2. Scarcity and Choice in Resource Allocation

What is Economics?

If you ask twenty economists this question you are likely to get at least twenty five competing views!

There is no single unified interpretation of what Economics is as a subject. And as a teacher of Economics, this author can never say with much certainty what will be taught to students on any given day because we cannot predict what will be the major Economics stories in the news that require some further understanding and insight! On one day is it analysing the causes of currency fluctuations, one another, understanding the causes of inequality of income and wealth, or under-taking a cost-benefit analysis of the economics of wind farms!

Economics, as a social science attempts to give us some concepts, ideas, theories and relationships that explain how people, businesses and governments behave in our own world.

The Economist's Dictionary of Economics (http://www.economist.com) defines economics as

"The study of the production, distribution and consumption of wealth in human society"

Another superb definition comes from the late Lionel Robbins, who said in 1935

"Economics is a social science that studies human behaviour as a relationship between ends and scarce means which have alternative uses. That is, economics is the study of the trade-offs involved when choosing between alternate sets of decisions."

The purpose of economic activity

The central purpose of economic activity is the production of goods and services to satisfy consumer’s needs and wants i.e. to satisfy people’s need for consumption both as a means of survival but also to meet their growing demands for an improved lifestyle or standard of living.

Scarcity and choice – the fundamental economic problem

The basic economic problem is about scarcity and choice: there are only a limited amount of resources available to produce the unlimited amount of goods and services we desire. All societies face the economic problem of having to decide:

(i) **What goods and services to produce**: Does the economy uses its resources to operate hospitals or hotels? Do we make CD-players or produce more coffee? Does the National Health Service provide free IVF treatment for thousands of childless couples? Or, do we choose instead to allocate millions of pounds each year to providing beta-interferon to sufferers of multiple sclerosis?

(ii) **How best to produce goods and services**: What is the best use of our scare resources of land labour and capital? Should school playing fields be sold off to provide more land for housing? Is it an improvement in economic efficiency to replace bank staff with a greater use of online banking services? (I.e. replacing labour with capital?)

(iii) **Who is to receive goods and services**: What is the best method of distributing (i.e. sharing) products to ensure the highest level of wants and needs are met? Who will get expensive hospital treatment - and who not? Should there be a minimum wage? If so, at what level should it be set?

Scarcity

Let us start with a basic rule of economics! **If something is scarce - it will have a market value.**

If the supply of a good or service is low, the market price will rise, providing there is sufficient demand from consumers. Goods and services that are in plentiful supply will have a lower market value because supply can
easily meet the demand from consumers. Whenever there is excess supply in a market, we expect to see prices falling. For example, the prices of new cars in the UK have been falling for several years.

**Insatiable human wants and needs**

| Road space throughout the world is becoming increasingly scarce as the demand for motor transport increases each year – are there effective solutions? |

Human beings want better food; housing; transport, education and health services. They demand the latest digital technology, more meals out at restaurants, more frequent overseas travel, better cars, cheaper food and a wider range of cosmetic health care treatments.

Opinion polls consistently show that the majority of the electorate expect government policies to deliver improvements in the standard of education, the National Health Service and our transport system. (Whether voters are really prepared to pay for these services through higher taxes is another question!)

Whilst our economic resources are limited, human needs and wants are infinite. Indeed the development of society can be described as the **uncovering of new wants and needs** - which producers attempt to supply by using the available factors of production. For a perspective on the achievements of countries in meeting people's basic needs, the Human Development Index [http://hdr.undp.org/] produced annually by the United Nations is well worth reading. Data for each country can be accessed and cross-country comparisons can be made.

**Making Choices – Trade-offs**

Because of scarcity, **choices** have to be made on a daily basis by individual consumers, firms and governments. Making a choice made normally involves a **trade-off** - in simple terms, choosing more of one thing means giving up something else in exchange. Because wants are unlimited but resources are finite, choice is an unavoidable issue in economics. For example:

1. **Housing:** Choices about whether to rent or buy a home – a huge decision to make and one full of uncertainty given the recent volatility in the British housing market! There are costs and benefits to renting a property or choosing to buy a home with a mortgage. Both decisions involve a degree of economic risk.

2. **Working:** Choosing between full-time or part-time work, or to take a course in higher education lasting for at least three years – how have these choices and commitments been affected by the introduction of university tuition fees?

3. **Transport and travel:** The choice between using Euro-Tunnel, a ferry or an airline when travelling to Europe

**Rational consumers – seeking to maximise their own welfare**

Our working assumption is that consumers make choices about what to consume based on the objective of **maximising their own welfare**. They have a **limited income** (i.e. a limited budget) and they seek to allocate their funds in a way that improves their own **standard of living**.

Of course in reality consumers rarely operate in a perfectly informed and rational way. We will see later on when we discuss the **possibility of market failure** that very often, decisions by people about which products to
purchase and consume are actually based on **imperfect or incomplete information** which can lead to a loss of satisfaction and welfare not only for consumers themselves but society as a whole. As consumers we have all made poor choices about which products to buy. Do we always learn from our mistakes? To what extent are our individual choices influenced and distorted by the effects of persuasive advertising? Multinational companies have **advertising and marketing** budgets that often run into hundreds of millions of pounds. We are all influenced by them to a lesser or greater degree.

**Economic Systems**

An economic system is the **network of organisations** used by a society to resolve the economic problem of what how and for whom to produce. There are four categories of economic system.

1. **Traditional economy**: Where decisions about what, how and for whom to produce are based on custom and tradition. Land is typically held in common; private property is not well defined.

2. **Free market economy**: Where households own resources and markets allocate resources through the price mechanism. An increase in demand raises price and encourages firms to switch additional resources into the production of that product. The amount of goods and services consumed by households depends on their income. Household income depends on the market value of an individual’s work.

3. **Planned or command economy**: Resources are owned by the state. The state allocates resources, and sets production targets and growth rates according to its own view of people’s wants. Income distribution is decided by the state. Prices play little or no part in informing resource allocation decisions and queuing rations scarce goods.

4. **Mixed economy**: Some resources are owned by the public sector (government) and some resources are owned by the private sector. The public sector typically supplies public, quasi-public and merit goods and intervenes in markets to correct perceived market failure.
3. Opportunity Cost, Choices and Trade-Offs

Opportunity Cost

There is a well known saying in economics that “there is no such thing as a free lunch”. Even if we are not asked to pay a price for consuming a good or a service, economic resources are used up in the production of it and there must be an opportunity cost involved.

Opportunity cost measures the cost of any choice in terms of the next best alternative foregone. Many examples exist for individuals, firms and the government.

- **Work-leisure choices:** The opportunity cost of deciding not to work an extra ten hours a week is the lost wages foregone.

- **Government spending priorities:** The opportunity cost of the government spending nearly £20 billion on interest payments each year on the national debt is the extra money that might have allocated to the National Health Service, education or to improving the UK transport network.

- **Investing today for consumption tomorrow:** The opportunity cost of an economy investing resources in new capital goods is the current production of consumer goods given up. We may have to accept lower living standards now, to accumulate increased capital equipment so that long run living standards can improve.

- **Making use of scarce farming land:** The opportunity cost of using arable farmland to produce wheat is that the land cannot be used in that production period to harvest potatoes

**The Production Possibility Frontier**

A production possibility frontier (PPF) or boundary shows the combinations of two or more goods and services that can be produced using all available factor resources efficiently.

A PPF is normally drawn on a diagram as concave to the origin because the extra output resulting from allocating more resources to one particular good may fall. I.e. as we move down the PPF, as more resources are allocated towards Good Y, the extra output gets smaller – and more of Good X has to be given up in order to produce the extra output of Good Y. This is known as the principle of diminishing returns.
Combinations of output of goods X and Y lying inside the PPF occur when there are unemployed resources or when the economy uses resources inefficiently. Point X is an example of this. We could increase total output by moving towards the production possibility frontier and reaching any of points C, A or B.

Point D is unattainable at the moment because it lies beyond the PPF. A country would require an increase in resources, or an increase in the efficiency (productivity) of factor resources or an improvement in technology to reach this combination of Good X and Good Y. If we achieve this then output combination D may become attainable.

Producing more of both goods would represent an improvement in our economic welfare (providing that the products are giving consumers a positive satisfaction) and therefore an improvement in what is called allocative efficiency

Opportunity Cost and the PPF

Reallocating scarce resources from one product to another involves an opportunity cost.

If we go back to the previous PPF diagram, if we increase our output of Good X (i.e. a movement along the PPF from point A to point B) then fewer resources are available to produce good Y. Because of the shape of the PPF the opportunity cost of switching resources increases – i.e. we have to give up more of Good Y to achieve gains in the output of good X.

The PPF does not always have to be drawn as a curve. If the opportunity cost for producing two products is constant, then we draw the PPF as a straight line. The gradient of that line is a way of measuring the opportunity cost between two goods.

Free Goods

Not all goods have an opportunity cost. Free goods are not scarce and no cost is involved when consuming them.
Fresh air – a free good

Is fresh air an example of a free good? Ordinarily the answer is yes – yet we know that air can become contaminated by pollutants. And, in thousands of offices, shops and schools, air-conditioning systems cool the air before it is “consumed”. With air conditioning, scarce resources are used up in providing the “product” – for example the capital machinery and technology that goes into manufacturing the air conditioning equipment; the labour involved in its design, production, distribution and maintenance and the energy used up in powering the system.

Cool air might appear to be free – but in fact it is often an expensive product to supply!

External Costs

In the case of air pollution there is an external cost to society arising from the contamination of our air supplies. External costs are those costs faced by a third party for which no compensation is forthcoming. Identifying and then estimating a monetary value for air pollution is a difficult exercise – but one that is increasingly important for economists concerned with the impact of economic activity on our environment.

We will consider this issue in more detail when we study externalities and externalities and market failure.

Explaining Shifts in the Production Possibility Frontier

The production possibility frontier will shift when:

- There are improvements in productivity and efficiency perhaps because of the introduction of new technology or advances in the techniques of production)
- More factor resources are exploited perhaps due to an increase in the size of the workforce or a rise in the amount of capital equipment available for businesses to use

In the diagram below, there is an improvement in the state of technology which shifts the PPF outwards and means that more of good X can be produced for a given output of good Y. As a result of this, output possibilities
have increased and we can conclude (providing the good provides positive satisfaction to consumers) that there is an improvement in economic welfare.

Technology, prices and consumer welfare

**Improved technology** should bring market prices down and make products more affordable to the consumer. This has been the case in the market for personal computers and digital products. The exploitation of **economies of scale** and improvements in production technology has brought prices down for consumers and businesses. A price war between leading personal computer suppliers has also driven prices down further.

**Sectors of production in the economy**

Production of goods and services can be classified into four groupings

1. **Primary sector**: This involves extraction of natural resources e.g. agriculture, forestry, fishing, quarrying, and mining
2. **Secondary sector**: This involves the production of goods in the economy, i.e. transforming materials produced by the primary sector e.g. manufacturing and the construction industry
3. **Tertiary sector**: the tertiary sector provided services such as banking, finance, insurance, retail, education and travel and tourism
4. **Quaternary sector**: The quaternary sector is involved with information processing e.g. education, research and development