods and services and we paid particular attention to how a change in the price affects the quantity supplied. We ended by combining demand and supply to show how price is established through the interaction of the forces of demand and supply.

We indicated that whenever excess demand (shortage) or excess supply (surplus) exists in a market, the price of the good or service will change to ensure that equilibrium (where the quantity demanded equals the quantity supplied) is reached. In the event of excess supply (or surplus), the price will fall, and in the event of excess demand (or shortage), the price will rise.



Excess supply



Excess demand

We will now focus on how markets react to changes. Changes are continually taking place in the world. For example, household income changes, consumers' tastes and preferences for a product shift, the cost of production increases, new technologies are implemented and new resources are discovered.

Markets react to these changes. This is most noticeable in changes in the price of the goods and services that society produces and consumes. Underlying these price changes are changes in the demand for and supply of goods and services.

In this section, we explain how equilibrium is re-established in a market after a change in either demand or supply has taken place. You will notice that changes in price play a major role in re-establishing equilibrium.

TOPIC OUTCOME

After you have worked through the learning unit, you should be able to

- illustrate how a change in either demand or supply or simultaneous changes in demand and supply will affect the equilibrium price and equilibrium quantity (equilibrium position) in the market
- explain the adjustment process towards equilibrium should either demand or supply or demand change

Most people do not like price changes. However, these changes play a key role in the economy, and by watching prices, consumers and producers can learn a lot about what is happening and what is going to happen.

For example, an increase in the price of red meat because of an increase in household income tells you that red meat is in shorter supply and that you (as the consumer) should cut back on your red meat consumption. However, for suppliers, an increase in the price of red meat might be an alert to produce more red meat as well as an incentive to do so.

We start this section by discussing how changes in demand affect the market and then go on to explain how changes in supply affect the market. We then show how simultaneous changes in demand and supply has an impact on the market.

8.1 Changes in demand

After you have worked through this section of the learning unit, you should be able to:

- identify the factors that cause a change in demand

A change in demand occurs when there is a change in any of the non-price determinants of demand.

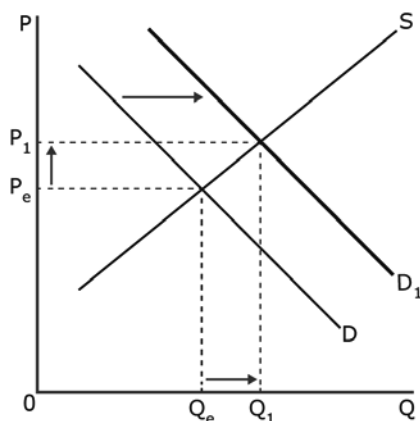
These are factors such as:

- the tastes and preferences of households
- household income
- the number of potential buyers
- the price of related goods
- other factors such as the weather and expected prices

Any change in any of these non-price factors of demand will cause a shift of the demand curve. This is because at every price, the quantity demanded will change.

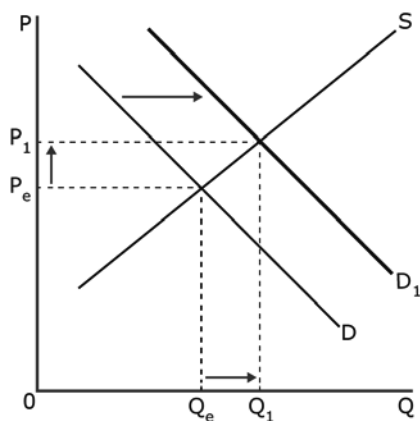
ACTIVITY 1

1.1 The rightward shift of the demand curve from D to D_1 is the result of a(n) _____.



- a. increase in supply
- b. increase in demand
- c. decrease in supply
- d. decrease in demand

1.2 Which of the following factors would explain a shift of the demand curve from D to D_1 ? Select all of the answers that are relevant.



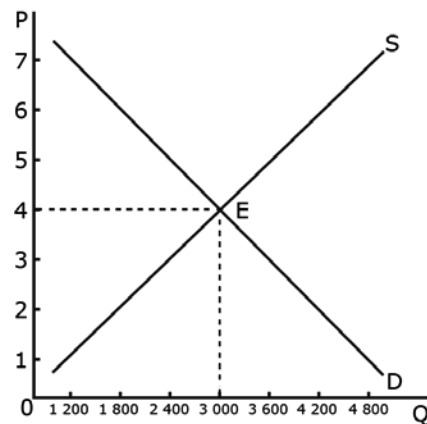
- a. An increase in the number of suppliers
- b. An increase in the number of households
- c. A decrease in the price
- d. A decrease in income
- e. A decrease in the cost of production
- f. An increase in the taste and preference for the product

Change in demand if income increases

After you have worked through this section of the learning unit, you should be able to:

- illustrate, by using demand and supply curves, what happens to the equilibrium price and equilibrium quantity if the demand increases

To analyse the impact of a change in demand, we will use our demand and supply curves for fried chicken pieces.

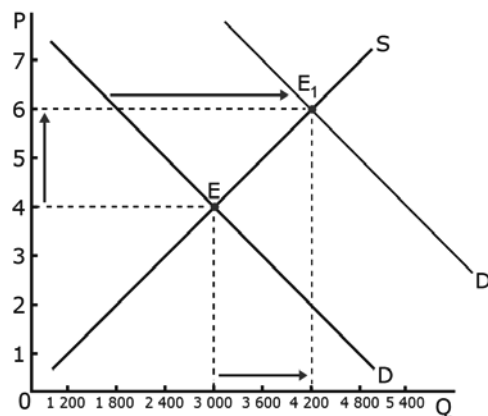


Market for fried chicken

Let us see what happens in this market if household income increases.

A change in income will have an impact on the demand curve since it is one of the non-price factors that determines demand. We also know that a change in any of the non-price factors of demand will cause a shift of the demand curve. This is because at every price, the quantity demanded will change.

We also previously established that an increase in income causes an increase in demand, and at each price, a higher quantity is demanded than before. The demand curve therefore shifts to the right. This is represented by a rightward shift of the demand curve from D to D_1 in the following diagram:



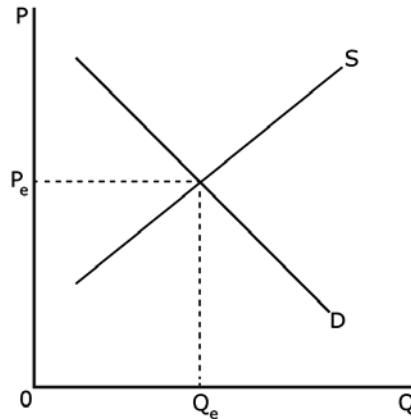
Impact of an increase in demand

By comparing the new equilibrium position, E_1 , with the previous equilibrium position, E, you can see that the equilibrium price increases from R4 to R6 and the equilibrium quantity increases from 3 000 to 4 200. At this new equilibrium position, both the quantity demanded and the quantity supplied increase from 3 000 to 4 200.

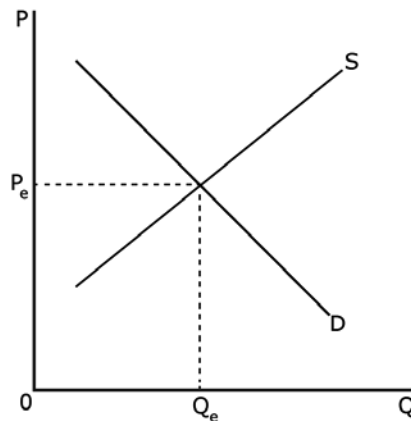
From this analysis, we can conclude that an increase in income causes an increase in demand, which causes an increase in the equilibrium price and equilibrium quantity.

ACTIVITY 2

- 2.1 Use the following diagram to indicate what happens to the equilibrium position if the demand increases because of an increase in income:



- There is (a rightward shift; a leftward shift; no shift) of the demand curve.
 - There is (a rightward shift; a leftward shift; no shift) of the supply curve.
 - The equilibrium price (increases; decreases; stays the same).
 - The equilibrium quantity (increases; decreases; stays the same).
- 2.2 Use the following diagram to indicate what happens to the equilibrium position if the demand decreases because of a decrease in the taste and preference for the product:



- There is (a rightward shift; a leftward shift; no shift) of the demand curve.
- There is (a rightward shift; a leftward shift; no shift) of the supply curve.
- The equilibrium price (increases; decreases; stays the same).
- The equilibrium quantity (increases; decreases; stays the same).

The adjustment process

After you have worked through this section of the learning unit, you should be able to:

- illustrate and explain the adjustment process in a market if demand increases

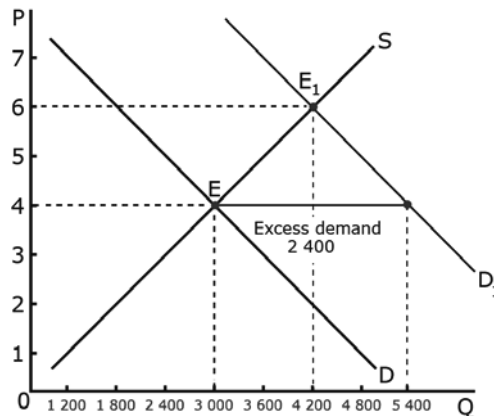
From the above analysis, we know what the end result of an increase in income on the equilibrium price and equilibrium quantity in the market for fried chicken pieces is. It increases both the

equilibrium price and equilibrium quantity. What we have not yet done is to explain the adjustment process from the initial equilibrium, E, to the new equilibrium, E₁.

We will now see what this adjustment process is all about when demand increases.

Excess demand is created.

At the initial equilibrium position, E, with a price of R4, the increase in demand creates excess demand or a shortage. At this price of R4, the quantity demanded is 5 400, while the quantity supplied is 3 000. There is thus excess demand of 2 400.

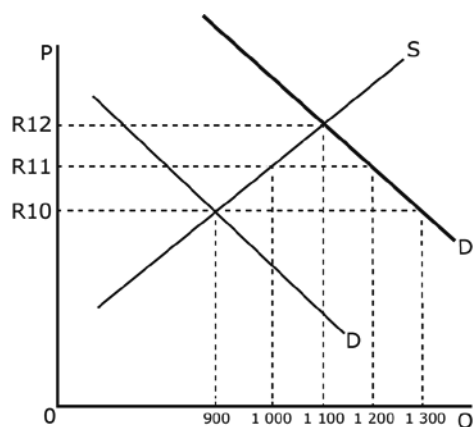


An increase in demand creates excess demand

The market is now in disequilibrium because consumers cannot obtain the quantity they plan to buy at a price of R4. This disequilibrium will lead to changes in the market that will result in a new equilibrium.

ACTIVITY 3

The following diagram illustrates the impact of an increase in demand. Study the diagram and answer the questions.

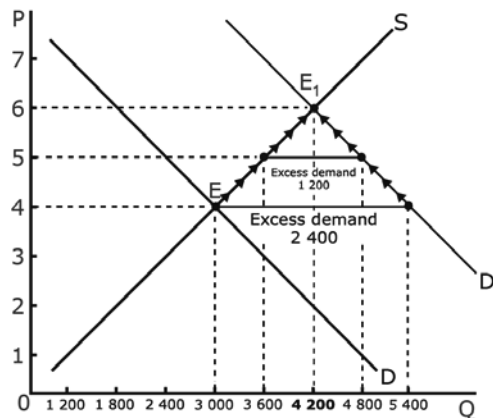


- Before the increase in demand, the equilibrium price is _____ and the equilibrium quantity is _____.
- Owing to an increase in demand, the demand curve shifts from D to D₁. At a price of R10, after the increase in demand, the quantity demanded is _____ and the quantity supplied is _____.
- At a price of R10, after the increase in demand, there is an (excess demand; excess supply).

From excess demand to a new equilibrium

As indicated, at R4, an excess demand exists since at R4 consumers demand a quantity of 5 400, while the suppliers are only willing to supply a quantity of 3 000.

As you know, excess demand will force buyers to offer suppliers a higher price to encourage them to offer a higher quantity; and as long as there is excess demand, the price of the good will rise. A rise in the price of the good not only causes an increase in the quantity supplied, but is also results in a decrease in the quantity demanded.



An excess demand causes an increase in price

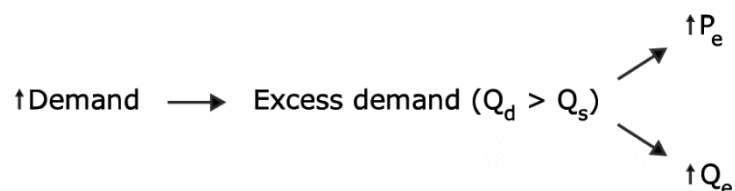
Consider an increase in the price from R4 to R5. When the price increases to R5, two things happen in the market: the quantity demanded decreases from 5 400 to 4 800, while the quantity supplied increases from 3 000 to 3 600 pieces and the excess demand starts to decrease. The increase in price is encouraging suppliers to increase the quantity supplied and discouraging buyers, which decreases their quantity demanded. The combined effect of this is that the excess demand or shortage decreases.

This trend will continue until a position is reached where the quantity demanded is equal to the quantity supplied – the new equilibrium position is where the equilibrium price is R6 and the equilibrium quantity is 4 200.

Note that the supply curve does not shift — a movement occurs along the supply curve.

The result of an increase in demand is that both the equilibrium price and the equilibrium quantity rise.

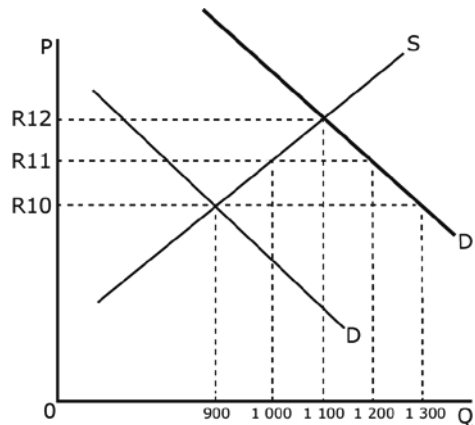
In terms of a chain of events, this process can be described as follows:



An increase in demand causes an excess demand since the quantity demanded is greater than the quantity supplied. This excess demand leads an increase in the price, and the end result is that both the equilibrium price and the equilibrium quantity increase.

ACTIVITY 4

- 4.1 The diagram below illustrates the impact of an increase in demand. Study the diagram and then answer the questions.



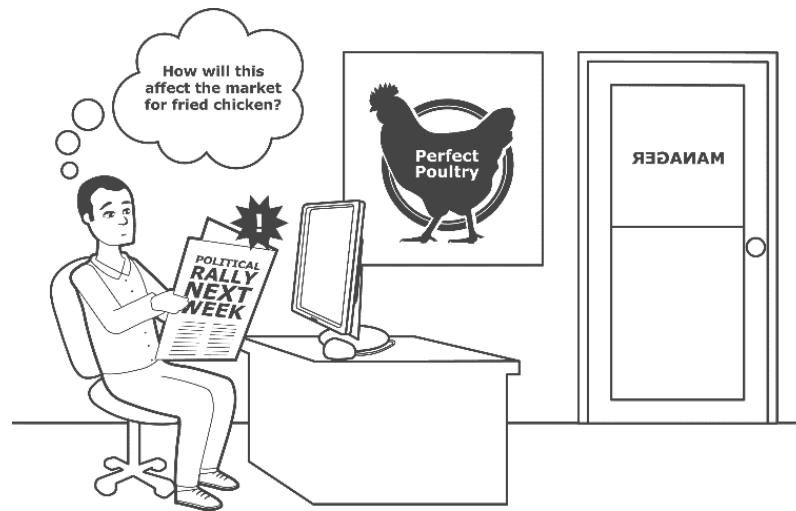
- a. An excess demand at a price of R10 will lead to (a decrease in the price; an increase in the price).
 - b. At a price such as R11, the quantity supplied is _____ and the quantity demanded is _____ and an (excess demand; excess supply) exists at this price.
 - c. As long as an excess demand exists, the price will (increase; decrease).
 - d. A new equilibrium position is formed after the increase in demand at an equilibrium price of _____ and an equilibrium quantity of _____.
- 4.2 Arrange the following elements to show the chain of events that occurs for an increase in demand:
- ☐ $\uparrow P$
 - ☐ $\uparrow$ Demand
 - ☐ $Q_d > Q_s$ (excess demand)
 - ☐ $\uparrow Q$

Approach to analyse changes in demand and supply

After you have worked through this section of the learning unit, you should be able to:

- explain the different steps that are followed when analysing a change in demand

In explaining the impact of an increase in income on equilibrium price and equilibrium quantity, we follow certain steps. Look at the scenario in the diagram below. As an economist, explain how this situation will influence the market for fried chicken pieces.



Step 1: Decide whether we are dealing with a supply or demand factor.

In the scenario above, is the political rally a supply or demand factor with respect to the market for fried chicken pieces?

In this scenario, the number of people attending the political rally will influence the demand for food, including fried chicken pieces, so it is a demand factor that we are dealing with.

Step 2: Ask whether this is an increase or decrease in demand.

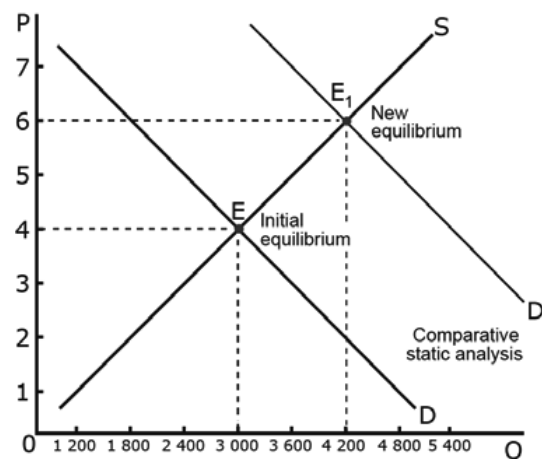
In this scenario, the number of people attending the political rally will increase the demand for fried chicken pieces.

Step 3: Determine whether the demand curve will shift to left or to the right.

In this scenario, we determined that we were dealing with an increase in demand, which is represented by a rightward shift of the demand curve.

Step 4: Compare the new equilibrium position with the old one.

Does the new equilibrium position indicate an increase or a decrease in the equilibrium price? Does it indicate an increase or a decrease in the equilibrium quantity?



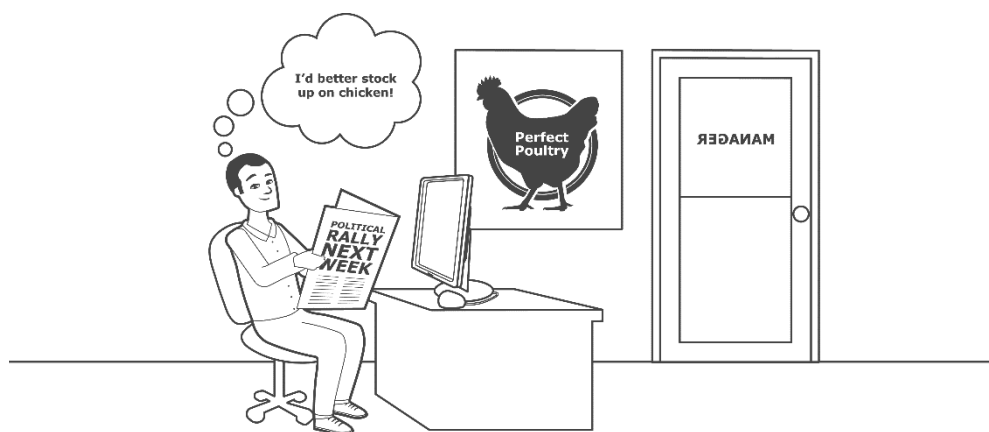
An increase in demand

In this scenario, we were able to show that the increase in demand, due to an increase in the

This is known as a comparative static analysis since we are comparing two equilibrium positions – the initial equilibrium position E with the new equilibrium position E_1 .

Then we add some dynamics to our analysis by explaining how this new equilibrium position is reached.

We do this by showing how the increase in demand caused an excess demand or shortage in the market, which results in an increase in the price. The effect of this increase in price is that it encourages suppliers to increase the quantity supplied. At the same time, the increase in the price convinces buyers to decrease their quantity demanded. The combined effect is that the excess demand or shortage shrinks. This process continues until a new market equilibrium position is reached.



Decrease in demand

After you have worked through this section of the learning unit, you should be able to:

- illustrate and explain the adjustment process in a market if demand decreases

Let us use the same approach to look at a second scenario. Let's assume that fried chicken pieces and chicken burgers are substitutes. There is a decrease in the cost of production of chicken burgers, which led to a decrease in the price of chicken burgers. How will this event affect the market for fried chicken pieces?

Are we dealing with a demand or a supply factor? (Step 1)

- ☐ Demand
- ☐ Supply

This is a demand factor since the price of a substitute is an important determinant of demand.

What would happen to the demand for fried chicken pieces if the price of fried chicken burgers were to decrease? (Step 2)

- ☐ The demand for fried chicken pieces would increase.
- ☐ The demand for fried chicken would decrease.

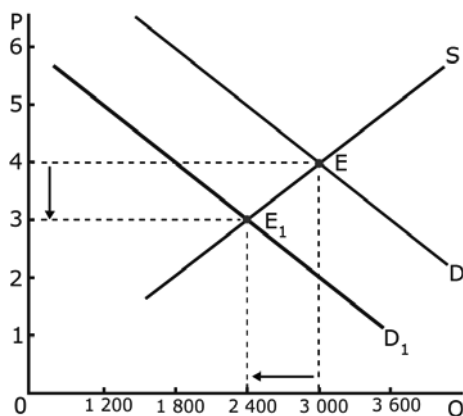
The demand for fried chicken pieces would decrease since households would rather buy chicken burgers than fried chicken pieces.

Would this decrease in the demand for fried chicken pieces cause a rightward shift or leftward shift of the demand curve for fried chicken pieces? (Step 3)

It is a leftward shift to indicate that at each price the quantity demanded is lower.

The next diagram indicates the end result of a decrease in the demand for fried chicken pieces.

What happened to the equilibrium price and the equilibrium quantity? (Step 4)

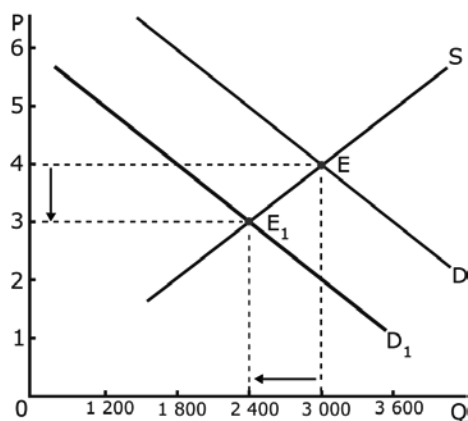


A decrease in demand

Using a comparative static analysis, a comparison of the initial equilibrium, E, with the new equilibrium, E₁, indicates that both the equilibrium price and the equilibrium quantity decreased.

The adjustment process for a decrease in demand

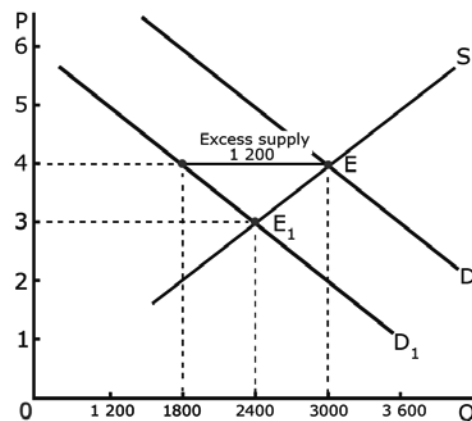
Before we analyse the adjustment process that occurs in the market, let us look again at the end result.



A decrease in demand causes a leftward shift of the demand curve from D to D₁, and a new equilibrium position is reached. By comparing the new equilibrium position with the previous equilibrium position, you can see that the equilibrium price decreases from R4 to R3 and the equilibrium quantity decreases from 3 000 to 2 400.

What happens in the market is that the decrease in demand leads to a lower equilibrium price and a lower equilibrium quantity demanded and supplied.

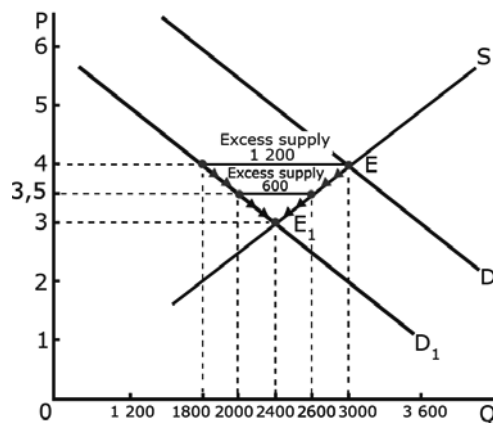
Given a price of R4, a decrease in demand causes an excess supply or surplus. At a price of R4, the quantity demanded is now 1 800, while the quantity supplied is 3 000. The excess supply is therefore $3\,000 - 1\,800 = 1\,200$.



A decrease in demand creates excess supply

The market is now in disequilibrium because suppliers cannot sell the quantity they planned to sell at R4. As you know, excess supply forces suppliers to cut the price of the good or service. As the price declines, the quantity supplied will decrease and the quantity demanded will increase. The surplus thus declines.

Assume the price decreases to R3,50. When the price decreases to R3,50, two things happen in the market: the quantity demanded increases from 1 800 to 2 000, while the quantity supplied decreases from 3 000 to 2 600 pieces and the excess supply decreases to 600. The decrease in price is encouraging buyers to increase the quantity bought and the supplier to decrease the quantity supplied. The combined effect of this is that the excess supply or surplus decreases.

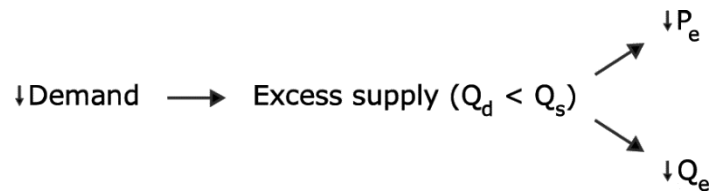


An excess supply decrease the price

This trend will continue until a new equilibrium position is reached where the quantity demanded is equal to the quantity supplied – this new equilibrium position is where the equilibrium price is R3 and the equilibrium quantity is 2 400.

Note that the supply curve does not shift – a movement occurs along the supply curve.

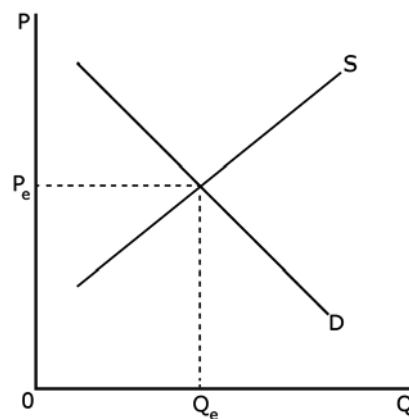
In terms of a chain of events, the impact of a decrease in demand on the equilibrium price and quantity can be described as follows:



A decrease in demand causes an excess supply since the quantity demanded is less than the quantity supplied. This excess supply leads to a decrease in the price and the end result is that both the equilibrium price and equilibrium quantity decrease.

ACTIVITY 5

Use the following diagram, which illustrates the market for ice cream, to explain what happens to the equilibrium price and quantity if the number of potential consumers decreases:



- This is a change in a (demand factor; supply factor).
- This is a(n) (decrease in demand; increase in demand; increase in supply, decrease in supply).
- The (demand curve; supply curve) will shift to the (right; left).
- An (excess demand; excess supply) is created.
- The price will (increase; decrease).
- The process continues until a new equilibrium is reached where the price is (higher; lower) and the quantity is (higher; lower).

Comparison between an increase in demand and a decrease in demand

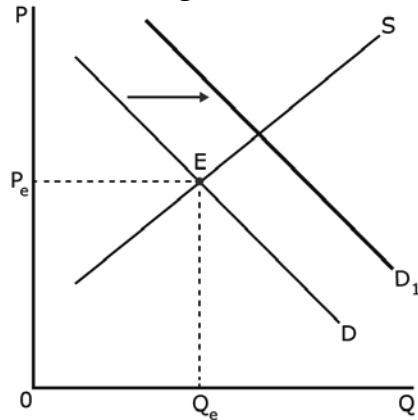
After you have worked through this section of the learning unit, you should be able to:

- compare the impact on the market of an increase in demand with a decrease in demand

The table below provides a comparison between the impact of an increase in demand and a decrease in demand on the equilibrium quantity and equilibrium price.

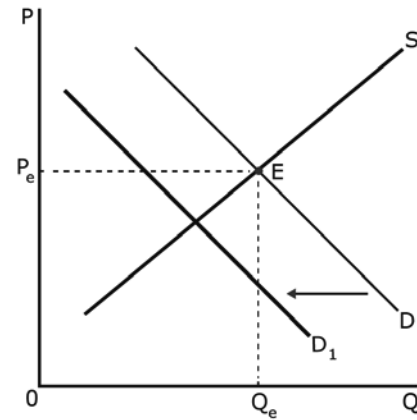
The impact of an increase in the demand for a good or service can be summarised as follows:

An increase in the demand causes the demand curve to shift to the right.

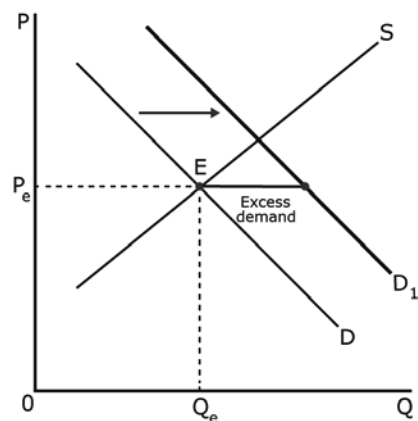


The impact of a decrease in the demand for a good or service can be summarised as follows:

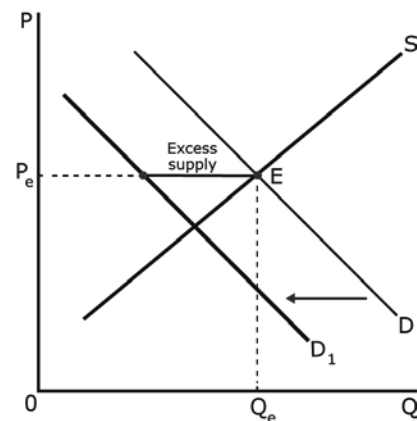
A decrease in the demand causes the demand curve to shift to the left.



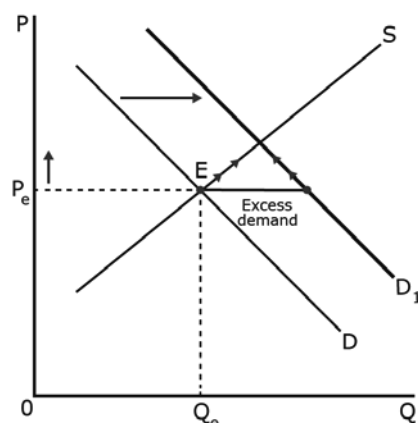
At the initial equilibrium price, excess demand (or shortage) develops in the market. In other words, the quantity demanded exceeds the quantity supplied.



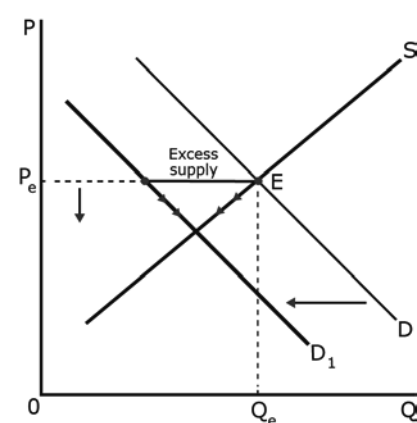
At the initial equilibrium price, excess supply (or surplus) develops in the market. In other words, the quantity supplied exceeds the quantity demanded.



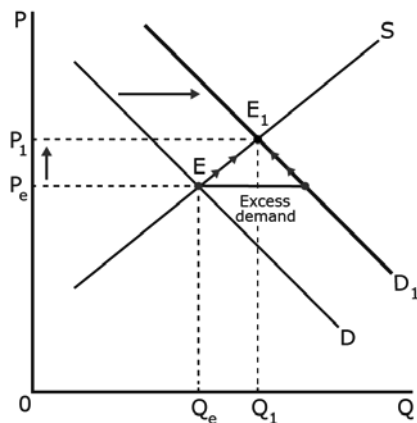
The excess demand causes the price of the product to increase, and the excess demand starts to decrease as the quantity demanded decreases and the quantity supplied increases.



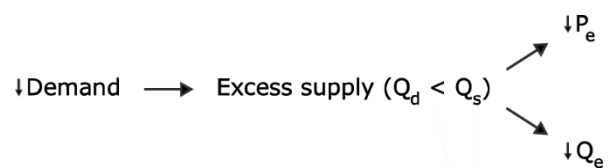
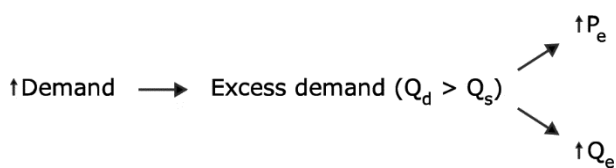
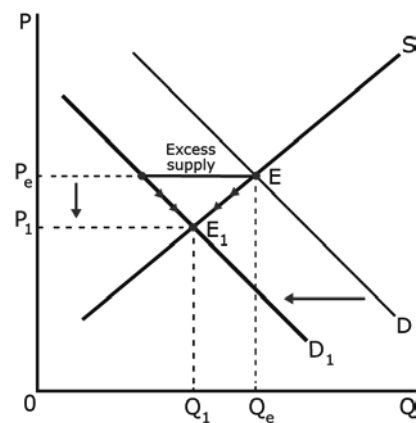
The excess supply causes the price of the product to decrease, and the excess supply starts to decrease as the quantity demanded increases and the quantity supplied decreases.



This process continues until a new equilibrium is reached, where the price, the quantity demanded and the quantity supplied are higher compared to the equilibrium position before the increase in demand.



This process continues until a new equilibrium is reached, where the price, the quantity demanded and the quantity supplied are lower compared to the equilibrium position before the decrease in demand.



ACTIVITY 6

If both the equilibrium price and equilibrium quantity increase in a market, we can conclude that a possible cause is that the demand has ____ .

- ☐ increased
- ☐ decreased

Changes in supply

After you have worked through this section of the learning unit, you should be able to:

- identify the factors that cause a change in supply

A change in supply occurs when there is a change in any of the non-price determinants of supply.

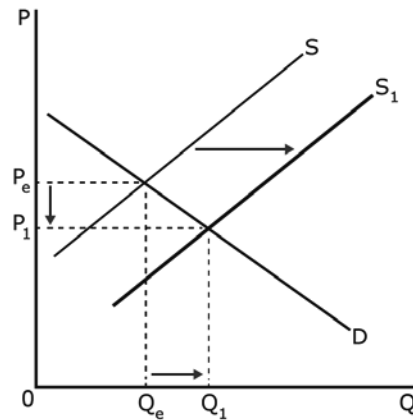
These are factors such as the:

- price of inputs (cost of production)
- prices of alternative goods
- technology needed to make the good
- expected prices
- number of suppliers
- weather and other factors

Any change in any of these non-price factors of supply will cause a shift of the supply curve. This is because at every price, the quantity supplied will change.

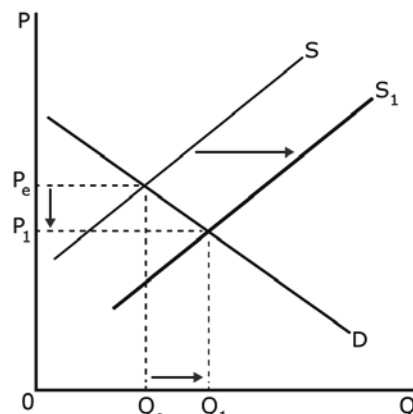
ACTIVITY 7

7.1. Is the rightward shift of the supply curve from S to S_1 the result of a(n) _____?



- a. increase in supply
- b. increase in demand
- c. decrease in supply
- d. decrease in demand

7.2. Which of the following factors would explain a rightward shift of the supply curve from S to S_1 ?
Select all of the relevant choices.



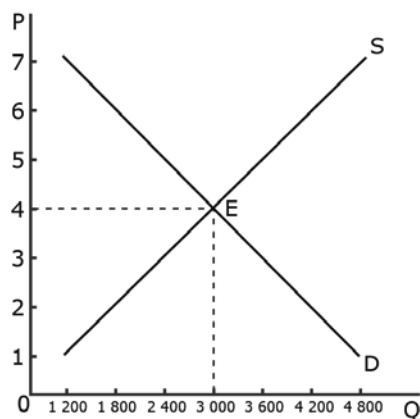
- a. An increase in the number of suppliers
- b. An increase in the number of households
- c. A decrease in the price
- d. A decrease in income
- e. A decrease in the cost of production
- f. An increase in the taste and preference for the product
- g. An improvement in the technology used

An increase in supply

After you have worked through this section of the learning unit, you should be able to:

- illustrate and explain the adjustment process in a market if the market supply increases

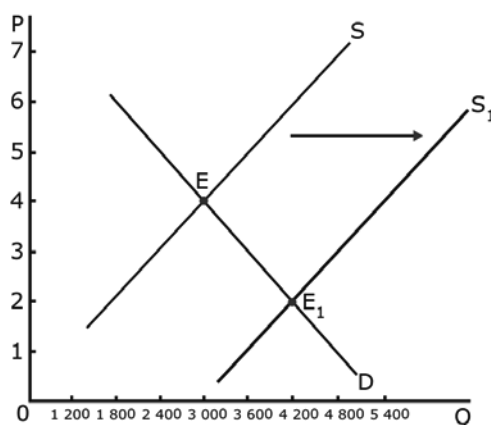
To analyse the impact of a change in supply, we will use our demand and supply curves for fried chicken pieces.



Let us see what happens in this market if the number of suppliers increases.

The number of suppliers is a factor that impacts on the supply. An increase in the number of suppliers increases the supply of goods and services. This is represented by a rightward shift of the supply curve.

In the diagram below, the supply curve shifts from S to S_1 , and a new equilibrium position is reached at point E_1 .



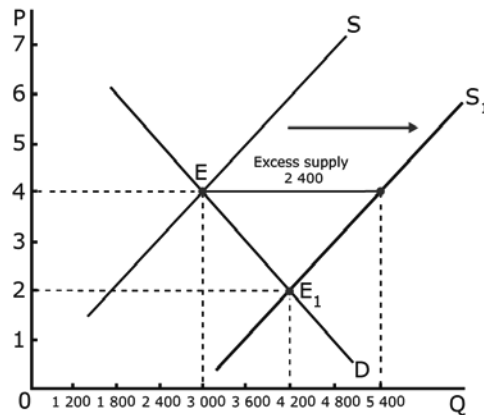
An increase in supply

By comparing the new equilibrium position, E_1 , with the initial equilibrium position, E , you can see that the equilibrium price decreases from R4 to R2, and the equilibrium quantity increases from 3 000 to 4 200. At this new equilibrium position, both the quantity demanded and the quantity supplied increase from 3 000 to 4 200.

Let us see what caused this decrease in equilibrium price and increase in equilibrium quantity.

Adjustment process for an increase in supply

At the initial equilibrium position with a price of R4, the increase in supply creates excess supply. At this price of R4, the quantity supplied is now 5 400, while the quantity demanded is 3 000. Hence there is excess supply of 2 400.



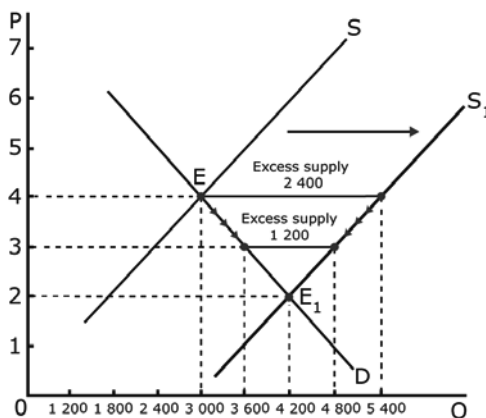
The market is now in disequilibrium since the suppliers cannot sell their planned quantity at R4. This disequilibrium will lead to changes in the market that will result in a new equilibrium.

Let us see how this excess supply leads to a new equilibrium.

At a price of R4, excess supply of 2 400 exists.

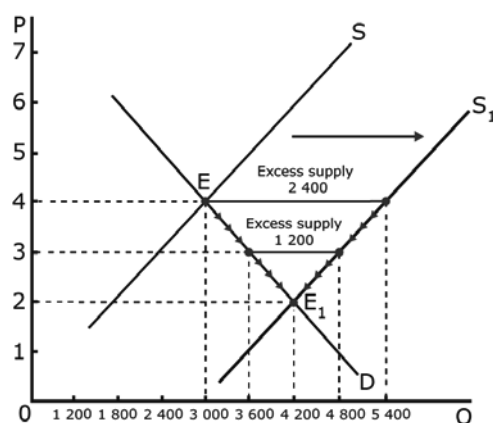
As you know, excess supply will force suppliers to offer buyers a lower price so that they can get rid of the good. As long as there is excess supply, the price of the good will decline. This will cause an increase in the quantity demanded and a decrease in the quantity supplied. The surplus thus declines.

Assume that the price decreases to R3,00. At this price of R3,00, the quantity demanded is 3 600 and the quantity supplied 4 800. There is thus a decline in the excess supply from 2 400 to 1 200.



An excess supply decreases the price

This trend of a decline in price and excess supply will continue until a position is reached where the quantity demanded is equal to the quantity supplied. This happens at the new equilibrium position where the equilibrium price is R2 and the equilibrium quantity is 4 200.

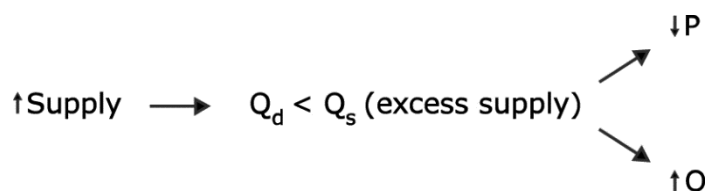


An excess supply decreases the price

Note that the demand curve does not shift – a movement along the demand curve occurs.

The result of an increase in supply is that the equilibrium price decreases and the equilibrium quantity increases.

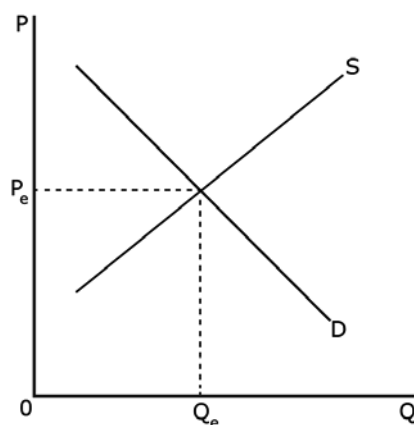
Using a chain of events, this can be described as follows:



An increase in supply causes an excess supply and leads to a decrease in the equilibrium price, causing an increase in the equilibrium quantity.

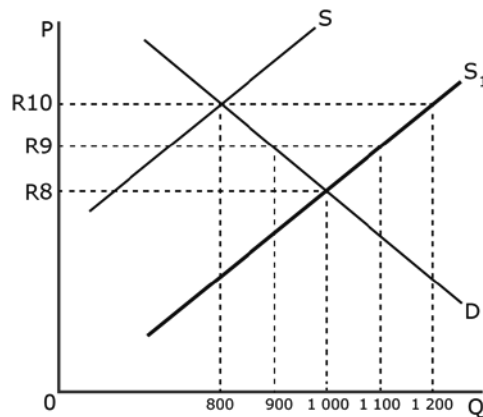
ACTIVITY 8

8.1 Use the following diagram to indicate what happens to the equilibrium position if the supply increases because of a decrease in the cost of production:



- There is (a rightward shift; a leftward shift; no shift) of the demand curve.
- There is (a rightward shift; a leftward shift; no shift) of the supply curve.
- The equilibrium price (increases; decreases; stays the same).
- The equilibrium quantity (increases; decreases; stays the same).

- 8.2 The diagram below illustrates the impact of an increase in supply. Study the diagram and then answer the questions.



- Before the increase in supply, the equilibrium price was _____ and the equilibrium quantity was _____.
 - Owing to an increase in supply, the supply curve shifts from S to S₁. At a price of R10, after the increase in supply, the quantity demanded is _____ and the quantity supplied is _____.
 - At a price of R10, after the increase in supply, there is an (excess demand; excess supply).
 - An excess supply at a price of R10 will lead to (a decrease in the price; an increase in the price).
 - At a price such as R9, the quantity demanded is _____ and the quantity supplied is _____ and there is an (excess demand; excess supply) at this price.
 - As long as there is an excess supply, the price will (increase; decrease).
 - A new equilibrium position is formed after the increase in supply at an equilibrium price of _____ and an equilibrium quantity of _____.
- 8.3 Arrange the following elements to illustrate the chain of events that occurs for an increase in supply:
- ☐ Qd < Qs (excess supply)
 - ☐ ↑Supply
 - ☐ ↓P →
 - ☐ ↑Q

A decrease in supply

After you have worked through this section of the learning unit, you should be able to:

- illustrate and explain the adjustment process in a market if market supply decreases

Let us use our step approach to see what happens in this market if the supply of fried chicken pieces decreases. This might be due to an increase in the cost of production.



Assume that the cost of electricity increases, which increases the cost of producing fried chicken pieces. How will this event affect the market for fried chicken pieces?

Are we dealing with a demand or a supply factor? (Step 1)

- ☐ Demand
- ☐ Supply

This is a supply factor since the cost of production is an important determinant of supply.

What would happen to the supply of fried chicken pieces if the cost of production of fried chicken pieces were to increase? (Step 2)

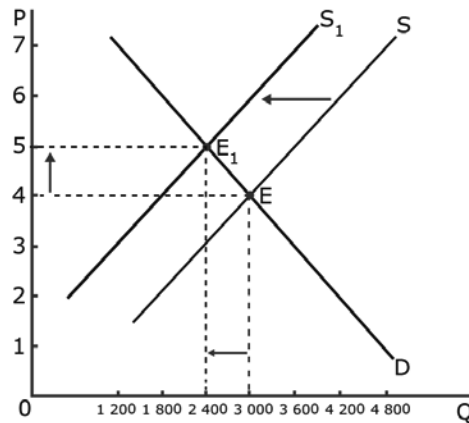
- ☐ The supply of fried chicken pieces will increase.
- ☐ The supply of fried chicken pieces will decrease.

The supply of fried chicken pieces would decrease since suppliers will now require a higher price to supply the same quantity.

Would this decrease in the supply of fried chicken pieces cause a rightward shift or leftward shift of the supply curve for fried chicken pieces? (Step 3)

It would be a leftward shift, which would indicate that at each price, the quantity supplied is lower, or at each quantity, a higher price is required.

The diagram below indicates the end result of a decrease in the supply of fried chicken pieces. What happened to the equilibrium price and the equilibrium quantity? (Step 4)

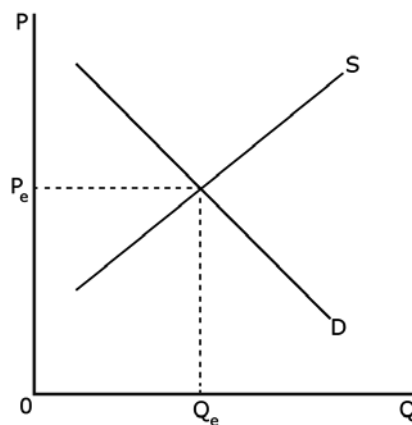


A decrease in supply

Using a comparative static analysis, a comparison of the initial equilibrium, E, with the new equilibrium, E₁, indicates that the equilibrium price increased and the equilibrium quantity decreased.

ACTIVITY 9

Use the diagram below, which illustrates the market for ice cream, to explain what happens to the equilibrium price and quantity if the cost of milk, which is an input in the production of ice cream, increases.



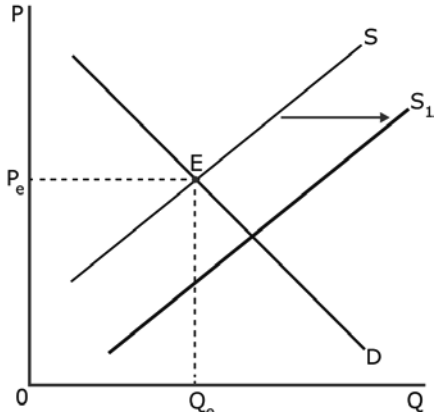
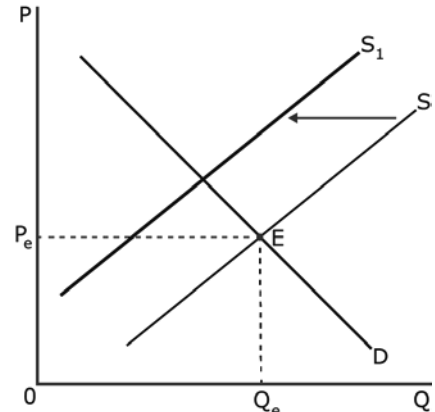
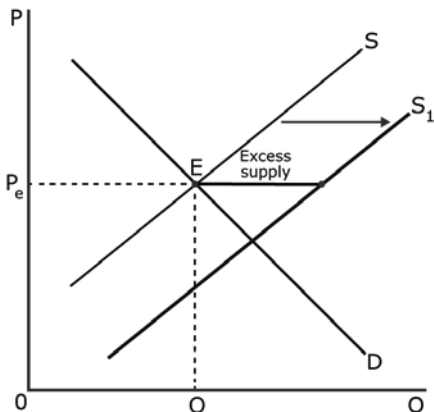
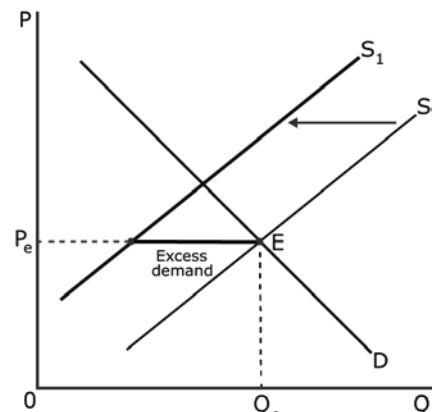
- This is a change in a (demand factor; supply factor).
- This is a(n) (decrease in demand; increase in demand; increase in supply; decrease in supply).
- The (demand curve; supply curve) shifts to the (right; left).
- An (excess demand; excess supply) is created.
- The price (increases; decreases).
- The change in price (increases the quantity demanded; decreases the quantity demanded) and (increases the quantity supplied; decreases the quantity supplied) and the (excess demand; excess supply) decreases.
- The process will continue until a new equilibrium is reached, where the price will be (higher; lower) and the quantity (higher; lower).

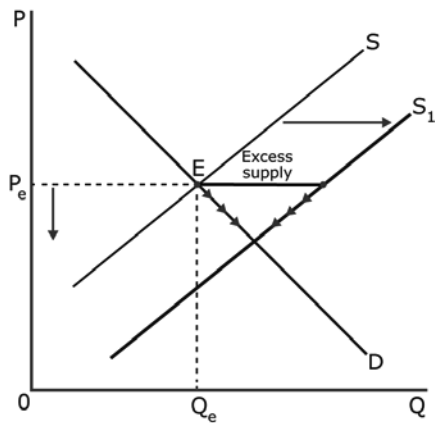
Comparison of an increase in supply with a decrease in supply

After you have worked through this section of the learning unit, you should be able to:

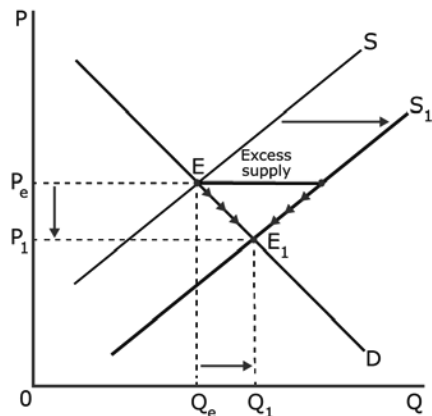
- compare the impact on the market of an increase in supply with a decrease in supply

The following table provides a comparison between the impact of an increase in supply and a decrease in supply on the equilibrium quantity and equilibrium price:

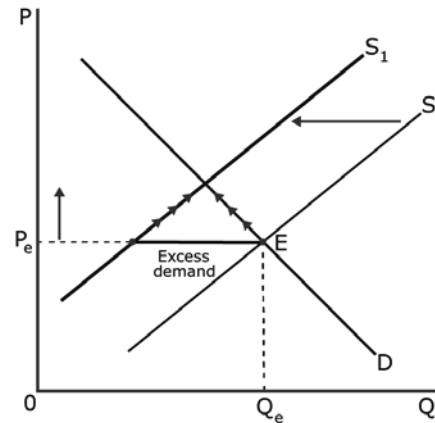
The impact of an increase in the supply of a good or service can be summarised as follows:	The impact of a decrease in the supply of a good or service can be summarised as follows:
An increase in the supply causes the supply curve to shift to the right  The graph shows a downward-sloping demand curve D and two upward-sloping supply curves, S and S_1. S_1 is to the right of S, as indicated by a rightward arrow. The initial equilibrium E is at the intersection of S and D, with price P_e and quantity Q_e. The new equilibrium is at the intersection of S_1 and D, which is at a lower price and a higher quantity.	A decrease in the supply causes the supply curve to shift to the left.  The graph shows a downward-sloping demand curve D and two upward-sloping supply curves, S and S_1. S_1 is to the left of S, as indicated by a leftward arrow. The initial equilibrium E is at the intersection of S and D, with price P_e and quantity Q_e. The new equilibrium is at the intersection of S_1 and D, which is at a higher price and a lower quantity.
At the initial equilibrium price, excess supply (or surplus) develops in the market. In other words, the quantity supplied exceeds the quantity demanded.  The graph shows the same shift in supply from S to S_1. A horizontal line is drawn at the initial equilibrium price P_e. At this price, the quantity demanded (on D) is less than the quantity supplied (on S_1). The horizontal distance between the two curves at P_e is labeled 'Excess supply'.	At the initial equilibrium price, excess demand (or shortage) develops in the market. In other words, the quantity demanded exceeds the quantity supplied.  The graph shows the same shift in supply from S to S_1. A horizontal line is drawn at the initial equilibrium price P_e. At this price, the quantity demanded (on D) is greater than the quantity supplied (on S_1). The horizontal distance between the two curves at P_e is labeled 'Excess demand'.
The excess supply causes the price of the product to decrease, and the excess supply starts to decrease as the quantity demanded increases and the quantity supplied decreases.	The excess demand causes the price of the product to increase, and the excess demand starts to decrease as the quantity demanded decreases, and the quantity supplied increases.



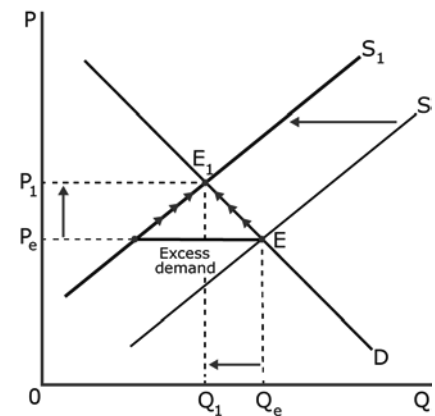
This process continues until a new equilibrium is reached, where the price is lower and the quantity demanded and the quantity supplied are higher compared to the equilibrium position before the increase in supply.



↑Supply → $Q_d < Q_s$ (excess supply) → ↓P, ↑Q



This process continues until a new equilibrium is reached, where the price is higher, and the quantity demanded and the quantity supplied are lower, compared to the equilibrium position before the decrease in supply.



↓Supply → $Q_d > Q_s$ (excess demand) → ↑P, ↓Q

ACTIVITY 10

If the equilibrium price decreases and equilibrium quantity increases in a market, we can conclude that a possible cause of this is that the supply has _____.

- ☐ increased
- ☐ decreased

Summary of changes in demand and supply

The following table provides a summary of the impact of a change in demand and supply on the equilibrium price and quantity:

	Effect on curve	Effect on price	Effect on quantity
Increase in demand	Rightward shift: Demand curve	Price increases	Quantity increases
Decrease in demand	Leftward shift: Demand curve	Price decreases	Quantity decreases
Increase in supply	Rightward shift: Supply curve	Price decreases	Quantity increases
Decrease in supply	Leftward shift: Supply curve	Price increases	Quantity decreases

What we can read from this table is that if:

- price increases and quantity increases, then the cause is an increase in demand
- price decreases and quantity decreases, then the cause is a decrease in demand
- price decreases and quantity increases, then the cause is an increase in supply
- price increases and quantity decreases, then the cause is a decrease in supply

ACTIVITY 11

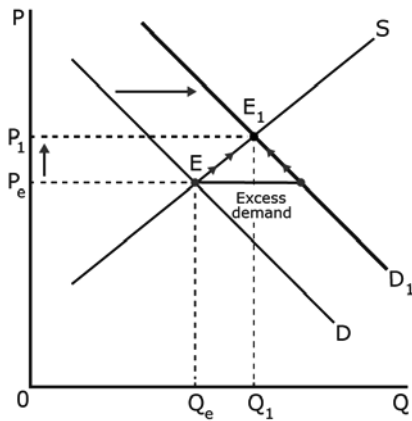
The statements below indicate the end result of an event on a market. You must indicate whether this result is caused by an increase in demand, a decrease in demand, an increase in supply, or a decrease in supply.

- The equilibrium price increases and the equilibrium quantity increases.
- The equilibrium price increases and the equilibrium quantity decreases.
- The equilibrium price decreases and the equilibrium quantity increases.
- The equilibrium price decreases and the equilibrium quantity decreases.

Simultaneous changes in demand and supply

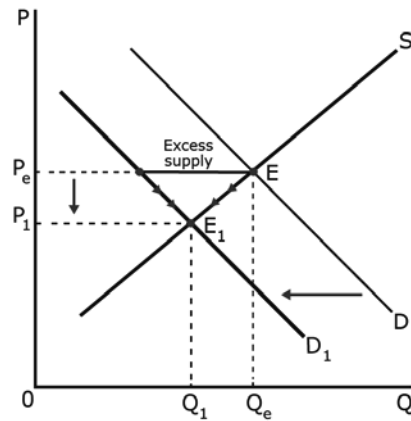
We saw in the previous section that when either demand or supply changes, it is possible to predict the impact this will have on the equilibrium price and equilibrium quantity.

We know that an increase in demand will increase the equilibrium price and equilibrium quantity, while a decrease in demand will decrease the equilibrium price and equilibrium quantity.



↑Demand → $Q_d > Q_s$ (excess demand) →

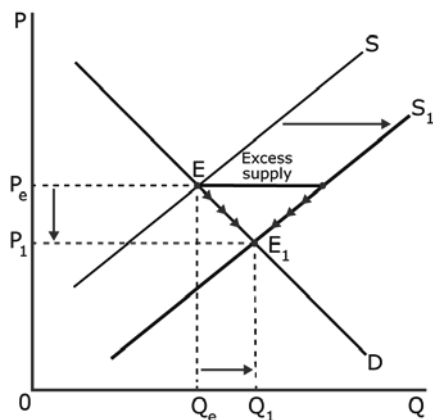
↑P and ↑Q



↓Demand → $Q_d < Q_s$ (excess supply) →

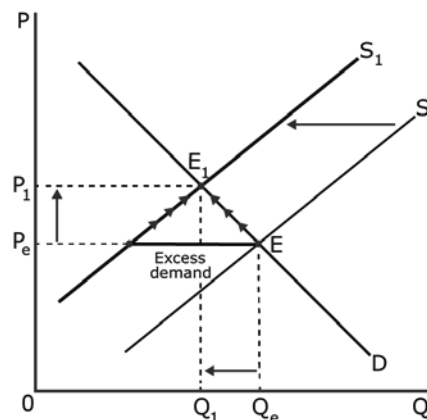
↓P and ↓Q

We also know that an increase in supply will decrease the equilibrium price and increase the equilibrium quantity, while a decrease in supply will increase the equilibrium price and decrease the equilibrium quantity.



↑Supply → $Q_d < Q_s$ (excess supply) →

↓P and ↑Q



↓Supply → $Q_d > Q_s$ (excess demand) →

↑P and ↓Q

However, when demand and supply change simultaneously, things are not that straightforward, and to predict whether the equilibrium price and the equilibrium quantity rise or fall in such cases, we need to know the magnitude of changes in both demand and supply.

We will now discuss the following four possible scenarios:

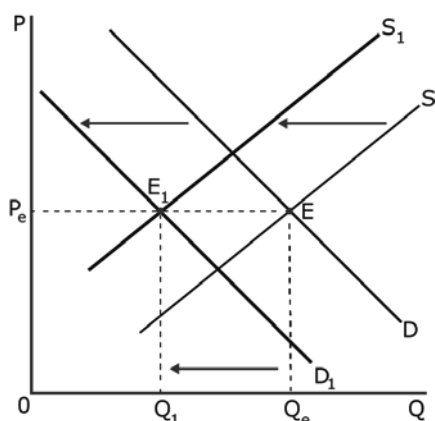
- a decrease in demand and a decrease in supply
- a decrease in demand and an increase in supply
- an increase in demand and an increase in supply
- an increase in demand and a decrease in supply

Simultaneous decrease in demand and supply

After you have worked through this section of the learning unit, you should be able to:

- use a market diagram to illustrate and explain the likely impact of a decrease in demand and decrease in supply on the equilibrium price and quantity

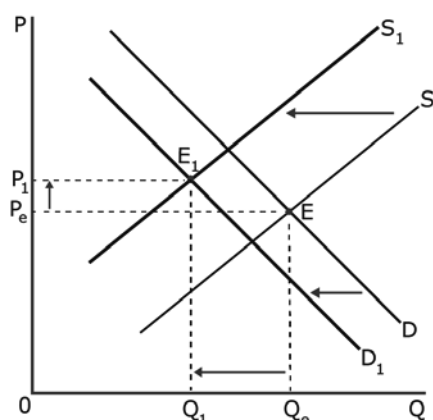
We know from our previous analysis that a decrease in demand and a decrease in supply will both decrease the quantity. A simultaneous decrease in both demand and supply will therefore decrease the quantity, as demonstrated in the next diagram. As D decreases to D_1 and S decreases to S_1 , the equilibrium quantity declines from Q_e to Q_1 .



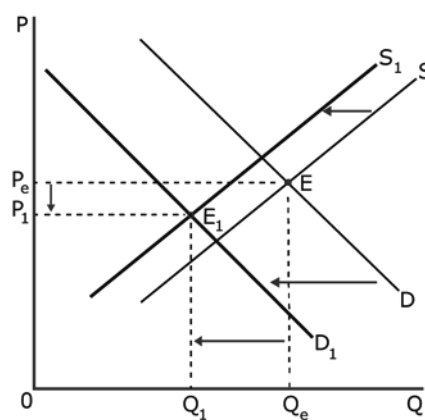
A decrease in demand and supply

However, what we cannot predict is what happens to the price. In the above diagram, the price is unchanged since the relative shift of the demand and supply curve is the same. They shifted by the same magnitude.

In the next two diagrams, the price either increases or decreases, depending on the relative shifts of the demand and supply curves.



A decrease in demand and an increase in supply decreases quantity and increases price



A decrease in demand and an increase in supply decreases quantity and decreases price

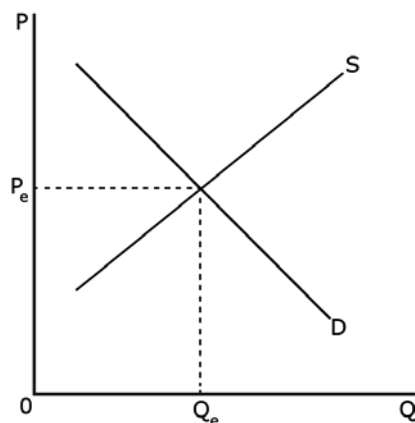
In the figure on the left, the price increases from P_e to P_1 . This is because the relative shift of the supply curve was greater than that of the demand curve. The impact of a decrease in the supply, which increases the price, is greater than the impact of a decrease in demand, which decreases the price. The net effect is an increase in the price.

However, in the figure on the right, the price decreases from P_e to P_1 . This is because the relative shift of the demand curve is now greater than that of the supply curve. The impact of a decrease in the demand, which decreases the price, is greater than the impact of a decrease in supply, which increases the price, and the net effect is a decrease in the price.

ACTIVITY 12

12.1 During 1999, Mr Chang, an entrepreneur living in Hong Kong, saw an opportunity to make a profit by supplying chickens to the market in Hong Kong. He argued that the slaughtering of millions of chickens in Hong Kong because of bird flu was causing a shortage of chickens. By importing chickens from Japan he believed that he would be able to make a profit by selling them in Hong Kong where the shortage of chickens would cause the price of chickens to increase.

The following diagram represents the market for chickens before bird flu and the slaughtering of millions of chickens in Hong Kong:

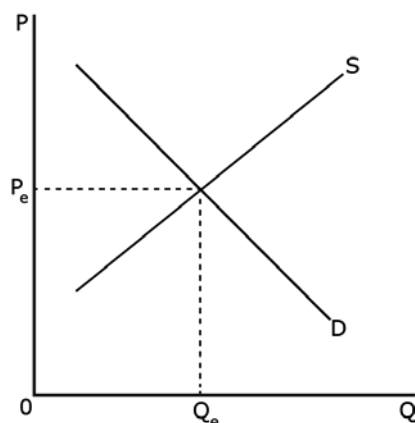


Use this diagram to explain what the possible impact of the slaughtering of chickens would be on the market for chickens in Hong Kong.

- a. There would be a change in a (demand factor; supply factor).
- b. There would be a(n) (decrease in demand; increase in demand; increase in supply; decrease in supply).
- c. The (demand curve; supply curve) would shift to the (right; left).
- d. An (excess demand; excess supply) would be created.
- e. The equilibrium price would (increase; decrease) and the equilibrium quantity would (increase; decrease).

12.2 Unfortunately for Mr Chang, he did not make a profit because at the same time as chickens were being slaughtered, households' preference and taste for chickens declined drastically and the price for chickens declined.

The following diagram represents the market for chickens before bird flu and the slaughtering of millions of chickens in Hong Kong:



Use the diagram to explain why Mr Chang did not make a profit by importing chickens from Japan and selling them in Hong Kong. For some questions, more than one choice may be correct.

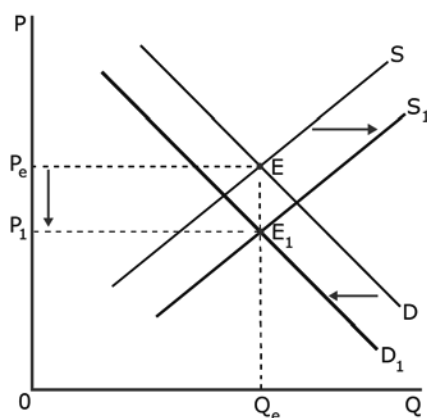
- There is a change in a (demand factor; supply factor).
- There is a(n) (decrease in demand; increase in demand; increase in supply; decrease in supply).
- The supply curve shifts to the (right; left).
- The demand curve shifts to the (right; left).
- The demand curve shifts (more; less) than the supply curve.
- The equilibrium price (increases; decreases) and the equilibrium quantity (increases; decreases).

Simultaneous decrease in demand and increase in supply

After you have worked through this section of the learning unit, you should be able to:

- use a market diagram to illustrate and explain the likely impact of a decrease in demand and increase in supply on the equilibrium price and quantity

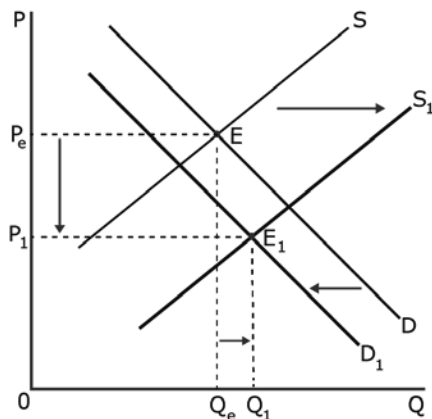
We know from our previous analysis that a decrease in demand and an increase in supply will both decrease the price. A simultaneous decrease in demand and an increase in supply will therefore reduce the price, as demonstrated in the following diagram. As D decreases to D_1 and S increases to S_1 , the equilibrium quantity price decreases from P_e to P_1 .



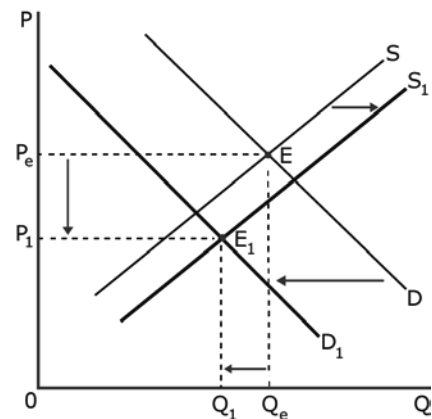
A decrease in demand and an increase in supply

However, what we cannot predict is what happens to the quantity. In the above diagram, the quantity remains unchanged since the relative shift of the demand and supply curve is the same. They are both shifted by the same magnitude and the quantity therefore remains unchanged.

In the following two diagrams, the quantity either increases or decreases, depending on the relative shifts of the demand and supply curves:



A decrease in demand and an increase in supply decrease the price and increase the quantity



A decrease in demand and an increase in supply decrease the price and decrease the quantity

In figure on the left, the quantity increases from Q_e to Q_1 . This is because the relative shift of the supply curve was greater than that of the demand curve. The impact of an increase in the supply, which increases the quantity, is greater than the impact of a decrease in demand, which decreases the quantity. The net effect is an increase in the quantity.

However, in figure on the right, the quantity decreases from Q_e to Q_1 . This is because the relative shift of the demand curve is now greater than that of the supply curve. The impact of a decrease in the demand, which decreases the quantity, is greater than the impact of an increase in supply, which increases the quantity. The net effect is a decrease in the quantity.

ACTIVITY 13

During 2015, the demand for oil declined, while the supply of oil increased. This resulted in a decrease in the price of oil. Under which one of the following conditions would the equilibrium quantity have declined as well?

- If the decrease in demand for oil had been smaller than the increase in the supply of oil
- If the decrease in demand for oil had been greater than the increase in the supply of oil

Simultaneous increase in demand and supply

After you have worked through this section of the learning unit, you should be able to:

- use a market diagram to illustrate and explain the likely impact of an increase in demand and an increase in supply on the equilibrium price and quantity

Work through the following activity to see what happens to the equilibrium price and equilibrium quantity if both the demand and supply increase:

Cape Town is a very popular tourist destination. If you look at the demand and supply for accommodation, you will notice that both have increased over the years and that there was an increase in the price for accommodation as well as the quantity of accommodation.

Complete the following statement by selecting all the true options:

An increase in demand for accommodation in Cape Town ...

- ☐ increases the quantity demanded
- ☐ decreases the quantity demanded
- ☐ increases the price
- ☐ decreases the price

An increase in demand for accommodation increases the price and quantity. In terms of the demand and supply curves it shifts the demand curve to the right.

Complete the following statement by selecting all the true options:

An increase in supply for accommodation in Cape Town ...

- ☐ increases the quantity supplied
- ☐ decreases the quantity supplied
- ☐ increases the price
- ☐ decreases the price

An increase in the supply of accommodation decreases the price and increases the quantity. In terms of demand and supply curves it shifts the supply curve to the right.

Is the following statement true or false?

The increase in the quantity of accommodation can be explained by the increase in both demand and supply.

- ☐ True
- ☐ False

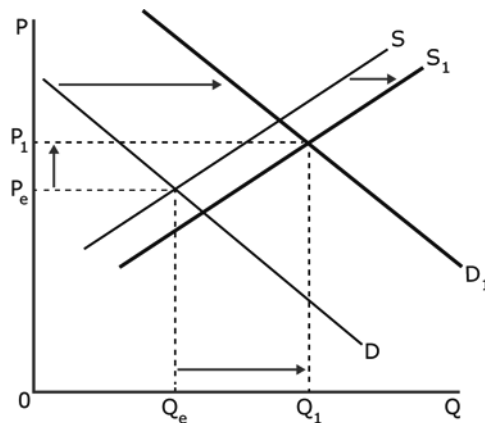
An increase in demand and supply definitely increases the quantity.

While an increase in demand and an increase in supply definitely increase the quantity of accommodation in Cape Town the impact on price is however uncertain.

Given that the price of accommodation has increased in Cape Town we can conclude that ...

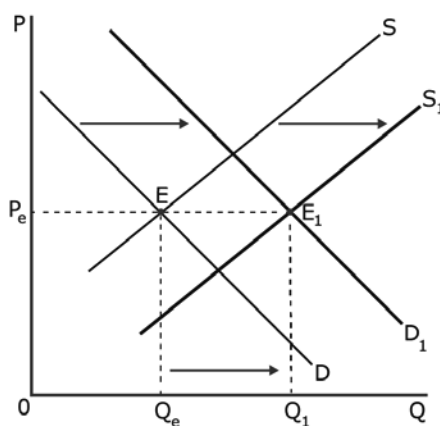
- ☐ the demand curve shifts by a greater magnitude than the supply curve
- ☐ the demand curve shifts by a smaller magnitude than the supply curve
- ☐ the demand curve shifts by the same magnitude than the supply curve

For the price to increase, the shift of the demand curve needs to be more than the shift of the supply curve as indicated in the following diagram.



Thus, using demand and supply analysis, the explanation for the increase in price for accommodation and quantity of accommodation in Cape Town is that the increased in demand outstripped the increase in supply.

But what if the quantity of accommodation has increased but the price has stayed the same? For this to happen, the demand curve must shift by the same magnitude as the supply curve as indicated in the following diagram:

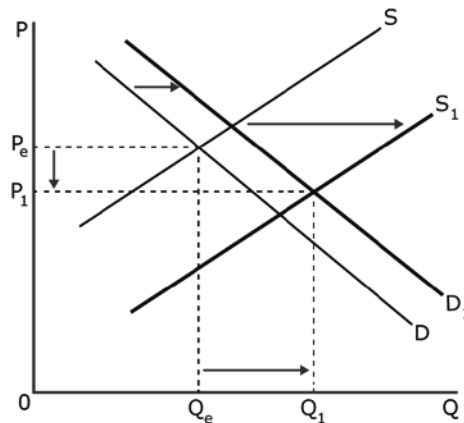


But what if there were a decrease in the price of accommodation in Cape Town?

Which one of the following would bring about a decrease in the price of accommodation in Cape Town if both demand and supply increase?

- ☐ If the demand curve shifts by a greater magnitude than the supply curve
- ☐ If the demand curve shifts by a smaller magnitude than the supply curve
- ☐ If the demand curve shifts by the same magnitude than the supply curve

For a simultaneous increase in demand and supply to decrease the price it requires the magnitude of the rightward shift of the demand curve to be smaller than the rightwards shift of the supply curve.



ACTIVITY 14

- 14.1 During the summer months, the demand for ice cream increases. What happens to the market for ice cream during the summer?
- There is (a rightward shift; a leftward shift; no shift) of the demand curve.
 - The equilibrium price (increases; decreases; stays the same).
 - The equilibrium quantity (increases; decreases; stays the same).
- 14.2 Owing to the opening of a new ice cream factory, the supply of ice cream increases. What happens to the market for ice cream during the summer given the new ice cream factory? For some questions, more than one choice may be correct.
- There is a(n) (decrease in demand; increase in demand; increase in supply; decrease in supply).
 - The supply curve shifts to the (right; left).
 - The demand curve shifts to the (right; left).
 - The equilibrium quantity (increases; decreases).
 - The equilibrium price (increases; decreases) if the demand curve shifts more than the supply curve.
 - The equilibrium price (increases; decreases) if the demand curve shifts less than the supply curve.

Simultaneous increase in demand and decrease in supply

After you have worked through this section of the learning unit, you should be able to:

- use a market diagram to illustrate and explain the likely impact of an increase in demand and decrease in supply on the equilibrium price and quantity

Do the activity below to see if you can explain what happens to the equilibrium price and equilibrium quantity if demand increases and supply decreases. Before you attempt this activity, make sure you know what happens to the price and quantity if demand increases or supply decreases.

ACTIVITY 15

A crop failure causes the supply of coffee to decline, while at the same time, the demand for coffee increases. What impact would these events have on the market for coffee?

- a. There would be a(n) (decrease in demand, increase in demand, increase in supply, decrease in supply).
- b. The supply curve would shift to the (right, left).
- c. The demand curve would shift to the (right, left).
- d. The equilibrium price would (increase, decrease).
- e. The equilibrium quantity would (increase, decrease) if the demand curve were to shift more than the supply curve.
- f. The equilibrium quantity would (increase, decrease) if the demand curve were to shift less than the supply curve.

ANSWERS TO THE ACTIVITIES

Activity 1

1.1 b.

A rightward shift of the demand curve is caused by an increase in demand.

1.2 b and f.

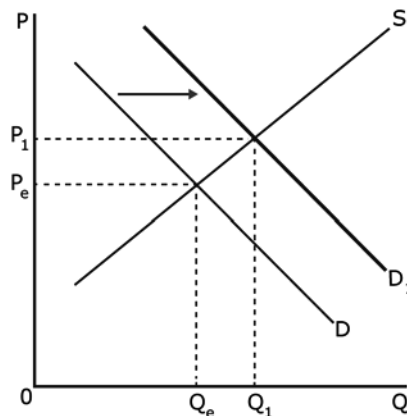
The rightward shift could be the result of any factor that increases the demand. In this case, both an increase in the number of households *and* an increase in the taste and preference for the product would increase the demand for it.

Activity 2

2.1

- a. There is a rightward shift of the demand curve.
- b. There is no shift of the supply curve.
- c. The equilibrium price increases.
- d. The equilibrium quantity increases.

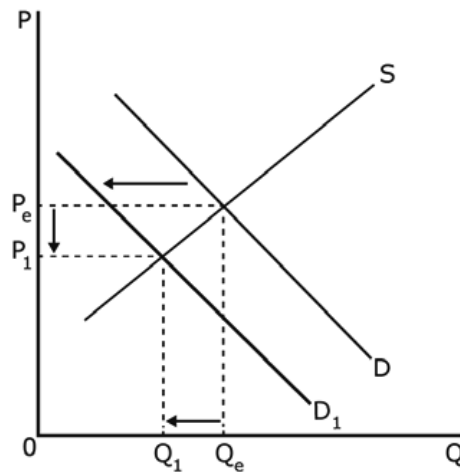
An increase in income increases demand, and the demand curve shifts to the right. The impact of this is that both the equilibrium price and the equilibrium quantity increase.



2.2

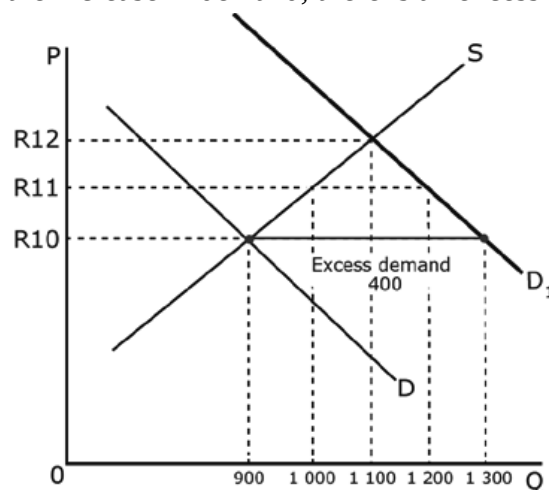
- a. There is a leftward shift of the demand curve.
- b. There is no shift of the supply curve.
- c. The equilibrium price decreases.
- d. The equilibrium quantity decreases.

A decrease in taste and preferences decreases demand, and the demand curve shifts to the left. The impact of this is that the equilibrium price decreases and the equilibrium quantity decreases.



Activity 3

- Before the increase in demand, the equilibrium price is R10 and the equilibrium quantity is 900.
- Owing to an increase in demand, the demand curve shifts from D to D_1 . At a price of R10, after the increase in demand, the quantity demanded is 1 300 and the quantity supplied is 900.
- At a price of R10, after the increase in demand, there is an excess demand.



Activity 4

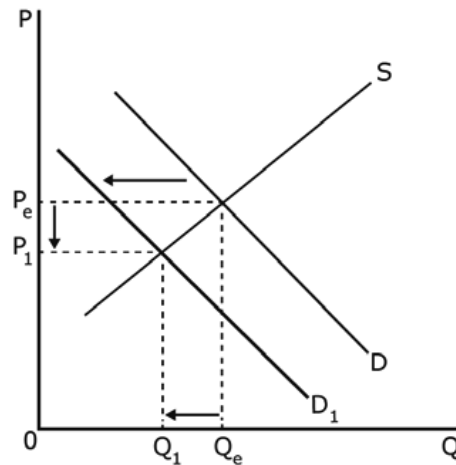
4.1

- An excess demand at a price such as R10 will lead to an increase in the price.
- At a price such as R11, the quantity supplied is 1 000 and the quantity demanded is 1 200 and an excess demand exists at this price.
- As long as an excess demand exists, the price will increase.
- A new equilibrium position is formed after the increase in demand at an equilibrium price of R12 and an equilibrium quantity of 1 100.

4.2 The correct sequence is $\uparrow \text{Demand} \rightarrow Q_d > Q_s$ (excess demand) $\rightarrow \uparrow P$ and $\uparrow Q$

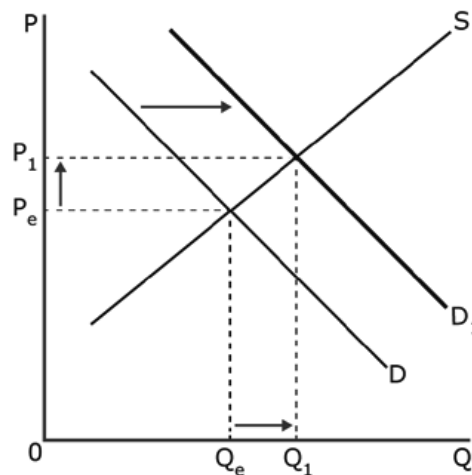
Activity 5

- a. This is a change in a demand factor.
- b. This is a decrease in demand.
- c. The demand curve will shift to the left.
- d. An excess supply is created.
- e. The price will decrease.
- f. The process continues until a new equilibrium is reached where both the equilibrium price and the equilibrium quantity are lower.



Activity 6

The demand has increased. An increase in demand leads to an increase in price and an increase in the quantity demanded.



Activity 7

- 7.1 a.
A rightward shift is caused by an increase in supply.

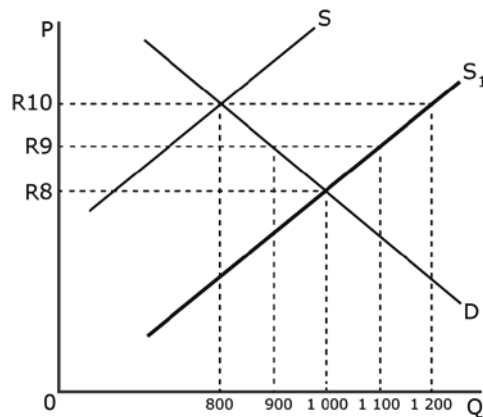
- 7.2 a, e and g.

The rightward shift could be the result of any factor that increases the supply. In this case, an increase in the number of suppliers, a decrease in the cost of production and an improvement in technology would increase the supply.

Activity 8

8.1

- a. The demand curve does not shift.
- b. There is a **rightward shift** of the supply curve.
- c. The equilibrium price decreases.
- d. The equilibrium quantity **increases**.



8.2

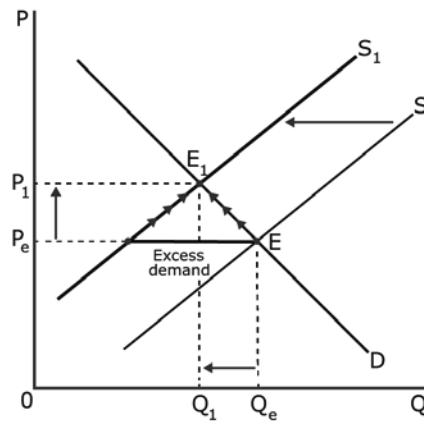
- a. Before the increase in supply, the equilibrium price was R10 and the equilibrium quantity was 800.
- b. Owing to an increase in supply, the supply curve shifts from S to S₁. At a price of R10, after the increase in supply, the quantity demanded is 800 and the quantity supplied is 1 200.
- c. At a price of R10, after the increase in supply, there is an excess supply.
- d. An excess supply at a price of R10 will lead to a decrease in the price.
- e. At a price such as R9, the quantity demanded is 900 and the quantity supplied is 1 100, and there is an excess supply at this price.
- f. As long as there is an excess supply, the price will decrease.
- g. A new equilibrium position is formed after the increase in supply at an equilibrium price of R8 and an equilibrium quantity of 1 000.

8.3 The correct sequence is $\uparrow \text{Supply} \rightarrow Q_d < Q_s$ (excess supply) $\rightarrow \downarrow P$ and $\uparrow Q$

Activity 9

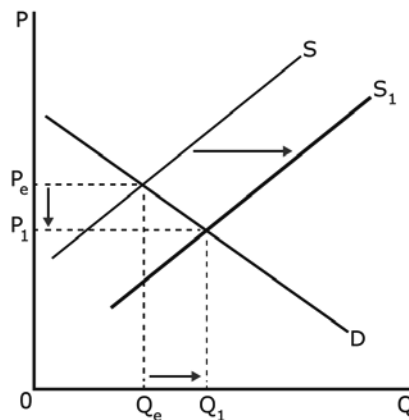
- a. This is a change in a supply factor.
- b. This is a decrease in supply.
- c. The supply curve shifts to the left.
- d. An excess demand is created.
- e. The price increases.
- f. The change in price decreases the quantity demanded and increases the quantity supplied, and the excess demand decreases.

- g. The process will continue until a new equilibrium is reached where the price will be higher and the quantity lower.



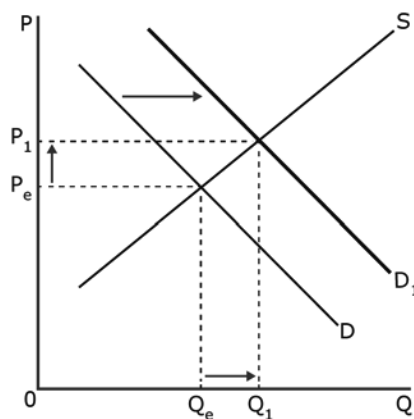
Activity 10

The supply has increased. An increase in supply decreases the equilibrium price and increases the equilibrium quantity.

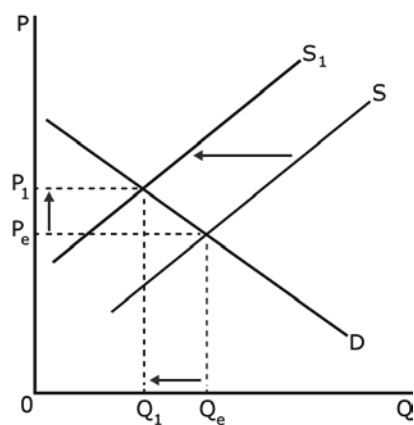


Activity 11

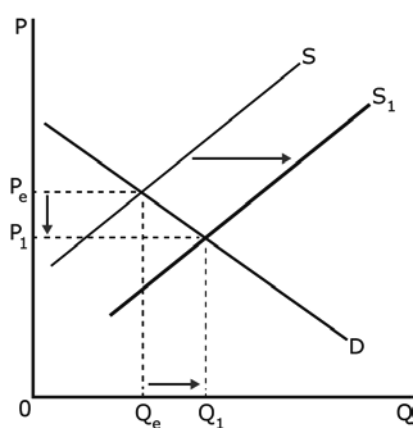
- a. An increase in demand



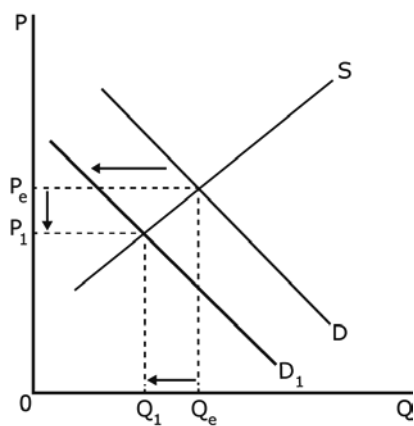
b. A decrease in supply



c. An increase in supply



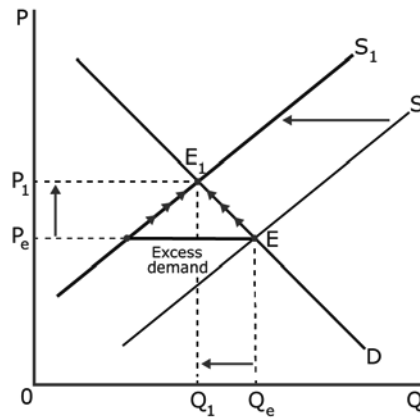
d. A decrease in demand



Activity 12

12.1

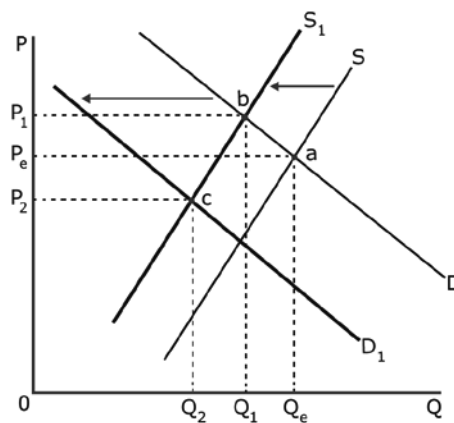
- There would be a change in a supply factor.
- There would be a decrease in supply.
- The supply curve would shift to the left.
- An excess demand would be created.
- The equilibrium price would increase and the equilibrium quantity would decrease.



12.2

- There is a change in a demand factor and a supply factor.
- There is a decrease in demand and a decrease in supply.
- The supply curve shifts to the left.
- The demand curve shifts to the left.
- The demand curve shifts more than the supply curve.
- The equilibrium price decreases and the equilibrium quantity decreases.

If the demand curve had shifted less than the supply curve, the equilibrium price would have increased and Mr Chang would have made a profit.



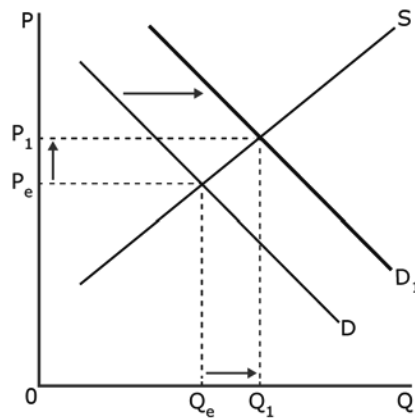
Activity 13

- If the decrease in demand for oil had been greater than the increase in the supply of oil, the equilibrium quantity would have declined.

Activity 14

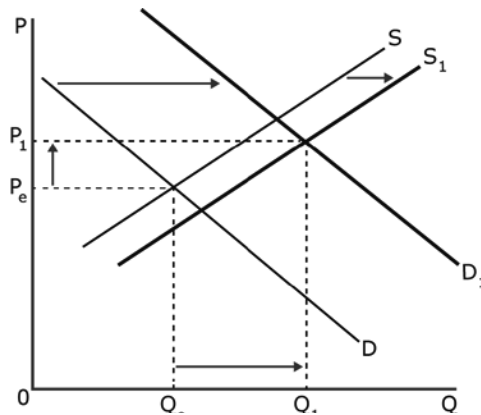
14.1

- There is a rightward shift of the demand curve.
- The equilibrium price increases.
- The equilibrium quantity increases.

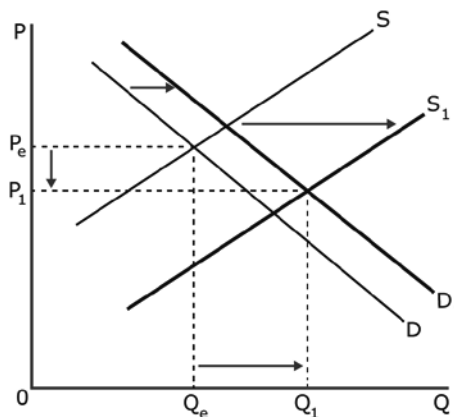


14.2

- There is an increase in demand and an increase in supply.
- The supply curve shifts to the right.
- The demand curve shifts to the right.
- The equilibrium quantity increases.
- The equilibrium price increases if the demand curve shifts more than the supply curve.

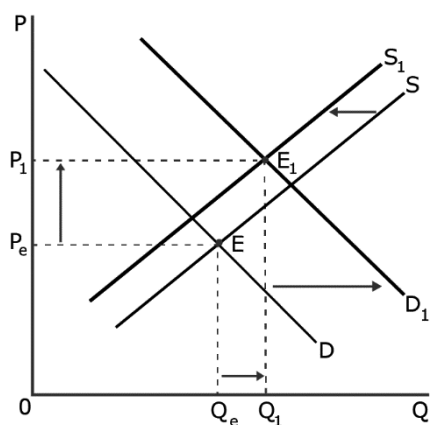


- The equilibrium price decreases if the demand curve shifts less than the supply curve.

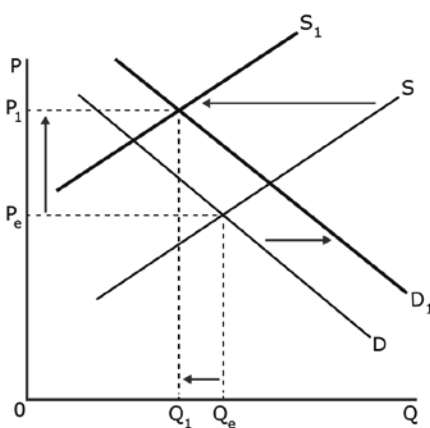


Activity 15

- There would be an increase in demand and a decrease in supply.
- The supply curve would shift to the left.
- The demand curve would shift to the right.
- The equilibrium price would increase.
- The equilibrium quantity would increase if the demand curve were to shift more than the supply curve.



- The equilibrium quantity would **decrease** if the demand curve were to shift less than the supply curve.



CHECKLIST

	Well	Satisfactory	Must redo
Concepts			
I am able to			
identify non-price factors that influence demand			
identify non-price factors that influence supply			
Diagrams			
I am able to			
(i) show on a diagram			
(ii) explain with or without the aid of a diagram			
the impact of a change in a non-price demand factor on the equilibrium price and equilibrium quantity			
the adjustment process to equilibrium in a market if demand changes			
the impact on the market if the price of a substitute changes			
the impact of a change in a non-price supply factor on the equilibrium price and equilibrium quantity			
the adjustment process to equilibrium in a market if supply changes			
the impact of a decrease in demand and a decrease in supply on the equilibrium price and quantity			
the impact of a decrease in demand and an increase in supply on the equilibrium price and quantity			
the impact of an increase in demand and an increase in supply on the equilibrium price and quantity			
the impact of an increase in demand and a decrease in supply on the equilibrium price and quantity			