



Fontana Introduction to Modern Economics

Economics of the Market

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Preface

Most subjects are divided into major branches, and economics is no exception. Readers studying for 'A' level, or first year university examinations and professional courses, find their time divided between one or other of the two main areas, known as microeconomics and macroeconomics.

This book is intended as a companion for the microeconomics section of these courses, and is concerned with an analysis of the component parts of the economic system – individuals, firms, even complete industries, and with problems of resource allocation. By contrast, macroeconomics analyses the operation of the economic system as a whole.

An outline of the subject matter of both microeconomics and macroeconomics can be found in the introductory volume to the series, *An Introduction to Economic Behaviour*, by C. D. Harbury, while in the volume, *Income, Spending and the Price Level*, A. G. Ford develops the principles of macroeconomics in more detail. Examples of how the theory presented in this book can be applied to the world of finance are found in G. H. Peters, *Private and Public Finance*.

I am grateful to the Department of Political Economy at Glasgow University for the opportunity of lecturing on microeconomics to a wide range of students, and to the Civil Service College for encouraging me to write this book. Many stimulating discussions about the problems of presenting microeconomic concepts to students were held with J. N. Robinson of the University of Reading, D. R. Croome of the Polytechnic of Central London, K. G. D. Smith of the University of Glasgow, and W. Vause, formerly of the Civil Service College. I am deeply indebted to Professor C. D. Harbury of the City University, without whose help none of this would have been possible.

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Chapter 1

Introduction

The subject of microeconomics is basically about choice – the making of decisions between alternatives. The purpose of this opening chapter is to illustrate the types of choice which economics seeks to explain.

Human Wants are Unlimited

People have certain needs and desires. They need somewhere to live, some food to stay alive, some clothes to wear. In addition to these basic necessities, people have a desire for a whole range of goods and services – cars, washing machines, soap powders, television sets, insurance, banks, books, carpets, furniture, heat, golf clubs – the list is virtually endless.

To state that human wants are unlimited is really to state the obvious. After all, every reader of this book will almost certainly desire a greater quantity or higher quality of goods and services than he or she already has. Why, then, can't everybody, particularly in today's so-called 'Affluent Society', have more goods and services or better goods and services than at present?

Resources are Limited

The answer is that those elements which are necessary to produce this unlimited range of goods and services are limited in supply. These 'elements' are known as factors of production or resources. Indeed we can think of economic activity as a process by which society's resources are combined to produce a range of goods and services which people desire. However, because at one end of the process there are unlimited wants, and at the other end limited resources, people plainly cannot have everything they desire.

The term 'resources' usually includes the following major categories of input which are used in the activity of producing goods and services:

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(i) Labour This category refers to the contribution made by human beings to the production process. The contribution may be mainly physical effort, as for example in the case of workers whose job involves much manual work; or, in the case of top executives in business, the effort may be mainly mental, as in thinking out ways of producing goods, or devising new methods of selling goods and so on.

In measurable terms, an economy's labour resources can be defined as the total number of people in the population who are willing to work and seeking to be employed. The size of an economy's available labour force is obviously limited by the size of its population. However, it also depends on the age distribution of its population – the number of people in the economy, for example, who are below the school leaving age and past retirement age.

In 1971 the total population in the United Kingdom was just over 53 million. About 21 million, however, fell into the age categories of below 16 and over 65, so the total potential labour force was reduced to 32 millions. In addition, 9 million women could be classified as full-time housewives, so that the number of people actually willing to work was about 23 million. In 1971, however, the average level of unemployment was about 700,000, so the United Kingdom's total employed labour resources amounted to roughly 22,300,000.

(ii) Capital This resource is made up of all those physical goods which are produced for the purpose of helping to provide a range of goods and services. Capital resources, therefore, are not items which directly satisfy human wants. Rather they are part of the means by which goods and services in an economy can ultimately be produced.

Capital, as a factor of production, is a physical phenomenon. It includes physical items which may be combined with labour and other resources in the production process. Factories and buildings in which production takes place are examples of capital. So, too, is machinery used in all types of production – tractors, machine tools, combustion engines, textile machines, mining equipment, turbines used for generating electricity, computers, and so on.

Also included in an economy's capital resources are physical items which contribute specifically to the provision of services, rather than the production of goods. Examples of this are railway rolling stock, ships, aircraft and buses. Similarly educational buildings – such as universities, schools and polytechnics – hospitals,

houses and roads are also classified as capital, since they contribute to the provision of services which people want.

In 1971, the total stock of capital resources in the United Kingdom was valued at about £140,000 million, of which plant and machinery accounted for approximately thirty-one per cent. Of course, *additions* to the stock of capital are being made every year. In other words, some resources in the economy are being used to produce items such as machine tools and computers, rather than goods and services which flow directly into the hands of the economy's citizens. For example, an extra £7,000 million of capital equipment was produced in the United Kingdom in 1971 but only fifty per cent of this really added to the economy's capacity to produce *extra* goods and services. The other fifty per cent was produced to replace existing capital which had worn out.

The act of building a factory or a school or the making of a piece of machinery is referred to as 'investment'. In the language of economics, investment is the act of creating capital. For example, if a firm decided to set up a new factory in the Midlands and install several machines to help manufacture a range of soap powders, then the value of the factory and the machines would be defined as investment. The firm would have created capital to produce a commodity which would contribute to the satisfaction of people's wants.

(iii) Natural Resources This factor is often referred to simply as 'land' thereby highlighting the most obvious natural resource which any country possesses. In the widest sense, natural resources are really the physical attributes, e.g. fertile land, water, minerals etc., as well as all other natural attributes which a country enjoys, including climate.

Of course, many natural resources may need the application of labour and capital before they can be used to produce goods and services. For example, coal has been an endowment of nature for thousands of years, but only with the application of mining equipment and human effort has it become a source of energy. In addition, some endowments of nature can lie undetected. For example, the discoveries of gas and oil under the North Sea transformed previously unknown natural features into economic resources.

Although this classification of factors of production into labour, capital and natural resources is very general, it is useful for focusing attention on what are essentially the **inputs** to the process of producing goods and services. By categorising resources in this way, it is

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possible to spotlight and comprehend the fundamental problem with which economics is concerned. Basically there is a confrontation between unlimited human wants on the one hand, and limited resources (in the sense of a limited amount of labour, capital and natural resources) on the other. The outcome of this confrontation is that it is not possible to satisfy all human wants in our economy at the same time.¹ There are simply not enough resources to produce all those goods and services which people desire.

Choices and Alternatives

Since resources in our economy are limited in supply, while human wants are unlimited, clearly there must be *alternative* ways of employing the resources available. For example, we could use a piece of land for building a school. The site, however, might also be used to erect a factory which would produce a range of electrical equipment. In other words, the site has alternative uses. If it was decided to use the land for the school, then the decision would preclude the possibility of creating a factory in that specific location. We can say, therefore, that building a school would involve the *sacrifice* of a factory.

Similarly, a stretch of agricultural countryside could be used as farming land to grow food. However, it might also be a suitable area on which to build an airport. Again we have an example of alternative uses for a limited resource. A decision to use the land for an airport would involve a sacrifice of the food which might have been produced if the land had been used in an alternative way.

The notion that resources are limited, have alternative uses and therefore involve a sacrifice when they are used in some particular way is a feature common to all the factors of production outlined previously. Let us imagine, for example, that the government of the day so manages the economic system that all available labour resources in the economy are fully employed at a certain point in time.² A decision to employ an extra 1,000 men in the motor car industry in Britain means that alternative forms of employment for these men have been sacrificed. By assisting in the business of

¹ Indeed this is true of *any* economic system where there are limited resources.

² In fact achieving 'full employment' of labour has been a major concern of governments for some time (see A. G. Ford, *Income, Spending and the Price Level*, in this series).

manufacturing cars, they are thereby precluded from helping to manufacture chemicals or some other products.

Sewing machines in the clothing industry could be used to make men's clothes or women's clothes; in a food processing factory, a canning machine could be used to can strawberries or peas – but not both at the same time. Printing presses can be used by publishers to print books of paperback quality, or very expensive glossy productions. Capital equipment, therefore, is also a resource capable of alternative uses.

Opportunity Cost

There is one common theme underlying all the examples in the previous section. Whenever limited resources with alternative uses are employed in a particular way, some 'sacrifice' is involved. The 'sacrifice' can be thought of as a '*cost*' and is defined in economics as an **opportunity cost**, which is a measurement of the value of the resource in an alternative use. This concept is central to micro-economics and is worth illustrating in a little more detail so that the reader will confidently understand its meaning and implications.

Consider a hypothetical (and obviously very unrealistic) economy, where only two types of goods are produced – cigarettes and books. All this economy's resources – its land, materials, labour force and capital equipment – will be occupied in the manufacture of these commodities. One very convenient method of representing the relevant alternatives is by means of a graph depicting a production possibility curve, as illustrated in Diagram 1.1.

This curve represents the various combinations of cigarettes and books which the economy is capable of producing in a certain time period (say monthly) when all resources are being used as efficiently as possible. In other words, one assumes that there is no unemployment; also, since resources are used in the most technically efficient way, the curve shows the *maximum* combinations of cigarettes and books that could be made.

Quantities of cigarettes are measured on the vertical axis, and quantities of books on the horizontal axis. If the economy's resources were used purely to produce cigarettes, then 5,000 (shown by the point T) could be produced. Alternatively, if the whole labour force, all capital equipment, materials and land were used to make books, then the economy could produce 4,000 books (as shown by the point H).

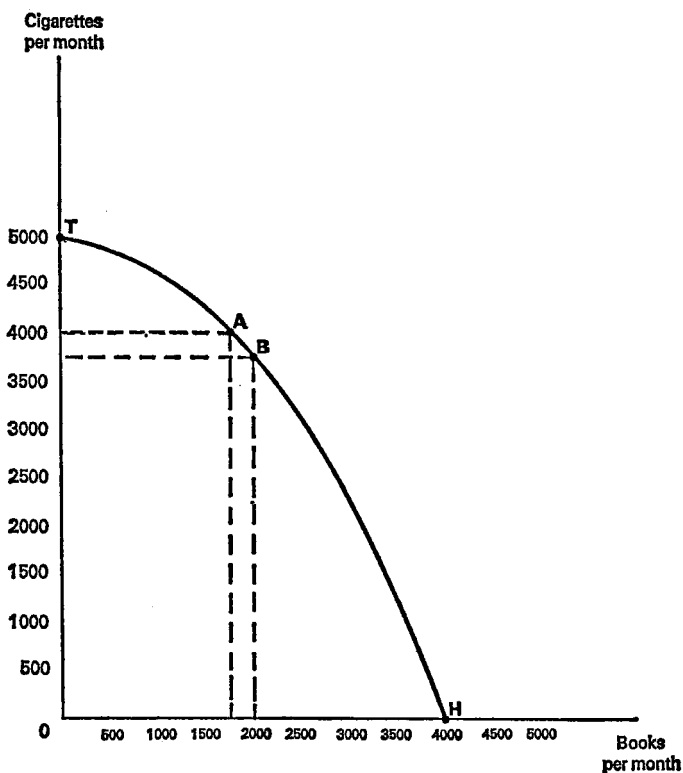


Figure 1.1 Production possibility curve

The curve TH is the production possibility curve for this economy, because it shows the maximum combinations of the two goods which are capable of being produced. Assume that resources are allocated between the two industries so that the pattern of economic activity can be represented by the point A. At this point, the economy is producing 4,000 cigarettes and 1,750 books. Now consider what would happen if an extra 250 books were produced. In terms of the graph this would imply a move down the production possibility curve from point A to point B.

Since the economy has limited resources, and they are already

fully and efficiently employed in the production of cigarettes or books, there will have to be a shift of resources from the cigarette industry to the books industry to enable these extra 250 books to be made. It can be seen from the production possibility curve what the effect would be on cigarette production. At point B, only 3,750 cigarettes would be produced, compared with 4,000 at point A. In other words, producing an extra 250 books has forced this economy to sacrifice 250 cigarettes.

The **opportunity cost**, therefore, of these additional 250 books is 250 cigarettes because that is the output lost by not using these resources in an alternative way. Point A and point B thus illustrate two possible combinations of these goods which can be produced when the economy's resources are allocated in different ways.³

Consider now two further situations. First, suppose the economy is at point Y in Diagram 1.2, where 2,000 books and 2,000 cigarettes are being produced. Since Y lies inside the boundary of the curve, this means *either* that some resources are not being used efficiently *or* that some resources are not being employed at all.

It is possible, for example, to increase the economy's production of books by an extra 1,200 (to the point P). Such a move, however, would not mean a drop in cigarette output because, at point P, 2,000 cigarettes are still capable of being produced.

The extra books have not involved any sacrifice of cigarettes because no resources have needed to be transferred. It is possible for this economy to acquire the extra books either by using existing resources in the book industry more efficiently, or bringing formerly unemployed resources back into use. The important implication, then, is that there is no opportunity cost in moving from U to P – nothing has been foregone.

After the winter of 1971 when over one million people in Britain were unemployed, production of goods and services in many industries began to expand. In some cases, this expansion was brought about by bringing unemployed people back into the labour force, rather than by a shift of efficiently employed resources from one industry to another. In other words, when some resources in the economy were unemployed, getting more of one good did not automatically mean having to do with less of some other good. In such cases, no opportunity cost was involved.

Secondly, a point such as X in Diagram 1.2, which denotes a

³ For a fuller discussion of production possibility curves, see C. D. Harbury, *An Introduction to Economic Behaviour*, Ch. 3, in this series.

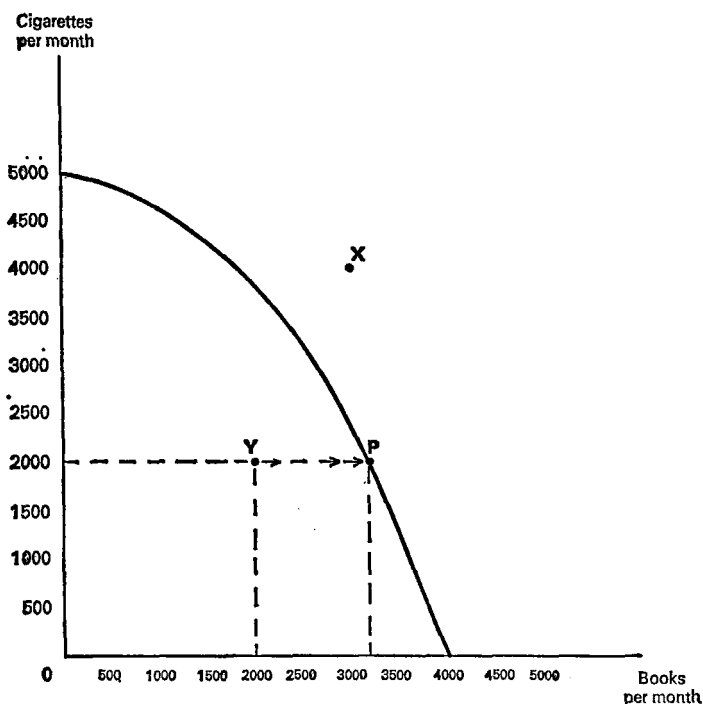


Figure 1.2 A move from Y to P involves no opportunity cost; but X is unattainable

combination of 4,000 cigarettes and 3,000 books, is clearly unattainable given the economy's existing amount of resources and the state of technical knowledge. If, of course, the economy acquired more resources, then the production possibility curve would move outwards to the right so that the point X might, in due course, be attained.

Opportunity Cost and Economic Analysis

Although we have illustrated the notion of opportunity cost in a very unrealistic economy where only two goods are produced, the

reader should not get the impression that the concept's usefulness is limited to such unreal situations. Indeed the concept of opportunity cost is one of the basic tools used by professional economists when analysing any problem involving the use of resources.

Consider an example such as the decision to raise the school leaving age to sixteen. What is the 'cost' of this decision? First, we would certainly include the cost of extra teachers. If they could potentially have been employed elsewhere in the economy then there is an opportunity cost in employing them in teaching. Similarly, extra books and teaching materials, perhaps extra school buildings, will represent opportunity costs if they were produced by resources with alternative uses.

There is, however, another element to be included in the opportunity cost of this decision. If the school leaving age was not raised, many people aged between fifteen and sixteen would be part of the working population and be contributing to the production of goods and services in the economy. By raising the school leaving age to sixteen, however, the *potential* output of these people is sacrificed since they are withdrawn from the labour force. Here is an example in practice of a resource where the alternatives are, very broadly, to employ them or keep them at school. If they are kept at school, then an opportunity cost is involved because the economy is sacrificing their potential contribution to the immediate production of goods and services. Thus we would want to add the cost of potential output sacrificed to the other opportunity costs – salaries, materials and building costs, etc. – to find the full opportunity costs involved.

Allocation Decisions

The production possibility curve showed what combinations of goods and services were available in a very simplified economy. It also implied that underlying these combinations were a number of critical decisions about the allocation of resources in the economy. For example:

(i) **What kinds of goods and services will be produced?** If it is not possible to produce every conceivable item that people want, then a decision has to be made about what goods and services the limited resources are going to be used to produce. In our previous example, if only two goods were to be produced, then why cigarettes and books, rather than some other goods?

(ii) What quantities of goods and services will be produced? Next comes the problem of deciding the relative quantities of each good and service that should be produced. In Diagram 1.1, for example, what determines whether the economy will be in position A or position B?

(iii) By what methods are goods and services produced? A choice has also to be made about the relative quantities of labour, capital and raw materials to be used in the production of each type of good. What determines how much of each limited resource will be used in the cigarette industry and books industry respectively?

(iv) For whom? The fourth decision concerns the question of who gets the goods and services produced, and, consequently, to what extent any individual's wants are satisfied. What determines who will receive the cigarettes and books actually made? All of these choices relate to the fundamental decision about how to allocate limited resources between a range of alternatives. Explaining how these allocation decisions are made is the primary purpose of this book.

We know, for example, that in recent years the United Kingdom economy produced annually, amongst other things, about 2 million tons of meat, 36 million barrels of beer, 147 million tons of coal, 7,000 million therms of gas, 24 million tons of crude steel, 61,000 tons of soap, 2,400,000 television sets, 523,000 record players, 1,055,000 washing machines, and 1,742,000 cars.

Of the total labour force of 24 million, about 58,000 people were employed making food, drink and tobacco; 900,000 were employed in the electrical engineering industry; 202,000 people worked in the shipbuilding industry; the textile industry employed 650,000 people, and 500,000 people helped produce clothes and footwear.

Of the total value of plant and machinery created annually, the agricultural industry was responsible for using about £100 million; the coal mining industry invested £52 million in plant and machinery; the food, drink and tobacco industry accounted for £183 million; the chemicals industry £307 million; and the railways £10 million.

Even such a partial glimpse of economic activity in the United Kingdom shows that decisions regarding the allocation of resources were obviously taken. The interesting question is – by what mechanism were the decisions taken?

How Allocation Decisions are Made

One method by which these allocation decisions can be made is a system of **markets** for goods, services, and resources. In markets, people can express a preference for what they want by the **price** they are prepared to pay. An economy made up of a vast interconnected system of markets can thereby set up *relative* prices for goods, services and resources, and it is through the mechanism of prices that resources can be allocated between alternative uses, and goods and services between people.

The major part of this book is concerned with explaining and analysing the processes of markets and the mechanism of prices in order to illustrate how decisions about the allocation of resources in an economy are made, and what the outcomes of these decisions are.

Economists are also interested in using this knowledge of the price mechanism to make predictions about how certain kinds of changes will affect the allocation of resources. What will happen in the economy if people's preferences for certain goods or services change? What will happen if people become more keen to buy coal? What will happen if production conditions (e.g. a rise in costs) in an industry change?

Increasing emphasis has recently been placed on this *predictive* power of economic analysis. One indication of this has been the increasing number of economists working in government departments, who use their understanding of economic analysis to predict how various economic trends might affect the pattern of resource allocation in the economy.

Indeed, we might extend our interest in the predictive power of analysis to cover the implications of policies designed to intervene in some way with the price mechanism. Can we say what would happen if the government decided to control legally the price of a particular good? Or limit the quantity of a particular good to be produced? What would happen if the government decided that the number of people working in a particular industry (as happened in the case of shipbuilding) would have to be maintained, despite pressures via the market mechanism to make many of them redundant and perhaps reallocate them eventually in other industries?

Economic Welfare

Later in the book, we focus attention on another aspect of the operation of markets and the price mechanism. How well does the system perform its job of allocating resources? Consider the gigantic task faced by an economic system like that of the United Kingdom. A working population of 24 million people has to be combined with a capital stock worth £140,000 million in order to produce a range of goods and services which will only partially satisfy the wants of 55 million people. How can we judge whether the price mechanism will ensure that the *best* decisions about the allocation of resources are taken?

After we have examined how the price mechanism works, we shall attempt to establish some criteria by which we can judge its performance. In simple terms, does the price mechanism do its job well or badly? It all depends, of course, on what we define its job to be, and on how we define 'well' or 'badly'. But if the satisfaction of human wants is the reason for economic activity, then is it possible to judge the system by the extent to which it does satisfy human wants?

A considerable body of economic theory called Welfare Economics (surrounded by equally considerable controversy) has attempted to provide some answers to these questions. Using the production possibility curve in Diagram 1.1, the essence of the argument can be summarised as follows:

(i) Of all the possible combinations of the products in the economy, which *particular* combination would most satisfy human wants, i.e. create maximum economic welfare? Is it denoted by point A, point B, or some other point?

(ii) To what extent does the allocation of resources by means of the **price mechanism** provide that particular combination of goods and services which would maximise the satisfaction of human wants? And to what extent, and for what reasons, does it fail?

The reader will already know from experience that in an economy like that of the United Kingdom all markets are not left to make allocation decisions without intervention by the government. Apart from what are known as **macroeconomic functions**⁴ such as managing the general direction of the economy to avoid unemployment and inflation, governments in Britain have also taken some responsibility

⁴ These macroeconomic functions are discussed in detail in A. G. Ford, *Income, Spending and the Price Level*.