

Economics as a social science

The social nature of economics

A social science is one that studies people and how they interact with each other. Social sciences study our institutions, our organisations and our relationship with both the society we inhabit and our natural environment.

Economics is a social science that studies how human beings use their limited resources to satisfy their infinite needs and wants and how they improve their economic well-being. People cannot have everything they desire, and that is where economics comes in.

You will find that economics has a lot in common with other social sciences, like sociology, psychology, history and anthropology. It is 'social' because it deals with human society, interdependence and behaviour; it is a 'science' because it uses a scientific method to explain economic events and to try to predict economic outcomes likely to occur in the future.

The scientific method is used in other sciences, and consists of making conclusions and creating knowledge through the observation, analysis and testing of data from the world around us.

Economists propose a hypothesis about how certain variables relate to each other. They will then observe a group of data to find patterns, and then compare the predictions of their hypothesis with the real-world outcomes, to see if they can make a generalised conclusion.

Subjectivity

One fundamental characteristic of social sciences is that there are no absolute answers. There are many unknown variables and human behaviour is very difficult to predict. There is a lot of uncertainty in economic life in comparison to natural sciences or mathematics, where you can measure variables accurately in order to assess the outcome of an experiment.

The problem with social sciences is that they deal with human behaviour. Humans are unique and do not always behave in a consistent manner.

Social scientists themselves are human and therefore they are part of the experiment that they are studying. Many economic issues are a matter of opinion, and many times there are ambiguous answers or multiple possible answers to an economic problem.

Often one solution to a problem is considered better than another, depending on the 'glasses' you are using to look at it.

Let's do the following experiment:

Look at image (b) in **Figure 1**. (Click on the image to make it bigger.)

First look at it while covering image (c) with your hand. Do it again, but now cover image (a) with your hand.

Is image (b) a seagull or a rabbit?

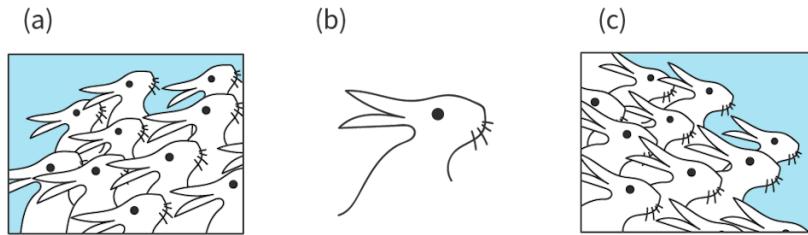


Figure 1. Seagull or rabbit?

When (c) is covered up, most people think (b) is a seagull. But when (a) is covered, most will see a rabbit. A similar thing happens in economics: the same facts may tell different stories to different observers who wear different theoretical glasses or look at the facts in different contexts.

Important

Social sciences, and hence economics, deal with a lot of subjectivity. This is why **critical thinking** and the development of the **skill of evaluation** are so important.

Microeconomics and macroeconomics

The study of economics is usually divided into two branches: microeconomics and macroeconomics. Together they form the basis of the discipline.

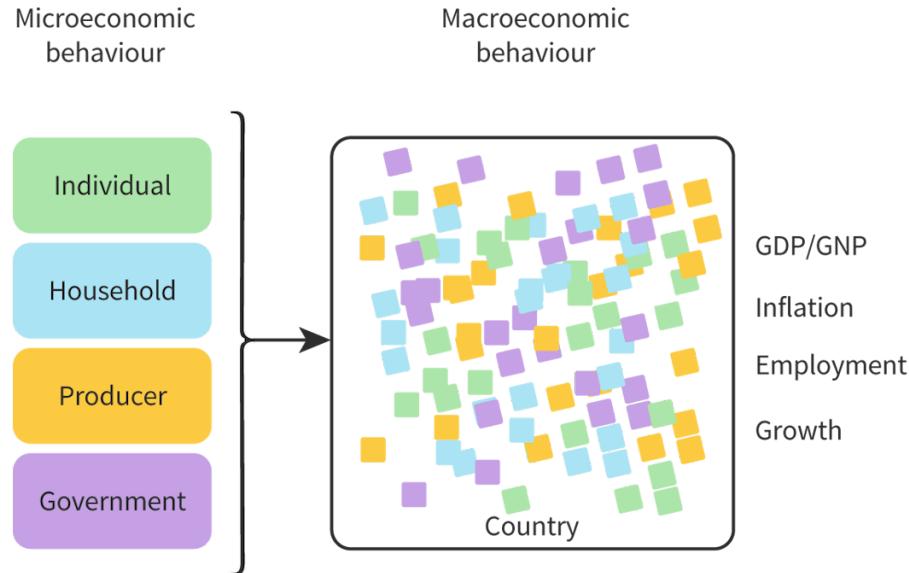


Figure 2. Comparing microeconomics and macroeconomics.

ⓘ More information for figure 2

Microeconomics studies the behaviour of individual economic agents, such as households, firms, industries and the government, and how they make economic decisions.

Microeconomics deals with how consumers decide which goods and services to purchase (and how many of them), based on their preferences and their incomes. How do people make choices and what factors determine these choices?

Everyday examples would be questions like: Why do some people change to another brand of soft drink even if the one they usually buy has become relatively cheap? Why do some people decide to stop consuming goods that are harmful to the environment? Why do some people keep on consuming goods that are unhealthy for them?

With respect to firms, microeconomics deals with the factors that affect producers' decisions. It explores how firms decide what to produce and what combination of resources to use given the technology they have, in order to make a higher profit.

For example, why is it that adding more workers in the kitchen of a restaurant increases the amount of hamburgers that it can produce per meal, but at a certain point, one more extra worker will actually lower the quantity produced?

Why would a water ski producer decide to produce fewer water skis and try selling wakeboards instead? Why is the price of food more expensive in places where there is no arable land?

This area of the discipline studies the functioning of specific markets and the outcomes resulting from the behaviour of consumers and producers interacting together. It also considers why government intervention is needed in certain cases.

On the other hand, macroeconomics studies the economy as a whole, focusing on the 'aggregates' of the economy and on countries' fundamental economic goals. Instead of individual economic agents, it deals with the production of all goods and services in an economy at a certain moment in time, and the total expenditure on goods and services demanded by different groups of consumers.

Macroeconomics explores how governments try to achieve their economic goals and how effective their policies are. For example, it looks at how to generate economic growth and low unemployment while having a low and stable rate of inflation. It also looks at how to make economies grow while protecting the environment to ensure that this growth is sustainable. It considers how to reduce poverty and create a more equitable distribution of income to improve people's standard of living.

Be aware

No matter whether we are talking about a specific firm, a certain industry, an individual consumer or a whole country, both micro- and macroeconomics deal with the problem of scarcity and the choices that every actor is forced to face to satisfy its needs and improve its economic well-being.

The nine central concepts

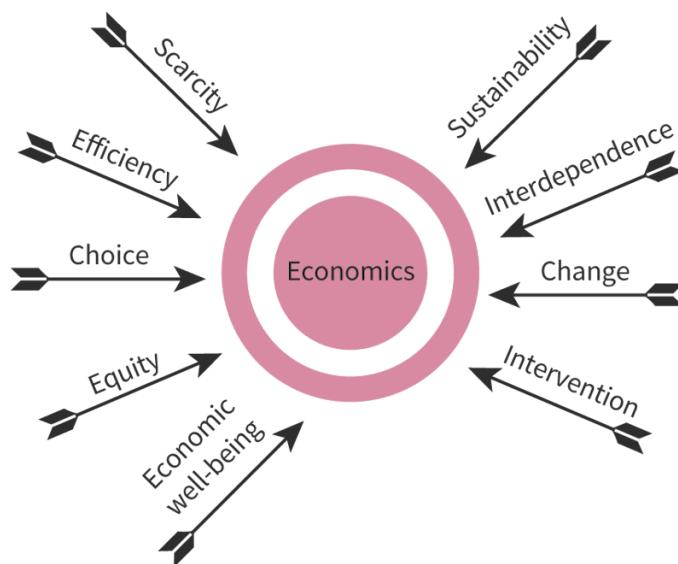


Figure 3. The nine central concepts of economics.

ⓘ More information for figure 3

Throughout this subject, you will continually come across nine concepts that will be at the heart of most of the problems, real-world situations and issues which you will discuss. These concepts are integrated into the conceptual understandings of all the units of this course and will help you to make connections and understand today's complex reality from multiple perspectives.

You will gain a more in-depth understanding of them as we go on, but for now, **Table 1** gives you a short description of each concept within this IB Economics course.

Table 1. The key concepts in IB Economics.

Key concept	Meaning and connections
Scarcity	Scarcity is the starting point of economics. It refers to the fact that world's resources are finite and have to be used to produce goods and services to satisfy a society's unlimited needs and wants. Therefore economics is the study of how to allocate and use these scarce resources to fulfil the infinite human material needs and wants.
Choice	Because resources are scarce, the goods and services available to us are finite, and therefore societies are forced to choose, as not all needs and wants can be satisfied. Choice implies an opportunity cost, having to leave something behind when deciding between alternative options. Economics studies the present and future consequences produced by these choices.
Efficiency	Efficiency refers to making the best possible use of resources. From society's point of view, economic efficiency is known as allocative efficiency. Allocative efficiency refers to using the scarce resource to produce the combination of goods that is optimal for society in the most efficient way, thus minimising resource waste.
Equity	Equity has to do with being fair or just, in contrast with equality, which means being equal to others with respect to something. Equity is a normative concept. When talking about income, equality would mean that everybody in society receives exactly the same amount. Equity instead would mean that everybody has the same opportunities. In terms of equity and inequality are usually used as if they mean the same thing when applied to distribution of income, wealth and human opportunities. The extent to which governments should intervene to make a society more equitable or more equal is an issue of great debate in economics.
Economic well-being	Well-being, in general, is the state of being healthy, happy and prosperous. Commonly it includes having good mental health, high levels of satisfaction and a sense of meaning or purpose. In economics this

Key concept	Meaning and connections
	is used in a slightly different way. It refers to the quality of life and prosperity of the population, including present and future financial security, being able to meet our basic needs, being able to make economic choices and achieve personal satisfaction and the ability to sustain reasonable levels of income over time.
Sustainability	Economic sustainability is the ability of the present generation to meet its own needs without preventing future generations from meeting theirs. It refers to preventing harmful effects of economic activities on the environment. It means that societies should pursue the production of goods and services without depleting or degrading natural resources, so that future generations can continue to produce and satisfy their needs and wants too.
Change	The world is constantly changing in every possible aspect: institutions, the state of technology, society and its economy. The economy is in a permanent state of change and therefore economists should always be aware of it when analysing any situation. With reference to economic theory, economics looks at how variables are changing more than specific values suggest when investigating or assessing any issue. This is why economists calculate and compare the rates of change of relevant variables from one moment to another.
Interdependence	An economy is composed of many interdependent economic agents that interact with each other to achieve their economic goals. At a global level this is a highly interdependent economic world: consumers, firms, workers, government — all of which operate within and across national boundaries. The decisions and actions taken by each actor usually generate consequences or effects on the other actors. It is important to evaluate the possible effects of this interdependence when doing analysis in economics.
Intervention	Intervention in economics usually refers to governments interfering with the freedom of markets. This is done through policies and regulations, like taxes and subsidies. This intervention produces market outcomes different from the ones that would occur if they were left to work on their own. Markets are generally considered to be the most efficient mechanism to organise economic activity. However, sometimes they fail to produce an outcome that is optimal from society's point of view in terms of equity, sustainability or economic well-being. When this happens, government intervention might be considered a solution. The extent to which governments should or should not intervene in markets and in the economy is an issue of debate in economics. Both policymakers and economists often disagree about the need for, and benefits of, a free market versus government intervention.

Activity

Choose three of the key concepts described in **Table 1** and create an illustration of your own to explain the relationship or connections that you can find between them. The image can be a mind map, a cartoon, a flow chart or any other drawing that you think is suitable.

For example, can you connect:

- scarcity, economic well-being and sustainability?
- sustainability, intervention and efficiency?
- scarcity, choice and interdependence?

If you try, you will probably be able to connect them all.

Then share and discuss with your peers.

In the following sections we will look in more depth at these concepts. You will gain a deeper understanding of how they are at the heart of economic theory and how they interconnect with each other.

The problem of choice

Scarcity



Figure 1. The economic problem.

Scarcity is the fundamental economic problem faced by every society. People's needs and wants are unlimited, but it is not possible to produce all the goods and services to fulfil them, because the resources available are limited. Therefore, societies are forced to choose what it is they need or desire most.

Goods are physical objects (tangible things) like cars, bread or mobile phones.

Services are intangible, such as haircuts, gardening services or motorcycle repairs.

Humans tend to want and need more and more of both goods and services.

Resources are all the inputs used to produce these goods and services. These inputs include machines, workers, factories, materials that come from the land and the space needed for manufacturing or offices. They are also called factors of production.

Therefore, scarcity is the term used to describe the fact that the available resources or factors of production are finite, whilst human wants and needs are infinite. There are not enough resources to produce everything to satisfy human beings' needs and wants completely .

Factors of production

Economists group factors of production into four categories:

- Land: This includes the land itself, everything that is under and above the land and everything that is found in and under the sea. Therefore, this category encompasses all natural resources, such as minerals, oil reserves, natural gas, forests, rivers and lakes.
- Labour: This is the human factor needed for production. It includes the physical and mental effort that people contribute to the production of goods and services. Examples include a construction worker, as shown in **Figure 2**, a teacher, and a carpenter.



Figure 2. Construction workers.

Don Mason Photography LLC Getty Images

- Capital: This is the physical capital stock used to produce goods and services. It includes all manufactured (human-made) resources, such as machines, factories, roads and tools. Physical capital is also referred to as capital goods or investment goods.
- Entrepreneurship: This is a special human skill, possessed by some people, involving the ability to develop new businesses by organising the other three factors of production – land, labour and capital – to produce goods and services, and taking the risks of success or failure of the business, as profit is not guaranteed and investment may be lost.



Figure 3. All factors working together.

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Opportunity cost

As people cannot have everything they need and want, they must make **choices**. Resource scarcity forces society to make a choice between available alternatives. For example, a government might need to choose between spending on defence or on agriculture. More spending on defence means that there is less money available to spend on agriculture.

Economics is, therefore, a study of choices and leads to one central issue in our discipline: opportunity cost.

For example, if you have \$100 to spend on Friday night and you choose to go out for dinner instead of going to the theatre, the opportunity cost of the dinner is the theatre. Put simply, it is what you give up in order to have something else. It is never expressed in monetary terms.

Opportunity cost is the 'next best' alternative that is given up when an economic decision is made.

Goods that are produced with scarce resources, and therefore have an opportunity cost, are called economic goods. Most goods and services are economic goods. If, for example, resources are used to produce a car then these resources are no longer available to manufacture a motorbike.

In contrast, free goods are those that are not produced with scarce resources, do not have an opportunity cost, and therefore do not have a price – for example, air, sunlight and rainwater.

If resources were unlimited, there would be no need to choose, no sacrifices would be necessary, and the opportunity cost of producing anything would be zero.

The three basic economic questions

When societies are forced to choose and solve their scarcity problem, they need to answer three basic economic questions to satisfy their population's needs and wants:

- What to produce?
- How to produce?
- For whom to produce?

What to produce?

The question of what to produce? has to do with the choice of which goods and services are going to be produced with the scarce resources that are available.

For example, are we going to use all the available land to grow crops or is some of it going to be used to build a factory to produce shoes? Is all the labour going to be dedicated to the production of baked goods or are some labourers going to work on the construction of new houses? These questions illustrate the dilemma of deciding what to produce with the resources we have.

How to produce?

The question of how to produce? has to do with the combination of resources and production methods that will be used to produce each of the chosen goods and services.

For example, if we decide to produce crops, what combination of factors of production and what technology should we use to produce them? Are we going to do intensive agriculture, using fertilisers and high-end sower and harvester machines (more capital per field of land) and only few workers, or are we going to use extensive agriculture methods and grow crops in a more traditional way using less capital and more workers to plough, plant and harvest?

For whom to produce?

The question for whom to produce? has to do with the distribution of the goods and services that the society is going to produce. Because of scarcity, not everyone's wants can be satisfied. Who is going to get to consume the goods and services produced?

For example, which goods are going to be consumed only by those who can pay for them? Which ones are going to be provided by the government so that everybody can have access to basic necessities or merit goods like education and healthcare? Should everybody receive an equal share of the goods and services produced?

Means of answering the economic questions

Market versus government intervention

As explained previously in this subtopic, everyone tends to agree that some government intervention in markets is necessary. However, economists disagree on how much governments should intervene and in what way. This historical debate between economists has resulted in an important divide in economics between two important schools of thought.

On one side of the debate is a group of economists, usually called classical, market-based, free market or 'liberals', who argue that although markets might have imperfections, they tend to work well on their own and produce outcomes that improve the society's well-being and economic efficiency. They believe that government intervention in economic decisions often changes the allocation of resources and generates resource waste and inefficiency.

On the other side are another group of economists, usually called interventionists. They focus on the imperfections of markets and their inability to allocate resources in society's best interest. They argue that in the real world, governments play a fundamental role in preventing or correcting market failures.

Countries around the world differ enormously in the way in which they make choices and how they answer the three basic economic questions. The extent to which countries leave markets to work on their own or the extent to which government interferes in economic decisions will result in different economic systems.

Economic systems

Economic systems are ways in which societies allocate the relatively scarce resources and distribute the goods and services that are produced with them. They are a way of rationing those resources, goods and services, and are therefore also called rationing systems.

There are two theoretical economic systems: the free market economy and the centrally planned economy. The difference between them lies in the extent to which the government intervenes in economic decisions.

Table 1. Comparison of economic systems.

	Centrally planned economy	Free market economy
Summary	<ul style="list-style-type: none"> All economic decisions are made by the government. There is no private property; factors of production are state owned. 	<ul style="list-style-type: none"> Resources are privately owned by people and firms. All economic decisions are made by consumers and producers through the price mechanism.
What to produce?	<ul style="list-style-type: none"> The government decides what goods to produce, which are the ones they think the society needs. 	<ul style="list-style-type: none"> Consumers drive the market with their demand. High prices are the signal to firms what people want. Firms are profit driven and produce those goods which allow them to make the maximum profit possible.
How to produce?	<ul style="list-style-type: none"> Government planners decide how all resources are to be used and where people should work. 	<ul style="list-style-type: none"> The profit motive of firms and the changing preferences of consumers determine the allocation of resources, that is how factors of production are used. Firms will aim to produce goods as efficiently as possible to remain competitive in the market.
For whom to produce?	<ul style="list-style-type: none"> The government decides how to distribute the 	<ul style="list-style-type: none"> The ones who can pay for goods are the ones who

	Centrally planned economy	Free market economy
	<p>produced goods and services.</p> <ul style="list-style-type: none"> • Everybody works directly or indirectly for the government so they are all paid similar salaries and have the same opportunity to buy goods and services. 	<p>consume them.</p> <ul style="list-style-type: none"> • Those with the highest income have more 'votes' in the market.

Activity

Neither of the two economic systems in **Table 1** is perfect. What would happen in a society with no government? On the other hand, what happens when the government invades all areas of economic and human life?

Think of two advantages and two disadvantages for each of these hypothetical systems and fill in the following table below. The first one is done for you as an example:

	Centrally planned economy	Free market economy
Disadvantages	<p>1) There would be no freedom of choice and less personal liberty, as the government decides every aspect and makes all of the economic choices for the people.</p>	<p>1) There would be no merit goods, firms would not care about those who do not work, people would not go to school.</p>
	2)	2)
	3)	3)
Advantages	<p>1) Demerit goods like alcohol and cigarettes would be neither provided nor consumed, as the government decides on which goods and services will be produced and these decisions are not based on either consumers preferences or firms' profits.</p>	<p>1) Consumers would get better quality products from which they would be willing to pay, making high quality products more affordable.</p>
	2)	2)

	Centrally planned economy	Free market
	3)	3)

These systems are two extremes based on some assumptions that are going to be discussed further on in the syllabus.

In the real world, all economies are mixed economies, as they all have a level of government intervention combined with the free market. The only difference is the degree of the mix from country to country. In a country like China, there are high levels of central planning and government intervention in markets, while in countries like the UK, USA and Chile, there is less government intervention, but it is still essential to avoid the problems that a completely free market system might produce.

Be aware

The way in which societies answer the three basic economic questions, and then define their own economic system, has at heart the concepts of scarcity, choice and government intervention. However, in the end, the choice of which is the 'best' economic system is really a discussion about equity, well-being and efficiency. Countries have changed through time towards one system or the other, oscillating from greater to lesser levels of government intervention.

1.1 What is economics?

The production possibility curve model

Using models in economics

Models are representations of reality presented in a simplified way. Economists frequently use models to try to explain the relationships between ideas, explain theories or show the connections between variables of the real world.

Economic models are usually expressed using mathematical equations or analysis, or illustrated by the use of diagrams. As they are used to show a particular aspect of a complex reality, they focus on a selected group of variables that are relevant in each case, leaving many other factors out. Therefore assumptions have to be made about the characteristics of these variables and the important relationships between them.

Important

Assumptions are used in economic models to simplify reality and focus on the workings of a specific aspect of real-world situations. We need to be aware of the assumptions we've made when we arrive at conclusions or predict future behaviour based on these assumptions.

The production possibility curve model

The production possibility curve (PPC), also called the production possibility frontier (PPF), is a very simple model that we will use to show and explain some of the key concepts described in the previous sections. It describes the production capabilities of an economy based on its scarce resources.

The model illustrates an imaginary economy that produces only two goods. These goods are produced with a combination of the available resources that the country has, using the actual state of technology at a specific moment in time. The

maximum combinations of goods and services that the country can produce are drawn on the production possibility curve as shown on **Figure 1**.

As every society has a certain amount of resources (land, labour, capital and entrepreneurship), the PPC will determine the potential output of the country.

The assumptions behind this model can be summarised as follows.

- Each economy produces only two goods.
- The goods are produced using combinations of the available resources.
- At each moment in time the amount of resources that the country has is fixed.
- The state of technology at each moment in time is fixed.
- The points on the curve mean that all resources in the economy are fully employed.

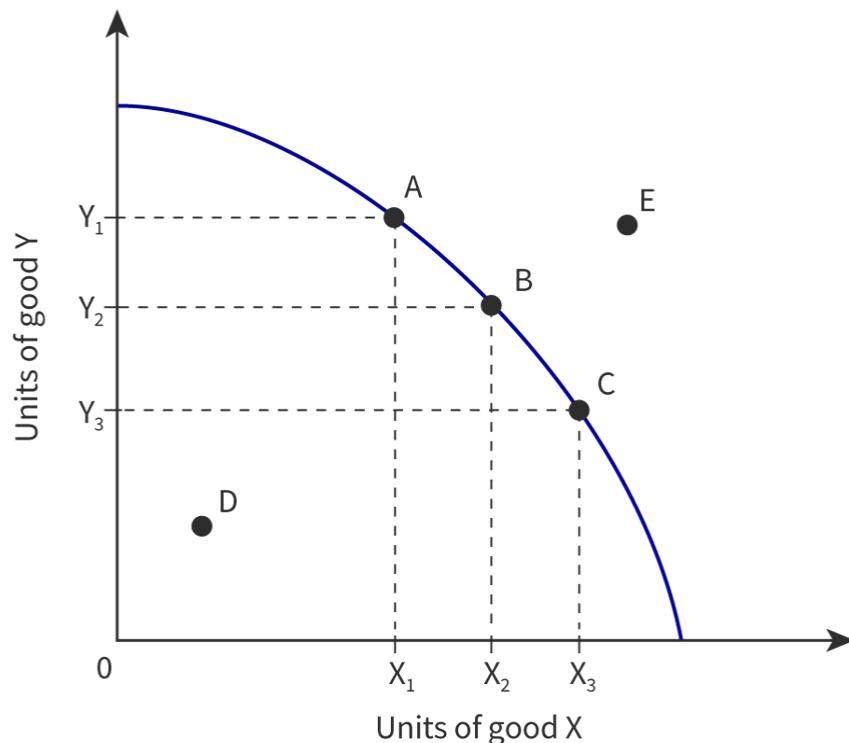


Figure 1. Production possibility frontier.

[More information for figure 1](#)

The image is a graph representing a production possibility frontier (PPF). The X-axis is labeled 'Units of good X' with points marked X_1 , X_2 , and X_3 . The Y-axis is labeled 'Units of good Y' with points marked Y_1 , Y_2 , and Y_3 . A curved line, the PPF, starts high on the Y-axis and curves downward to the X-axis. The curve is marked with points A, B, and C which represent different combinations of goods X and Y. The point D is below the curve, indicating inefficiency, while point E is above the curve, representing unattainable production levels. Dashed lines from points A, B, and C extend to the axes, indicating their respective coordinates.

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Important

The production possibility curve or frontier is the curve that shows the maximum combination of goods and services a country can produce in a specific period of time, using all of its resources and the available technology in the most efficient way.

Figure 1 represents the economy of a country that produces good X and good Y. The PPC shows, for every amount of good X produced, the corresponding maximum amount of good Y that this economy can produce, using its limited resources at their maximum capacity and with the available technology.

For example, if the economy is standing at point A, it will produce an amount X_1 of good X and an amount Y_1 of good Y. It is not possible to produce more than Y_1 units of good Y while producing X_1 of good X, because this economy does not have more resources than the ones reflected by its PPC.

Theory of Knowledge

The Production Possibilities Curve (PPC) is an example of an economic model. The PPC shows all the possible combinations of good x and good y that can be produced if all resources were fully utilized in their best use.

Economists create models such as the PPC to try and describe our complex world. Models often break down complex phenomena into a simplified world.

Read more about the assumptions ↗ (https://www.amosweb.com/cgi-bin/awb_nav.pl?&s=wpd&c=dsp&k=assumptions,+production+possibilities) underlying the PPC curve.

In the real world, countries produce tens of thousands of different types of goods, that all have different costs and prices. In the PPC model, one of the assumptions we make is that countries can only produce **two** goods. Is this a reasonable assumption?

Knowledge question: To what extent does this model help us understand the complex workings of an economy?

Efficiency and unemployment of resources

Points A, B and C on **Figure 1** are all points **on** the PPC, where there is economic efficiency and no resources are being unemployed. Any point on the PPC shows maximum potential output.

As efficiency means that resources are being used in the best possible way, it implies that all resources are being fully used, there is no waste and output is produced using the smallest possible amount of resources (productive efficiency).

Be aware

A point on the PPC is the point at which a country cannot increase the production of one good without decreasing the production of another good. This is by definition a situation of economic efficiency and recognises the fact that the resources of any country are finite and scarce.

At any point **inside** the PPC, such as point D, not all the factors of production in the economy are being used (there is unemployment of resources) or they are being used inefficiently. An economy producing goods at this point has the potential to increase production of both goods, and it is possible for them to move towards the PPC.

The point where a country is standing indicates its actual output. When the country is using all of its resources efficiently, the actual output is a point on the PPC. The greater the unemployment of resources or the less efficiently they are being used, the further away this point will be from the PPC.

Be aware

No real country in the world is actually producing on its PPC, since there will always be some unemployed factors of production at any moment in time.

Actual and potential growth

If a country is standing at point D, as shown in **Figure 2**, and moves to point G, it is considered to have achieved actual growth. The country is now producing more of good X and good Y than before, using more of its scarce resources.

Point E is an impossible, unattainable combination of goods, as it is **outside** the PPC. This is because resources are scarce and the maximum potential output is indicated by the PPC.

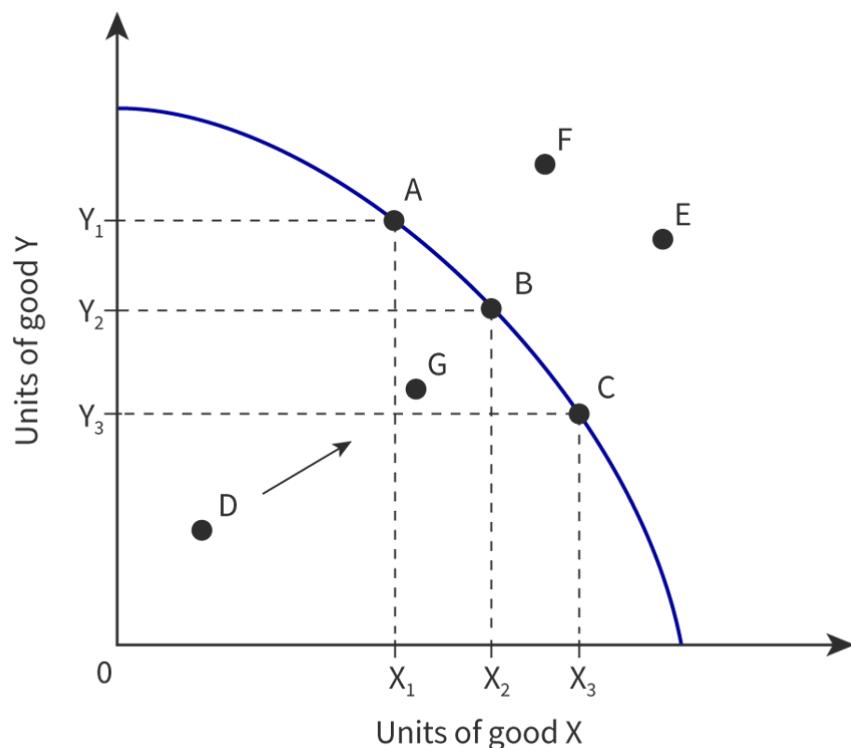


Figure 2. Production possibility frontier.

[More information for figure 2](#)

The image is a graph illustrating a Production Possibility Frontier (PPF). It has two axes: 'Units of good Y' on the vertical and 'Units of good X' on the horizontal. The graph includes a curved line representing the PPF, with points A, B, and C on this curve. Point G is inside the curve, illustrating inefficiency. Points D is inside the curve, and points E and F are outside, indicating unattainable combinations with current resources. The curve itself illustrates maximum productive efficiency. The X-axis is labeled at X_1 , X_2 , and X_3 , while the Y-axis is labeled at Y_1 , Y_2 , and Y_3 . An arrow labeled D indicates a trend towards higher efficiency.

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If a change in the economy caused an increase in the maximum amount of goods that can be produced, known as the potential output, the PPC would shift outwards, towards points E and F. This is known as potential growth.

The potential output of a country can be increased (causing the PPC to shift outwards) by one or a combination of the following factors:

- An increase in the quantity of factors of production
- An increase in the quality of factors of production
- An improvement in technology

For example, if there is an improvement in the education system, then the quality of the labour factor will increase and the country's workforce will be more productive. This will allow the country to produce more of everything and its production possibility curve will increase, shifting outwards.

If a new source of a natural resource is discovered (the land factor), like a new oil reserve, then the country will have more sources of energy and will be able to produce more goods and services than before.

On the contrary, if any situation or event happens that would reduce the quantity or quality of factors of production, the production possibilities of the economy will be reduced. For example if there were a war, a natural disaster or an epidemic, resources would be destroyed and the PPC would shift inwards.

Exam tip

When you draw a PPC, make sure that the curve is touching both axes at each extreme and not floating in the air. Even when you increase the curve, drawing the new curve above the original one, be aware that it must still go from axis to axis.

Opportunity cost, scarcity and choice

The production possibility model is very useful for explaining the concept of opportunity cost, which was discussed in the previous section.

Remember that the opportunity cost is what is sacrificed, or left aside, when an economic decision is made. It is what could have been done if one had not chosen the other option.

For example, using **Figure 2**, if a country wants to move from point B to point C on the PPC, increasing the production of goods X from X_2 to X_3 units, then it needs to reduce the production of goods Y from Y_2 to Y_3 . This is because its resources are scarce and it is already producing them in the most efficient way, as it is standing on its PPC.

Therefore, the opportunity cost of producing $(X_3 - X_2)$ more units of goods X is the $(Y_2 - Y_3)$ units of goods Y that have to be reduced by, as some resources allocated to the production of goods Y will now have to be transferred to the production of goods X.

Activity

Suppose that, instead of producing any two random goods X and Y, a country chooses between allocating its resources to the production of capital goods and consumer goods. Capital goods are those tools and machinery necessary for the production of other goods, for example an industrial sewing machine.

Consumer goods are those finished products, like clothing, that are ready for satisfying people's wants, not used in any further production process.

- 1) What would it mean to be standing on an extreme of the PPC only producing consumer goods and zero capital goods? What consequences might there be in the future?
- 2) What shift of the PPC (or PPF) can we expect this situation will bring? Why?
- 3) Alternatively, what would be the consequence of standing on a point on the PPC (or PPF) producing some capital goods and some consumer goods today?

Note that capital goods are also a factor of production. If we spend all of our resources today in producing goods for consumption, how will we be able to produce more goods tomorrow when our capital stock starts running out?

Increasing versus constant opportunity cost

As seen in **Figures 1 and 2**, the PPC is drawn as a curve, which means that some factors are more efficient at producing one good than they are at producing another.

The PPC is usually a curve and not a straight line because the opportunity cost is not normally constant as you transfer resources from the production of one good to the other. This is because not all of the factors of production are equally well suited to the production of both goods.

Sometimes all factors of production are equally efficient at producing each good, and in these cases the PPC would be a straight line.

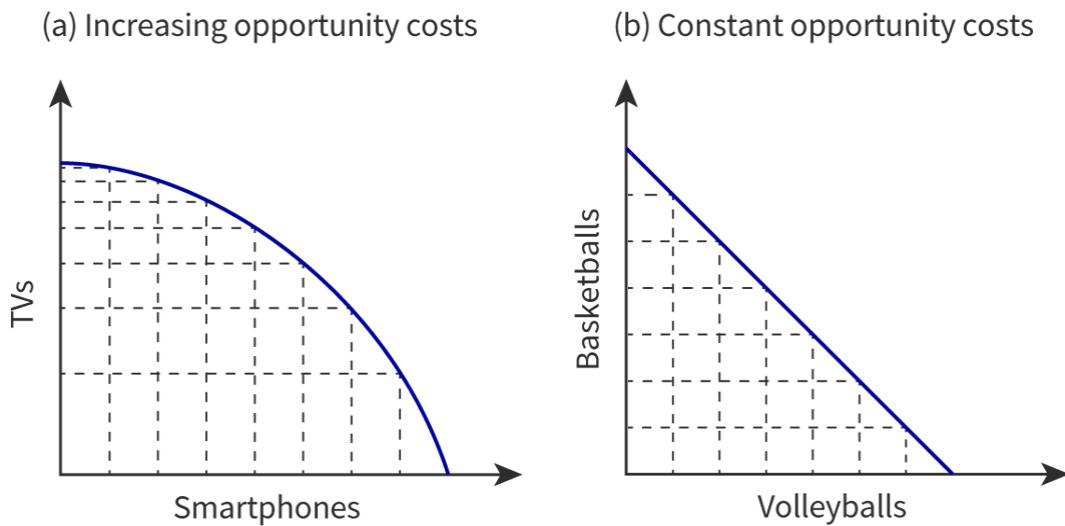


Figure 3. Increasing versus constant opportunity costs.

[More information for figure 3](#)

The image consists of two graphs, labeled (a) and (b).

Graph (a) has the title "Increasing opportunity costs." The X-axis represents the number of smartphones, and the Y-axis represents the number of TVs. The curve is concave to the origin, indicating that as the production of smartphones increases, the opportunity cost in terms of TVs sacrificed is also increasing. The axes are marked with grid lines, but specific numerical values are not indicated.

Graph (b) is titled "Constant opportunity costs." This graph illustrates a straight line, indicating a constant slope. The X-axis is labeled "Volleyballs," and the Y-axis is labeled "Basketballs." This line implies that the opportunity cost remains constant regardless of the quantity being shifted on the curve. Axis labels and grid lines are present, but like graph (a), specific values are not shown.

[Generated by AI]

Suppose an economy produces only TVs and smartphones, as shown in **Figure 3 (a)**. When the PPC bends to the right, the opportunity cost changes as the economy moves from producing at one point on the curve to another. For each additional unit of smartphones that it produces, the opportunity cost in terms of the TVs that are sacrificed gets larger. This is because of the specialisation of

factors of production. Not all factors of production can be used to the same extent and not all are equally suitable for producing both goods. Therefore they cannot be transferred proportionally from the production of one good to the other.

On the other hand, when the PPC is a straight line, as in **Figure 3 (b)**, it means that the opportunity cost is constant as the economy passes from producing at one point on the PPC to another. In this case, the factors of production can produce any of the two goods indistinctly as they are equally well suited for both goods. When goods are very similar to each other, for example basketballs and volleyballs, they need similarly specialised factors of production to produce them. Therefore the factors of production can be transferred proportionally from the production of one good to the other. To produce each additional unit of volleyballs, the amount of basketballs that have to be left aside, or not produced, does not change at any point of the PPC.

Case study

The outbreak of coronavirus — February 2020

Wuhan is the capital of Hubei province in China. It is the largest city in Hubei and is the most heavily populated city in central China, with a population of 11 million people. It is considered one of China's political, economic and cultural hubs, and is a major transportation centre, crossed by thousands of roads and railways connecting to other cities.

In January of 2020, an outbreak of a new virus called SARS-CoV-2 was discovered in this city. It started at the Huanan Seafood Market, which was allegedly selling wild animals, including birds, rabbits, bats and snakes. It was initially believed the virus came from snakes, but according to a research paper by a team of virologists at the Wuhan Institute for Virology it is more likely that the virus came from bats, which were also the source of the SARS outbreak.



Figure 4. The scare caused by the spread of Coronavirus in Wuhan.
d3sign Getty Images

This virus usually causes illness in mammals and birds. In humans, it causes respiratory tract infections that are typically mild, but that are sometimes serious and can be lethal. It has spread widely throughout China and the rest of the world.

Source: Adapted from How did the coronavirus outbreak start (<http://www.foxnews.com/health/how-did-the-coronavirus-outbreak-start>), Fox News

Analyse and apply

Using your knowledge of the Production Possibilities Curve model, draw a PPC (or PPF) diagram to explain the possible effects of the outbreak of this virus for the Chinese economy.

1.1 What is economics?

Modelling the economy

The circular flow of income model

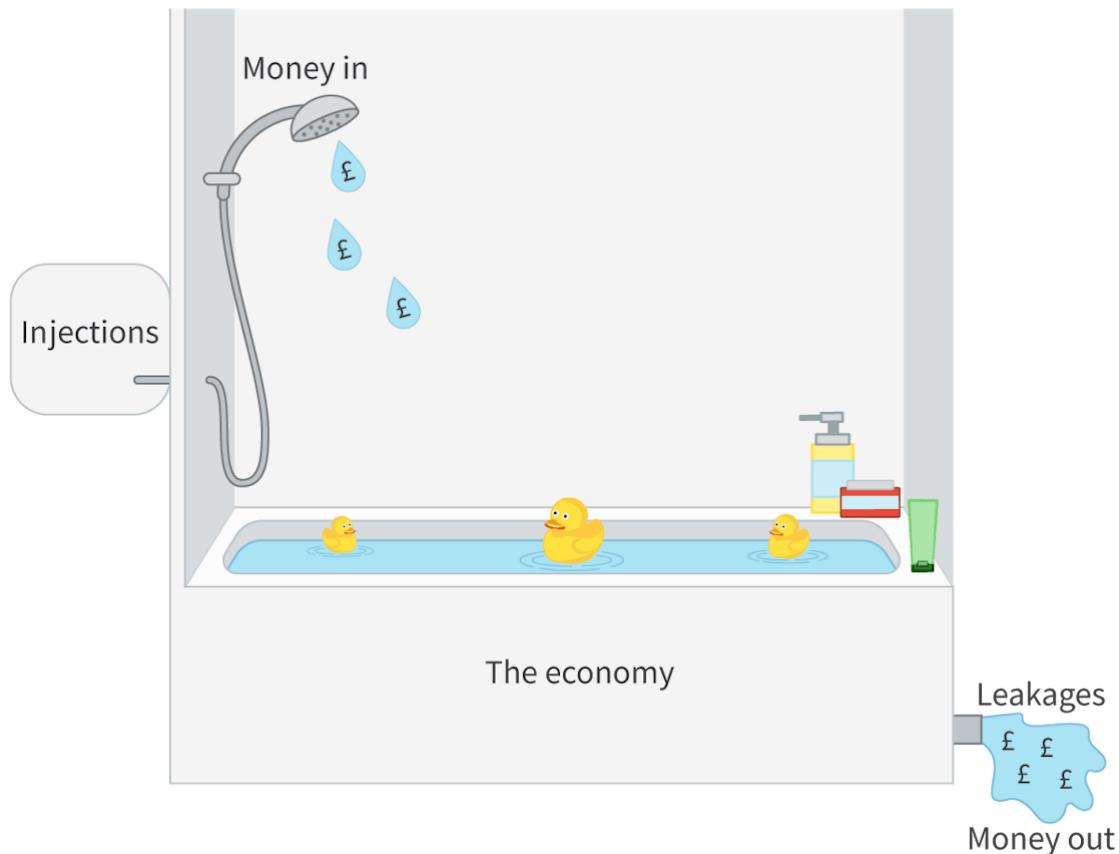


Figure 1. How the economy works.

More information for figure 1

This diagram uses a bathtub and shower metaphor to illustrate the flow of an economy. A showerhead labeled "Money in" releases droplets with currency symbols (£), representing economic injections. Inside the bathtub, labeled "The economy," are rubber ducks floating in water, suggesting ongoing economic activity. On the left, a label "Injections" points to the showerhead. Water exits the bathtub through a drain labeled "Leakages" leading to the phrase "Money out," indicating outflows from the economy, depicted as more droplets with currency symbols.

[Generated by AI]

Another simple model that we will introduce in this subtopic is the circular flow of income model. This model will help us to understand how an economy works and the interdependence and basic interactions between the different economic agents. Further on, in [Topic 3](#) (<https://app.kognity.com/study/app/pp/sid-186-cid-754025/book/the-big-picture-id-29927/>), we will come back to this model to explain how national income is calculated.

A closed economy with two sectors

To start with, we will look at a simplified version of a closed economy with only two sectors: **Households** and **Firms**. [Figure 2](#) shows the interaction between them.

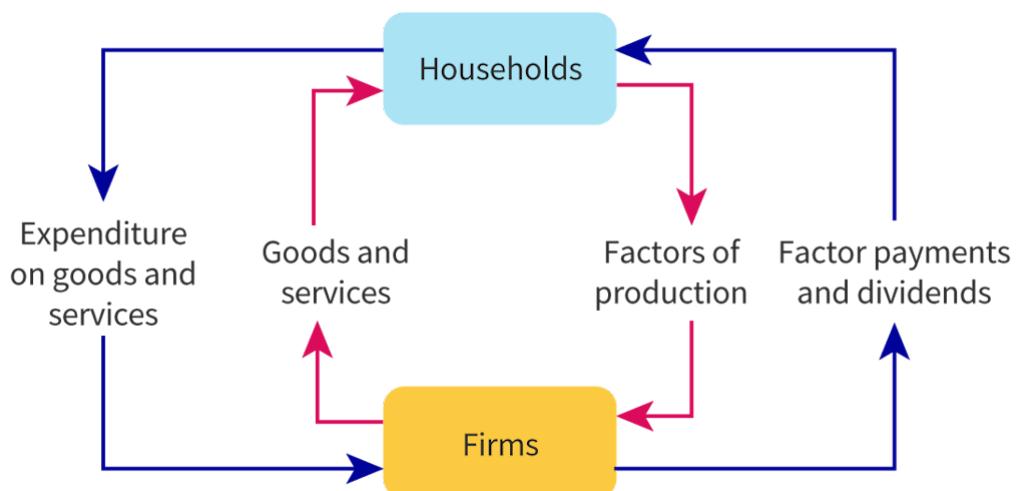


Figure 2. A two-sector model of a closed economy.

[More information for figure 2](#)

The diagram illustrates a two-sector model of a closed economy, featuring interactions between households and firms. At the top, the label "Households" is enclosed within a light blue box, while at the bottom, the label "Firms" is in a yellow box. Arrows depict the flow of economic activities between these entities.

- **From Households to Firms:** A red arrow indicates that households provide "Factors of production" to firms.
- **From Firms to Households:** Another red arrow shows that firms deliver "Goods and services" back to households.

On the outer part of the loop:

- **Firms to Households:** A blue arrow indicates "Factor payments and dividends."
- **Households to Firms:** Completing the cycle, a blue arrow points back to firms, labeled "Expenditure on goods and services."

The diagram visually explains how households supply resources to firms, which in turn produce goods consumed by households, creating a circular flow of economic exchange in a closed economy model.

[Generated by AI]

In this simple two-sector model, households are the owners of all factors of production and offer them to firms in exchange for an income. Firms hire and organise these factors to produce goods and services, which are then consumed by households.

The assumptions of the model are:

1. Households own all the factors of production.
2. Firms produce all goods and services.
3. There is no government.
4. There are no other countries to trade with (it is a closed economy).
5. There are no banks or commercial institutions.

Households provide the factors of production: land, labour, capital and entrepreneurship. In exchange for their services, firms will pay for each of these factors of production in different ways:

- For **land**, they will pay **rent**.
- For **labour**, they will pay **wages**.
- For **capital**, they will pay **interest**.
- For **entrepreneurship**, they will pay **dividends**.

Households' income is composed of the sum of the wages, rents, interest and dividends that they earn. They use this income to buy the goods and services that they need and want. The total amount of money spent on goods and services is

called ‘consumer expenditure’. As there are no foreign countries in this simple model, everything that they consume is produced by domestic firms. Therefore, *all* of the consumer expenditure goes back into the firms in exchange for the goods and services that they supply.

As there are no other ways to use income in this simple model, and it cannot be saved in financial institutions for future consumption, households spend everything they earn.

Figure 2 shows two simultaneous ‘circular’ flows: a monetary one (the blue arrows) and a real one (the red arrows). The monetary flow of income shows that income flows from firms to households as factor payments, and then flows back from households to firms as payments for goods and services. The model also illustrates the real flow of factors of production from households to firms, and of goods and services from firms to households.

Be aware

In this model, ‘**everything that goes around comes around**’ as there are no ways in which money is coming into or going out of the economy.

In a closed economy, national income does not change over time. Also, the value of goods and services that firms produce is the same from one period to another, therefore national output does not change either. Basically, we can conclude that there is no economic growth and, as households spend all of their income, then the national expenditure will be equal to the total income. Therefore, the following equation is true:

$$\text{NATIONAL INCOME} = \text{NATIONAL OUTPUT} = \text{NATIONAL EXPENDITURE}$$

This simple model is useful to introduce the basic workings of an economy and show the **interdependence** between households and firms. However, these are not the only two sectors interacting in a real economy, and consumers do not spend all of their income consuming national goods. Let’s add the other three sectors and see how the whole circular flow of income works.

An open economy with five sectors

In an open economy, the complete circular flow of income model includes five sectors: **Households, Firms, Government, Financial institutions** and **Foreign countries**.

When we add the three additional sectors to the previous model, we find that firms can now sell their products to other economic agents, whilst households now have different uses for their income.

This implies that some income will leave the economy, which will reduce the circulating flow, while some income will enter and increase the circulating flow.

Now the assumptions of this model are:

1. Households own the factors of production.
2. Firms produce goods and services.
3. Government collects taxes to provide public and merit goods to society.
4. There are foreign countries, that both produce goods and services that they export to other countries, and consume goods and services that they import from other countries.
5. There are financial institutions where households can save their income, and from which firms can take out loans to make investments and grow their businesses.

Figure 3 shows the interaction between all of the sectors.

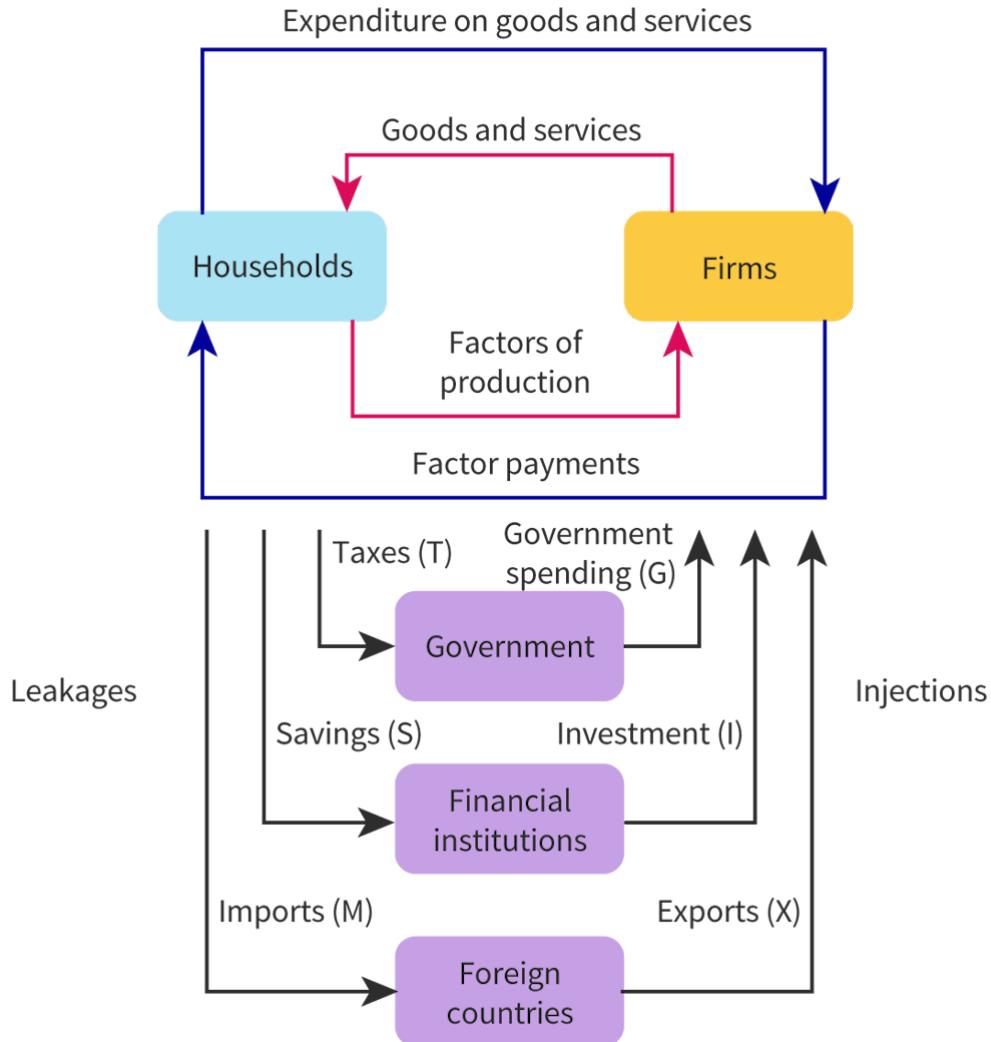


Figure 3. The circular flow of income model.

More information for figure 3

The diagram represents a circular flow of income model. At the core, it shows the interaction between households and firms. Households provide firms with factors of production, in exchange for which they receive factor payments. The firms supply goods and services to the households, resulting in an expenditure on goods and services.

Surrounding this core relationship are three additional sectors: government, financial institutions, and foreign countries.

- The government sector involves taxes (T) being collected from households and firms, with government spending (G) being an injection back into the economy.
- The financial institutions sector includes savings (S) from households and firms funneled into investments (I).

- Foreign countries interact with the economy through imports (M) and exports (X), with imports acting as a leakage and exports as an injection.

Arrows indicate the flow of these interactions, with the outer loop demonstrating how injections and leakages affect the main flow of income between households and firms.

[Generated by AI]

In this model, households still receive an income in exchange for the factors of production that they provide, and they still buy domestically produced goods. However, they can now also buy imported goods, they will need to pay taxes to the government and they can save part of their income in a financial institution for future consumption.

All of these are called leakages. Leakages are flows of money that leave the economy as savings, taxes and imports. They are the part of domestic households' income that is not spent on domestic goods and services.

In this model, firms now have many more potential buyers for the goods and services that they produce. They can still sell them to domestic households, but now they can also sell them to the government, to foreign countries or to other domestic firms, which use them to produce other goods and services.

The flows of money generated by this are called injections. They enter the circular flow of income from outside. Injections include investment, government spending and exports. They are all the money received by domestic firms that does not come directly from domestic households.

Important

This economy is said to be in equilibrium when leakages are equal to injections. If leakages are equal to injections, this economy will not grow.

If leakages are bigger than injections, the money that flows out is greater than the amount that flows in, so the national income will fall as there will be less income circulating and the economy will shrink.

On the other hand, if injections are bigger than leakages, then the opposite will happen, the national income will increase, and the economy will grow.

Activity

Look carefully at the picture at the beginning of this section, **Figure 1**.

1. Observe the elements and features of the drawing and think about their connections. Describe what you see.
2. How can you relate it to the circular flow of income in an economy?
3. Can you think of some other representation that would also work as a metaphor?

Each leakage is related to one injection in a specific sector.

For example, governments collect taxes from households and firms, which they then spend to provide public goods and services such as education, healthcare, infrastructure and law and order. Money leaves the circular flow of income when households pay taxes, but enters it again when the government uses those funds to buy goods and services from domestic firms.

There is one category of government spending that is not considered an injection in the circular flow of income model. This is transfer payments. Transfer payments are payments made by governments that are not in exchange for goods or services and therefore do not increase national output. Examples include pensions, child support and unemployment benefits. They are a means of redistributing income from one group of households to another.

Financial institutions like banks, stock markets and pension funds receive households' and firms' savings. Savings leave the flow of income at this point, but will then re-enter the economy as financial institutions give loans to firms to buy capital goods. Capital spending by firms is called **investment**.

The foreign sector, as explained before, refers to foreign countries that sell their goods and services to domestic households and firms, and that also buy our domestic products. When we buy imports, money will flow out of the economy. However, when we sell exports to other countries, money flows in, which will increase the circulating income.

Be aware

Although each leakage is related to one injection and connected through a specific sector, this does not mean that the amount of the leakage will be exactly the same as the corresponding injection. For example, imports are not usually

equal to exports, and governments sometimes spend more money than they collect through taxes.

The extent to which injections are greater than leakages will determine whether an economy will grow or not. The circular flow of income model is widely used to explain how growth can occur and how to measure national income. We will come back to it again in [subtopic 3.1 \(https://app.kognity.com/study/app/pp/sid-186-cid-754025/book/the-big-picture-id-29927/\)](https://app.kognity.com/study/app/pp/sid-186-cid-754025/book/the-big-picture-id-29927/).

Activity

Using the information from the **circular flow of income** model discussed above, fill in the following table to **compare and contrast** both versions:

	Two-sector economy (closed economy)
List the sectors that interact in each case.	
Who provides the factors of production?	
How is household income composed?	
What can households do with their income?	
What is the role of firms?	
Who buys domestic goods and services?	
Can the economy grow? Why?	
Is the condition National income = National output = National Expenditure true?	

Copy the table into your folders to answer each question in detail. Discuss with your peers.

