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Economics as a social science

Key points

1. Economics is generally classified as a social science and uses the scientific method as the basis for its investigation.
2. Economics is the study of how groups of individuals make decisions about the allocation of scarce resources.
3. Economists build models and theories to explain economic interactions.
4. The ceteris paribus assumption is used in building models.
5. Positive economics deals with statements of 'fact' that can either be refuted or supported. Normative economics deals with value judgements, often in the context of policy recommendations.

IB SL/HL

GCSE A1 and AS1 The basic economic problem

AQA 4.1.1.1, AS 3.1.1.1

WJEC/EDUQAS A and AS Introduction to economic principles

CEEA A and AS

Starter activity

'The UK should leave the European Union.' Is this a fact or is it a value judgement? If you wanted to argue for or against the UK leaving the European Union, what factual arguments could you use? And what emotional arguments could you put forward?

Which of these arguments are economic and which are non-economic?

The scientific method

There are many sciences covering a wide field of knowledge. What links them all is a particular method of work or enquiry called the **scientific method**. The scientific method at its most basic is relatively easy to understand. A scientist:

- postulates (puts forward) a **theory** - the scientist puts forward a hypothesis which is capable of refutation (e.g. the Earth travels round the Sun, the Earth is flat, a light body will fall at the same speed as a heavy body);
- gathers evidence to either support the theory or refute it - astronomical observation gives evidence to support the theory that the earth travels round the sun; on the other hand, data refute the idea that the Earth is flat; gathering evidence may be done through controlled experiments;
- accepts, modifies or refutes the theory - the Earth does travel round the Sun; a light body will fall at the same speed as a heavy body although it will only do so under certain conditions; the Earth is not flat.

Theories which gain universal acceptance are often called **laws**. Hence we have the law of gravity, Boyle's law, and in economics the laws of demand and supply.

Economics - the science

In natural sciences, such as physics or chemistry, it is relatively easy to use the scientific method. In physics, much of the work can take place in laboratories. Observations can be made with some degree of certainty. Control groups can be established. It then becomes relatively easy to accept or refute a particular hypothesis.

This is much more difficult in **social sciences** such as economics, sociology, politics and anthropology. In economics, it is often not possible to set up experiments to test hypotheses. It is often not possible to establish control groups or to conduct experiments in environments which enable one factor to be

varied whilst other factors are kept constant. The economist has to gather data in the ordinary everyday world where many variables are changing over any given time period. It then becomes difficult to decide whether the evidence supports or refutes particular hypotheses.

Economists sometimes come to very different conclusions when considering a particular set of data as their interpretations may vary. For example, an unemployment rate of six per cent in Scotland compared to a national average of three per cent may indicate a failure of government policy to help this area. Others may conclude that policy had been a success as unemployment may have been far greater without the use of policy.

It is sometimes argued that economics cannot be a science because it studies human behaviour and human behaviour cannot be reduced to scientific laws. There is an element of truth in this. It is very difficult to understand and predict the behaviour of individuals. However, nearly all economics is based on the study of the behaviour of groups of individuals. The behaviour of groups is often far more predictable than that of individuals. Moreover, we tend to judge a science on its ability to establish laws which are certain and unequivocal. But even in a hard science such as physics, it has become established that some laws can only be stated in terms of probabilities. In economics, much analysis is couched in terms of 'it is likely that' or 'this may possibly happen'. Economists use this type of language because they know they have insufficient data to make firm predictions. In part it is because other variables may change at the same time, altering the course of events. However, it is also used because economists know that human behaviour, whilst broadly predictable, is not predictable to the last £1 spent or to the nearest one penny of income.

Theories and models

The terms 'theory' and '**model**' are often used interchangeably. There is no exact distinction to be made between the two. However, an economic theory is generally expressed in looser terms than a model. For instance, 'consumption is dependent upon income' might be an economic theory. ' $C_t = 567 + 0.852Y_t$ ' where 567 is a constant, C_t is current consumption and Y_t current income would be an economic model. Theories can often be expressed in words. But economic models, because they require greater precision in their specification, are often expressed in mathematical terms.

The purpose of modelling

Why are theories and models so useful in a science? The universe is a complex place. There is an infinite number of interactions happening at any moment in time. Somehow we all have to make sense of what is going on. For instance, we assume that if we put our hand into a flame, we will get burnt. If we see a large hole in the ground in front of us we assume that we will fall into it if we carry on going in that direction.

One of the reasons why we construct theories or models is because we want to know why something is as it is. Some people are fascinated by questions such as 'Why do we fall downwards and not upwards?' or 'Why can birds fly?'. More importantly we use theories and models all the time in deciding how to act. We keep away from fires to prevent getting burnt. We avoid holes in the ground because we don't want to take a tumble.

Simplification

One criticism made of economics is that economic theories and models are 'unrealistic'. This is true, but it is equally true of Newton's law of gravity, Einstein's Theory of Relativity or any theory or model. This is because any theory or model has to be a simplification of reality if it is to be useful. Imagine, for instance, using a map which described an area perfectly. To do this it would need to be a full scale reproduction of the entire area which would give no practical advantage. Alternatively, drop a feather and a cannonball from the top of the Leaning Tower of Pisa. You will find that they don't descend at the same speed, as one law in physics would predict, because that law assumes that factors such as air resistance and friction don't exist.

If a model is to be useful it has to be simple. The extent of simplification depends upon its use. If you wanted to go from London to Tokyo by air, it wouldn't be very helpful to have maps which were on the scale of your local A to Z. On the other hand, if you wanted to visit a friend in a nearby town it wouldn't be very helpful to have a map of the world with you. The local A to Z is very much more detailed (i.e. closer to reality) than a world map but this does not necessarily make it more useful or make it a 'better' model.

Simplification implies that some factors have been included in the model and some have been omitted. It could even be the case that some factors have been distorted to emphasise particular points in a model. For instance, on a road map of the UK, cartographers will almost certainly not have attempted to name every small village or show the geological formation of the area. On the other hand, they will have marked in roads and motorways which will appear several miles wide according to the scale of the map.

Assumptions and *ceteris paribus*

All sciences make assumptions when developing models and theories. In the case of the feather and the cannonball being dropped from the Leaning Tower of Pisa, both would fall at equal speed if it were assumed that there was no air resistance. Making assumptions allows the scientist to simplify a problem to make it manageable to solve.

An important way in which economists simplify reality is to adopt the *ceteris paribus* condition. *Ceteris paribus* is Latin for 'all other things being equal' or 'all other things remaining the same'. For example, in demand theory, economists consider how price affects the amount demanded by buyers of a good. To isolate the price factor, they assume that all other factors that affect demand, such as income or the price of other goods, remain unchanged. Then economists see what happens to quantity demanded as the price of the good changes.

Positive and normative economics

Economics is concerned with two types of investigation. **Positive economics** is the scientific or objective study of the subject. It is concerned with finding out how economies and markets actually work. **Positive statements** are statements about economics which can be proven to be true or false. They can be supported or refuted by evidence. For example, the statement 'The UK economy is currently operating on its production possibility frontier' is a positive statement. Economists can search for evidence as to whether there are unemployed resources or not. If there are large numbers of unemployed workers, then the statement is refuted. If unemployment is very low, and we know that all market economies need some unemployment for the efficient workings of labour markets as people move between jobs, then the statement would be supported. Statements about the future can be positive statements too. For example, 'The service sector will grow by 30 per cent in size over the next five years' is a positive statement. Economists will have to wait five years for the proof to support or refute the statement to be available. However, it is still a statement which is capable of being proved or disproved.

Question 1

Britain's Minister of State for Crime Prevention has questioned whether police should respond to calls from petrol retailers whose customers drive off without paying. Norman Baker suggested that petrol stations encouraged crime by refusing to insist on prepayment at the pumps. They did this because they wanted more business in their shops. One of the fastest-growing offences is motorists filling their cars with petrol and driving off without paying. In London, the practice increased nearly sevenfold between 2010 and 2012, according to official statistics.

However, Brian Madderson, Chair of the Petrol Retailers' Association, disagreed. 'The police have no right whatsoever to interfere with our business model. We only live as forecourt retailers these days by dint of our shop sales. The (profit) margin on fuel has almost disappeared and the reason is the supermarkets selling at or below cost.' Neil Saunders, Managing Director at research group Conlumino, dismissed the minister's comments as 'wholly ignorant'. 'Retailers spend millions each year to try and combat shoplifting. Short of turning their stores into prison camps, retailers cannot prevent this.'

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Explain which are the positive statements and which are the normative statements in this passage.

Normative economics is concerned with value judgements. It deals with the study of and presentation of policy prescriptions about economics. **Normative statements** are statements which cannot be supported or refuted. Ultimately, they are opinions about how economies and markets should work. For example, 'The government should increase the state pension', or 'Manufacturing companies should invest more' are normative statements.

Economists tend to be interested in both positive and normative economics. They want to find out how economies work. But they also want to influence policy debates. Normative economics also typically contains positive economics within it. Take the normative statement 'The government should increase the state pension'. Economists putting forward this value judgement are likely to back up their opinion with positive evidence. They might state that 'The average pensioner has a disposable income of 40 per cent of the average worker'; and 'The average pensioner only goes on holiday once every four years'. These are positive statements because they are capable of proof or disproof. They are used to build up an argument which supports the final opinion that state pensions should be raised.

Normative statements tend to contain words like 'should' and 'ought'. However, sometimes positive statements also contain these words. 'Inflation should be brought down' is a normative statement because it is not capable of refutation. 'Inflation should reach 5 per cent by the end of the year' is a positive

statement. At the end of the year, if inflation has reached five per cent, then the statement will have been proven to be correct.

Key Terms

Ceteris paribus - all things being equal; the assumption that, whilst the effects of a change in one variable are being investigated, all other variables are kept constant.

Law - a theory or model which has been verified by empirical evidence.

Normative economics - the study and presentation of policy prescriptions involving value judgements about the way in which scarce resources are allocated.

Normative statement - a statement which cannot be supported or refuted because it is a value judgement.

Positive economics - the scientific or objective study of the allocation of resources.

Positive statement - a statement which can be supported or refuted by evidence.

Scientific method - a method which subjects theories or hypotheses to falsification by empirical evidence.

Social science - the study of societies and human behaviour using a variety of methods, including the scientific method.

Theory or model - a hypothesis which is capable of refutation by empirical evidence.

Thinking like an economist

The Scottish Independence vote

In September 2014, Scotland voted against becoming an independent country by a majority of 55 per cent to 45 per cent. In a letter to the *Financial Times*, John Barstow, from the Executive Council of the trade union Usdaw, a trade union representing shop workers, said that the no verdict was 'excellent news for all our livelihoods'. This is a value judgement with which those leading the campaign for Scottish independence would have disagreed.

In the letter, he stated that 'Usdaw has been in total unison with household names such as Marks and Spencer, J Sainsbury and Tesco in supporting the integrity of the UK'. This is a positive statement which can be supported or refuted by looking at evidence. In this case, John Barstow was arguably correct in so far as the three companies mentioned had come out in support of the 'No' campaign.

John Barstow went on to say that 'retail is a complex activity involving not just outlets, but also distribution depots, manufacturing chains, administration offices and even some banking'. Again this is mainly a positive statement, capable of being supported or refuted by evidence. It could be argued that the word 'complex' is a value judgement. Complex implies that there is an opposite, which is simple. However, most economists probably would argue that distribution is a complex activity.

He then stated: 'Hence the simplicity of a strong UK single market is an essential base for expanding this sector and the livelihoods within it'. Those in favour of independence for Scotland would have disagreed with this statement. They might have argued that a single market is not 'simple' and that the increase in complexity arising out of independence would have been so minimal as to be unimportant. They would possibly also have taken issue with saying that a single market is an 'essential base for expanding this sector'. Whether or not there is a single market, there are consumers wanting to buy from shops.

Much of this debate would involve positive statements, supporting or refuting the argument put forward by John Barstow. Ultimately, though, the way in which the letter is written, comparing a 'complex' system in retail with a 'simple' system in a single market suggests that he is putting forward his own value judgement: that a vote for independence would have been bad both for Scotland and the UK left behind.

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Data Response Question

Net migration

2014 figures showed that net migration in the UK (the total number of people entering the country to live minus the number of people leaving to live abroad) soared by more than a third to 212 000 in the year to September. This dealt a blow to David Cameron's hope that he would reach his target of 'tens of thousands' by May 2015.

The 58 000 rise in immigrants was largely due to a surge in arrivals from within the European Union, with 60 000 more arriving from countries such as Spain, Portugal, Italy and Poland than in the previous 12 months. Non-EU immigration was down by 25 000.

The latest data give evidence to support fears that the UK's education exports are suffering as a result of government controls.

Statisticians estimated that there were 25 000 fewer immigrants from New Commonwealth countries, particularly India and Pakistan, coming to study in the UK. Foreign students are important for universities because they pay higher than average fees, subsidising UK students who pay lower fees.

Responding to the data, it was reported that James Brokenshire, Minister for Security and Immigration, said he and his team were building an immigration system that was 'fair to British citizens and legitimate migrants', whilst being 'tough on those who abuse the system or flout the law'. But Yvette Cooper, Shadow Home Secretary, said the figures showed that the net migration target was 'in tatters'. Nigel Farage, UKIP leader, said the figures showed 'just what a failure the government has been' on controlled immigration.

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1. Explain the difference between positive and normative statements. Illustrate your answer with at least two examples of positive statements from the data and two examples of normative statements.
2. Discuss the possible impact on the UK economy of '25 000 fewer immigrants ... coming to study in the UK' per year.

Evaluation

Think of the main points about which you could write a paragraph. These could include the impact on housing and health care, lost export income for the UK and the impact on the balance of payments, lost income for universities and its consequences, lost income for businesses that rely on university and student spending, as well as long-term loss of business contacts when foreign students return home and run their own businesses. Then weigh up which of these is most important or less important.

