3 The economic problem

IB SL/HL 1.1

OCR A1 and AS1 Th basic economic prob

AQA 4.1.1.2, 4.1.1.3 4.1.1.4, AS 3.1.1.2, 4.1.1.3, 4.1.1.4

WJEC/EDUQAS A and AS Scarcity, cl and opportunity cos

CCEA AS The basic economic problem scarcity and choice; Opportunity cost

Key points

1. Nearly all resources are scarce.
2. Human wants are infinite.
3. Scarce resources and infinite wants give rise to the basic economic problem - resources have to be allocated between competing uses.
4. Allocation involves choices and each choice has an opportunity cost.
5. An economy is a social organisation through which decisions about what, how and for whom to produce are made.
6. The factors of production - land, labour capital and enterprise - are combined together to create goods and services for consumption.
7. The rewards to the owners of the factors of production include rents, royalties, wages, interest and profit.

Starter activity

What are you going to do tomorrow? What alternatives do you have? What could you do with your time? If it turns out you can't do what you have planned, what is the next best alternative?
Just as your time tomorrow is a scarce resource, so is the money you have. How do you plan to spend it? What is the next best alternative purchase?

Scarcity

It is often said that we live in a global village. The world's resources are finite; there are only limited amounts of land, water, oil, food and other resources on this planet. Economists therefore say that resources are scarce.

Scarcity means that economic agents, such as individuals, firms, governments and international agencies, can only obtain a limited amount of resources at any moment in time. For instance, a family has to live on a fixed budget; it cannot have everything it wants. A firm might want to build a new factory but not have the resources to be able to do so. A government might wish to build new hospitals or devote more resources to its foreign aid programme but not have the finance to make this possible. Resources which are scarce are called economic goods.

Not all resources are scarce. There is more than enough air on this planet for everyone to be able to breathe as much as they want. Resources which are not scarce are called free goods. In the past many goods such as food, water and shelter have been free, but as the population of the planet has expanded and as production has increased, so the number of free goods has diminished. Recently, for instance, clean beaches in many parts of the UK have ceased to be a free good to society. Pollution has forced water companies and seaside local authorities to spend resources cleaning up their local environment. With the destruction of the world's rain forests and increasing atmospheric pollution, the air we breathe may no longer remain a free good. Factories may have to purify the air they take from the atmosphere, for instance. This air would then become an economic good.

Infinite wants

People have a limited number of needs which must be satisfied if they are to survive as human beings. Some are material needs, such as food, water, heat, shelter and clothing. Others are psychological and emotional needs such as self-esteem and being loved. People's needs are finite. However, no one would choose to live at the level of basic human needs if they could enjoy a higher standard of living.

This is because human wants are unlimited. It doesn't matter whether the person is a doctor in Africa, a manager in India, a farmer in the UK or the richest individual in the world, there is always something which that person wants more of. This can include more food, a bigger house, a longer holiday, a cleaner environment, more love, more friendship, better relationships, more self-esteem, greater fairness or justice, peace, or more time to listen to music, meditate or cultivate the arts.

Question 1

Time was when people used to take their car out for a Sunday afternoon 'spin'. The novelty of owning a car and the freedom of the road made driving a pleasant leisure pursuit. Today, with 35.8 million vehicles registered in the UK, a Sunday afternoon tour could easily turn into a nightmare traffic jam.

Of course, many journeys are trouble free. Traffic is so light that cars do not slow each other down. But most rush hour journeys today occur along congested roads where each extra car on the road adds to the journey time of every other car. When London introduced a £5 a day 'congestion charge', a fee for cars to use roads in central London, the amount of traffic dropped by 17 per cent. This was enough to reduce journey times considerably.

Traffic congestion also greatly increases the amount of pollution created by cars. Our ecosystem can cope with low levels of emissions, but, as cities like Paris and Athens have discovered, high levels of traffic combined with the wrong weather conditions can lead to sharp increases in pollution levels. The car pollutes the environment anyway because cars emit greenhouse gases. Nearly one fifth of CO_2 emissions in the UK come from road transport.

Source: adapted from www.gov.uk

Explain whether roads are, in any sense, a 'free good' from an economic viewpoint.

Question 2

Draw up a list of minimum human needs for a teenager living in the UK today. How might this list differ from the needs of a teenager living in Ethiopia?

The basic economic problem

Resources are scarce but wants are infinite. It is this which gives rise to the basic economic problem and which forces economic agents to make choices. They have to allocate their scarce resources between competing uses.

Economics is the study of this allocation of resources - the choices that are made by economic agents. Every choice involves a range of alternatives. For instance, should the government spend £10 billion in tax revenues on nuclear weapons, better schools or greater care for the elderly? Will you choose to become an accountant, an engineer or a vicar?

These choices can be graded in terms of the benefits to be gained from each alternative. One choice will be the 'best' one and a rational economic agent will take that alternative. But all the other choices will then have to be given up. The benefit lost from the next best alternative is called the opportunity cost of the choice. For instance, economics may have been your third choice at A level. Your fourth choice, one which you didn't take up, might have been history. Then the opportunity cost of studying economics at A level is studying history at A level.

For **consumers**, opportunity cost is what has to be given up when spending on an item. For instance, the opportunity cost of a chocolate bar might be two packets of crisps. For **producers**, the opportunity cost of buying a machine might be the wages of four workers for three years. For **government**, the opportunity cost of a fighter plane might be building two new primary schools.

Free goods have no opportunity cost. No resources need be sacrificed when someone, say, breathes air or swims in the sea.

Question 3

Over the past 20 years, university students have come under increasing financial pressure. Previously, the government had paid all student tuition fees. It had also given a grant to students to cover their living expenses, although this grant was means tested according to the incomes of parents.

In 1999, grants for living expenses were replaced completely by student loans. By 2012, university tuition fees had risen to a maximum of £9 000 per year. Together with living expenses, the cost of a university education to a student living away from home on a three year course could easily reach £50 000 in total.

What might be the opportunity cost of the £50 000 in fees and living expenses:

(a) to parents if they pay them on behalf of their children;

(b) to students if they have to borrow the money to pay them?

What is an economy?

Economic resources are scarce whilst human wants are infinite. An economy is a system which attempts to solve this basic economic problem. There are many different levels and types of economy. There is the household economy, the local economy, the national economy and the international economy. There are free market economies which attempt to solve the economic problem with the minimum intervention of government and command economies where the state makes most resource allocation decisions. Although these economies are different, they all face the same problem.

Economists distinguish three parts to the economic problem.

- **What** is to be produced? An economy can choose the mix of goods to produce. For instance, what proportion of total output should be spent on defence? What proportion should be spent on protecting the environment? What proportion should be invested for the future? What proportion should be manufactured goods and what proportion services?
- **How** is production to be organised? For instance, are smartphones to be made in the UK, Japan or Taiwan? Should car bodies be made out of steel or fibreglass? Would it be better to automate a production line or carry on using unskilled workers?
- **For whom** is production to take place? What proportion of output should go to workers? How much should pensioners get? What should be the balance between incomes in the UK and those in Bangladesh?

An economic system needs to provide answers to all these questions.

Economic resources

Economists commonly distinguish four types of resources available for use in the production process. They call these resources the factors of production.

Land is not only land itself but all natural resources below

the earth, on the ground, in the atmosphere and in the sea. Everything from gold deposits to rainwater and natural forests are examples of land. Non-renewable resources, such as coal, oil, gold and copper, are land resources which once used will never be replaced. If we use them today, they are not available for use by our children or our children's children. Renewable resources, on the other hand, can be used and replaced. Examples are fish stocks, forests, or water. Sustainable resources are a particular type of renewable resource. Sustainable resources are ones which can be exploited economically and which will not diminish or run out. A forest is a renewable resource. However, it is only a sustainable resource if it survives over time despite economic activities such as commercial logging or farming. It ceases to be a sustainable resource if it is cleared to make way for a motorway. Non-sustainable resources are resources which are diminishing over time due to economic exploitation. Oil is a non-sustainable resource because it cannot be replaced.

Labour is the workforce of an economy - everybody from housepersons to doctors, vicars and cabinet ministers. Not all workers are the same. Each worker has a unique set of inherent characteristics including intelligence, manual dexterity and emotional stability. But workers are also the products of education and training. The value of a worker is called their human capital. Education and training will increase the value of that human capital, enabling the worker to be more productive.

Question 4

Consider your household economy.

(a) What is produced by your household (e.g. cooking services, cleaning services, accommodation, products outside the home)?

(b) How is production organised (e.g. who does the cooking, what equipment is used, when is the cooking done)?

(c) For whom does production take place (e.g. for mother, for father)?

(d) Do you think your household economy should be organised in a different way? Justify your answer.

Key Terms

Basic economic problem - resources have to be allocated between competing uses because wants are infinite whilst resources are scarce.
Capital - as a factor of production is the stock of manufactured resources used in the production of goods and services.
Choice - economic choices involve the alternative uses of scarce resources.
Economic goods - goods that are scarce because their use has an opportunity cost.
Entrepreneurs - individuals who seek out profitable opportunities for production and take risks in attempting to exploit these.
Enterprise or entrepreneurship - as a factor of production is the seeking out of profitable opportunities for production and taking risks in attempting to exploit these.
Factors of production - the inputs to the production process: land, labour, capital and enterprise or entrepreneurship.
Fixed capital - economic resources such as factories and hospitals which are used to transform working capital into goods and services.
Free goods - goods that are unlimited in supply and which therefore have no opportunity cost.
Human capital - the value of the productive potential of an individual or group or workers; it is made up of the skills, talents, education and training of an individual or group and represents the value of future earnings and production.
Labour - as a factor of production is the workforce.
Land - as a factor of production, is all natural resources.
Needs - the minimum that is necessary for a person to survive as a human being.
Non-renewable resources - resources, such as coal or oil, which once exploited cannot be replaced.
Non-sustainable resource - a resource which can be economically exploited in such as a way that its stock is being reduced over time.
Opportunity cost - the benefits forgone of the next best alternative.
Renewable resources - resources, such as fish stocks or forests, that can be exploited over and over again because they have the potential to renew themselves.
Scarce resources - resources that are limited in supply so that choices have to be made about their use.
Sustainable resource - renewable resource that is being economically exploited in such a way that it will not diminish or run out.
Wants - desires for the consumption of goods and services.
Working or circulating capital - resources that are in the production system waiting to be transformed into goods or other materials before being finally sold to the consumer.

Capital is the manufactured stock of tools, machines, factories, offices, roads and other resources which is used in the production of goods and services. Capital is of two types. Working or circulating capital is stocks of raw materials, semi-manufactured and finished goods which are waiting to be sold. These stocks circulate through the production process till they are finally sold to a consumer. Fixed capital is the stock of factories, offices, plant and machinery. Fixed capital is fixed in the sense that it will not be transformed into a final product as working capital will. It is used to transform working capital into finished products.

Enterprise or entrepreneurship is the fourth factor of production. It is the seeking out of profitable opportunities for production and taking risks in attempting to exploit these. Entrepreneurs are individuals who:

- organise production - organise land, labour and capital in the production of goods and services;
- take risks - with their own money and the financial capital of others; they buy factors of production to produce goods and services in the hope that they will be able to make a profit but in the knowledge that at worst they could lose all their money and go bankrupt.

Entrepreneurs are typically the owners of small and medium sized businesses who run those businesses on a day to day basis. However, managers in companies can also be entrepreneurial if they both organise resources and take risks on behalf of their company.

The rewards to the factors of production

Owners of the factors of production receive payments when they allow other economic agents to use them for a period of time. Owners of land may receive rent or lease payments. If 'land' is a resource like oil, copper or gold, owners may receive a royalty, a share of the money raised in sales of the resource.

In a modern economy, individuals may offer themselves for hire as workers. The reward to labour is the wage or earnings they receive.

Owners of capital such as machinery, factories or hospitals, can earn a variety of types of income from renting or leasing these physical assets. They might receive rent or lease income. They might also receive a share of any profits made from their use.

Entrepreneurs earn profit from their activities, risking their financial capital and organising the factors of production to produce goods and services.

Thinking like an economist

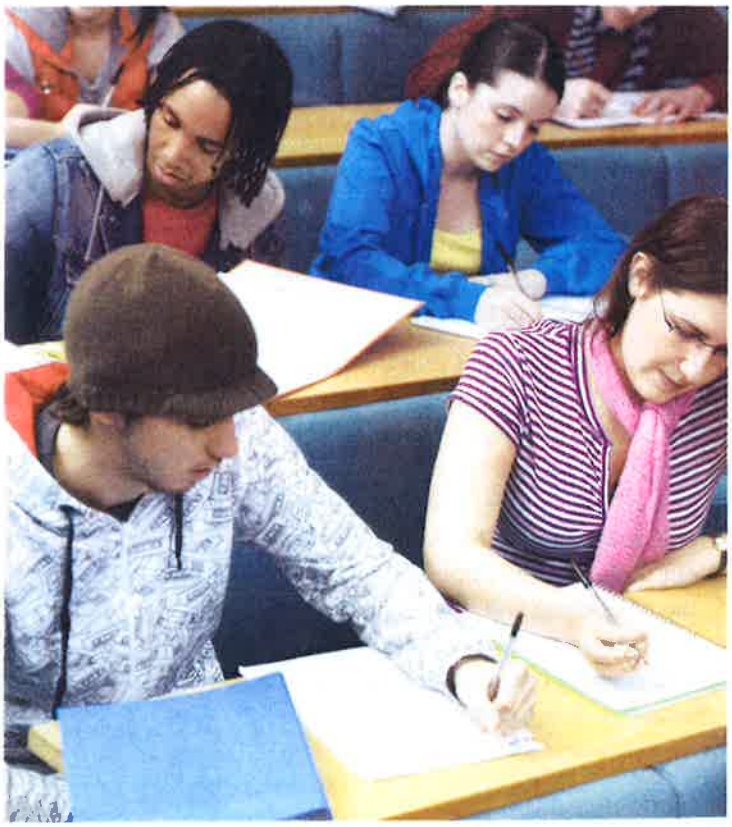
The opportunity costs of going to university

Most students of A level economics are 17-18-year-olds. Before they have completed their A level courses, they have some serious choices to make. One is whether to stay on in education, typically by doing a university degree, or whether to try to find a job, aged 18.

The opportunity costs of going to university are the benefits foregone from the next best alternative. Getting a job at 18 is not guaranteed, but if students do get employment after school or college, they will be able to earn a wage and spend that money. Getting a job at 18 will almost certainly lead students to being better off financially for three years than those heading off to university. However, for many, working is a less pleasant experience than being a student.

Once students have gained a degree, on average they are likely to earn more over a lifetime than those who don't have a degree. This is true even after any student debt has been deducted from total earnings over a lifetime and the three years of potential earnings have been discounted. A study published in 2010, for example, by the Centre for Market and Public Organisation at Bristol University, found that female graduates getting an upper second class degree would earn approximately 20 per cent more over their lifetimes than if they had not obtained a degree. Graduates are also less likely to be unemployed.

When student fees were raised to £9 000 per year by many universities, some predicted that there would be a sharp fall in student numbers. This has not happened. Despite the increased cost, the return to the average student of getting a degree is still positive. The opportunity costs of going to university - the benefits foregone - are lower than the lifetime rewards of being a graduate.



This is the reason why the majority of those studying A levels choose to go to university.

Data Response Question

The National Health Service faces tough choices

Politicians and health officials must be more honest with the public about the tough choices facing the National Health Service (NHS), according to Sir Andrew Dillon, the head of NICE (the National Institute for Health and Care Excellence). It is the responsibility of NICE to decide which drugs are value for money and can be prescribed by the NHS and which drugs will not be available to NHS patients.

Andrew said: 'The NHS has to exercise choices, sometimes, in order to ensure its resources are allocated as fairly as possible'. The NHS spends £13 billion a year on pharmaceuticals, about 12 per cent of its total budget.

It was reported this month that NICE ruled that two cancer drugs - Zytiga® for prostate cancer and Kadcyla® for breast cancer - were not cost-effective for the NHS, the latest expensive cancer medicines to be rejected by the agency. Roche, the Swiss pharmaceuticals company, said the refusal to back its Kadcyla drug, which typically extends life by about six months at a cost of £90 000, showed that the UK's drug evaluation system was 'no longer fit for purpose'.

It has been suggested that the price of new medicines will continue rising - particularly for cancer - because drug companies expect to make a profit on their heavy investment in research and development. Sir Andrew pointed out that, whatever the funding for the NHS, there will always be an 'opportunity cost'. Choosing to expand treatment in one area meant that 'something else cannot be done'.

Q

1. Define the term 'opportunity cost'.
2. Explain why the NHS has to make 'tough choices' about what it offers patients.
3. Discuss, from an economic viewpoint, whether it should be a committee of cancer experts that decides which drugs should be offered on the NHS or an independent committee like NICE.

Evaluation

It is very important in a question like this to use economic terms like scarcity, choice, opportunity cost and positive and normative statements. What value judgements do you think the two types of committee would make? Would they come to different conclusions about a drug like Kadcyla? Would it be in the best interests of all NHS patients if choices about which drugs to buy were made by cancer experts?