An Introduction to Economics for Students of Agriculture

Second Edition

Berkeley Hill

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SECOND EDITION

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SECOND EDITION

by

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Introduction

This text aims to provide a simple but effective introduction to economics for students of agriculture and related studies in universities and agricultural colleges. While only a small minority of these students will have studied economics as a subject at school, all are soon made aware that most of the fundamental problems facing agriculture are of an economic nature. A rapid introduction to the discipline is required, yet economics generally forms only part of their total studies so that time for reading is at a premium. A decade of teaching experience without a basic text of suitable complexity and content prompted the writing of this outline of the economic theory of most relevance to this group of students as an attempt at a solution to their particular educational problem.

This introduction to economics aims to describe universal economic principles. It is not a book on the economics of agriculture but one of general economics illustrated primarily by examples drawn from farming and the food industry. Many books concentrating on the economics of agriculture, agricultural policy and farm management assume in the reader some basic knowledge of economics. This introductory text is intended to provide such knowledge and pave the way to the various specialist areas. At the same time, by providing a broad base of theory these specialist studies can be seen in better perspective. Even though a student may be intending to specialise in, say, farm management, his understanding of management problems will be greatly enhanced if he is aware of the arguments put forward for allowing more international competition and trade or of the explanations for inflation and the attempts at its control.

Despite this emphasis on the broad approach to the discipline, students of agriculture will discover that some facets of economics are of greater importance to their studies than others; of particular value are price theory and (because farm management is often a prime interest) production economics. In most introductory texts intended for GCE 'A' level preparation the balance does not favour these areas; instead, attention is switched to a description of the wider economy and its institutions. Intermediate university texts, while usually containing the necessary material, are often found too daunting by the novice. In tailoring an introduction specially for students of agriculture, it has been possible to produce a balance which it is hoped will best serve their needs in terms of content and complexity.

In preparing a second edition I have taken the opportunity of updating the text. Some of the examples needed changing after a decade in which market forces and private enterprise have been allowed to take a greater role in the way that the economy is organised. However, the main change is the addition of a chapter on government policy and agriculture. This does not compromise the general approach of concentrating on the introduction of economic principles, but it does recognise the importance to students of understanding the policy process. Perhaps in no other industry is the impact of government intervention more significant and pervasive. The inclusion of a description of the agricultural policy aims of UK governments and of the European Community and the ways in which these are turned into practical policy programmes was felt to represent a significant improvement to the text. Several reviewers of the first edition were of this opinion.

In any introduction there are always dangers stemming from over-simplification and exclusion. My hope is that serious misconceptions are not propagated here, and that students who find the treatment incomplete will turn to the intermediate texts noted at the end. The general standpoint I have taken to the subject is that of the free enterprise market economy and, although I have included references to centrally-planned economic systems, I am aware that no fundamental criticism of capitalism has been offered. Also perhaps more attention has been shown to Perfect Competition than might be currently fashionable. However, it should be recalled that most of the students for whom this text is intended will find themselves operating in Western economies with agricultural sectors which are capitalist in base, market dominated and where Perfect Competition perhaps comes nearest to reality.

At the end of each chapter is an exercise which makes use of the preceding material, and the completion of these exercises forms an integral part of the teaching function of this text. At the end of the book will be found extended answers to the questions posed in the exercises, a list of essay questions and suggested further reading.

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CHAPTER 1

What is Economics?

ECONOMICS is concerned with choice at all levels of society; choice by individuals, by firms and by local and central governments. Economics is the study of why choices are necessary and how they are made, a study generally undertaken with the aim of improving in some way the outcome of choices.

At the level of the individual, a person leaving school who is faced with a variety of possible college or university courses has to select just one, knowing that his selection will largely determine how he spends the rest of his life. Having made this major choice, whether he decides on agriculture or economics or law or whatever, he must during his student years allocate his time between the study of his chosen subject and leisure. If he spends more hours playing football, fewer hours are available for work. If his objective is to pass his examinations and yet enjoy some sport, he must choose how he spends his time in order to achieve success in his subject and still have pleasure from his leisure.

Businesses, from family firms to multinational companies, can use their manpower, capital and premises or land in a variety of ways and it is the task of their managements to choose to allocate the firm's resources in the best ways, which usually means in the ways which earn most profit. Taking an agricultural example, a farmer can perhaps grow wheat on his farm and have no other enterprises, or grow grass and keep dairy cows, or maybe he can have a mixture of grass and wheat. It is up to the farmer to choose how to allocate his land and other resources, such as his capital and labour force, between the alternative enterprises, bearing in mind what he is attempting to achieve from his farming. With a farm of a given size, using more land for cereals means that less is available for other crops.

The Government, or State, acting on behalf of society, raises money through taxation or borrowing and spends it on defence, roads, the

Health Service and social services, pensions, education and in many other ways. With a budget of a certain size, if the Government wishes to spend more on the Health Service it will have to cut back on something else—say, defence. Just as with individuals, the Government has to choose how to allocate its resources between many possible ways of spending, and by spending money on one thing it loses the opportunity of spending it on another.

The environment is another area where choice by society is involved. For example, society has sometimes to choose between building an airport in an area of natural beauty and having the natural beauty but also suffering congestion at existing airports. By enjoying the convenience of an extra airport, the opportunity of enjoying the unspoilt land is lost.

Opportunity Cost

Whenever choice is involved, taking one alternative automatically means that all the other alternatives have to be left or foregone. If the choice is made to build an airport on a piece of land, the opportunity to use that land for any other purpose is ruled out—for a nature reserve, or for farming, or for a golf course etc.

The cost to society of having an airport may be thought of as what has to be gone without by having the airport. If the land is currently used for farming, being judged the best way to use it before the airport was proposed, then this activity has to be foregone when the airport is built. Costs are commonly thought of in terms of money, but money in this context is only a useful common denominator in which the various items lost and gained by converting farmland into an airport can be expressed and compared. In addition, some of the important costs of having an airport, such as the extra noise involved and the aesthetic loss of unspoiled countryside, are very difficult to express in money terms and may well get left out of the calculation, making nonsense of any precise monetary figure that may be arrived at.

In the example, the land could be used for a whole range of purposes, but only one at a time. If it is used as an airport, the cost of using it as such is really the best alternative use foregone, in this case for farming—this is termed the Opportunity Cost of using the land as an airport.

THE OPPORTUNITY COST OF ANY CHOICE IS THE BEST ALTERNATIVE WHICH IS FOREGONE BY MAKING THAT CHOICE.

Another example is given by the student who can spend an evening drinking, or going to a cinema, or buying a book and studying it. If he chooses the pub but considers that the cinema would be next on his list of enjoyment, so that if he were not drinking he would be watching a film, the opportunity cost of his night in the pub is the visit to the cinema.

Scarcity

Choice by individuals or society becomes necessary because the resources which individuals and society have at their disposal are insufficient to satisfy all their wants simultaneously and completely. As individuals we often come up against money, or rather spending power as a scarce resource, so we have to choose how we use it. Time is another scarce resource.

Some commodities are not economically scarce; we do not normally have to choose how to allocate oxygen in the air—there is sufficient for us to use as much as we want for all purposes. It has no opportunity cost—we can use more of it by lighting a fire without having to breathe less. Such commodities are called *Free Goods*. Air is very common, but there are less common goods which are not scarce in the economic sense because they are plentiful *in relation to the desire or want for them*. An example might be the broken bicycle frames which adorn ditches and lay-bys.

A COMMODITY IS ECONOMICALLY SCARCE WHEN INSUFFICIENT IS AVAILABLE TO SATISFY ALL WANTS COMPLETELY AND THE QUESTION OF ITS ALLOCATION ARISES.

What is an Economic Problem?

An economic problem is said to occur whenever choice between alternatives presents itself. The Government, faced with decisions on how to allocate its revenue between education, defence, housing or social services, is facing an economic problem. So is the farmer allocating his labour force over a range of jobs. So is the fat lady who has to choose between a range of slimming diets on which to spend her money and time. The objective of her choice is clear—at least on first examination—it is to lose weight. What she has to choose is how to achieve it. This leads us on to consider what lies behind any choice—its objective or final goal.

Objectives of Choice

The woman in the above example appears to have an easily identifiable objective, or goal—that of losing weight. However, by questioning more closely, we may find that the taste of her diet is important too; she therefore has two simultaneous goals, weight loss plus a diet which is not unpalatable. A third goal might be cheapness of the diet because lower food costs mean that she can spend more on other goods and services which give her satisfaction. The choice of diet which the woman eventually makes, then, will be the result of her trying to achieve a whole range of goals simultaneously. It is difficult for an outsider to list all the goals and almost impossible to ascribe to each goal some measure of its relative importance. Yet the woman must have all these goals balanced, probably subconsciously, and her final choice will be her way of best achieving her objectives. Her choice will be rational and not just by chance. If presented with the same range of diets at some other time, as long as her objectives had not changed we would expect her to make the same, or a very similar, choice. Whilst it is difficult to specify her objectives, it is clear that she has some. Economists say that the individual is attempting to maximise her *satisfaction* by choosing as she does and make the assumption that the object of any choice is to get the greatest satisfaction which can be attained from the range of available alternatives.

The objectives of society in any choice are equally complex. This applies both to countries whose economies are mainly centrally planned, such as the socialist countries of Eastern Europe, to the countries such as the USA and UK with systems dominated by private enterprise, and to countries which have a mixture of both systems. Some of the objectives which are followed simultaneously and which are common to most countries are:

—national security
—a healthy population

—a high level of employment
—a fair distribution of income and wealth
—housing for all
—stable prices
—protection of the environment
—a high level of education
—economic growth
—individual liberty and the individual's control of his own environment (democracy).

Some of these objectives conflict and politicans will find themselves "trading-off" one objective against another. For example, to curb inflation it may be necessary to create a pool of unemployment. To prevent atmospheric pollution it may be necessary to control factories more closely and force them to produce their goods in a cleaner and more costly way; this will push up prices and may retard economic growth. Society has, in its choices, to balance all its competing objectives according to their various weights of importance. In a democracy these weights are indicated in the way that people vote at elections. Politicians are put in power who, broadly speaking, reflect the wishes of society.

The objectives of firms are generally easier to define. Their prime objective is to make profit by providing the customer with what he wants, but other objectives might be the minimisation of risk to the business, or to enhance the prestige of the company. In agriculture a farmer might consider profit to be relatively unimportant as a goal once a level has been attained which gives him an adequate living standard. He may then be more interested in doing what gives him pleasure—such as building up a pedigree herd of cows, or spending three days a week at local markets—and will arrange his farm with these non-profit motives in mind.

While objectives are generally difficult to define precisely, it is clear that individuals, society and firms all have them and that their behaviour is directed towards achieving them. Economics is concerned with how these objectives are approached.

We have dealt with scarcity of resources, choice and objectives. They can be combined into a definition of Economics.

ECONOMICS IS THE STUDY OF HOW MEN AND SOCIETY CHOOSE TO ALLOCATE SCARCE RESOURCES BETWEEN ALTERNATIVE USES IN THE PURSUIT OF GIVEN OBJECTIVES.

The Mechanism of Allocating Scarce Resources

In terms of how countries allocate their scarce resources, two chief types of society can be distinguished: (1) the society with a planned economic system, and (2) the society with a free market economic system. Problems of the allocation of the resources which can produce goods and services (i.e. land and natural resources, the labour force and managerial ability, and capital such as machines, buildings, power-stations etc.) occur in both systems. However, the ways in which the choices are made differ.

For the purposes of comparing a thoroughly planned economy with a free market system it is useful to consider each in the most extreme form, i.e. a totally planned system of production and resource allocation with one relying entirely on the market with no central co-ordination. This approach, which uses "models" of each system, is an attempt to capture the essential elements of a real-world situation without the complexities which would be encountered if we were to examine the details of the allocative process in real countries. The use of models permeates economic theory and will be encountered in this text when we consider the behaviour of individual consumers, of firms, of the whole economy and in a range of other contexts. Although models are often criticised as being "unrealistic", by containing the most important elements of a situation and disregarding the rest they may give us a far better insight into real-world situations and the likely outcome of actions or happenings than if we attempted to grapple with the complexities of the real-world situations without their use.

Basically, in any economic system decisions have to be made on three questions: (1) *what* goods and services are produced. For example, should supersonic passenger aircraft be produced, or should the manpower and other resources involved be used to produce, say, more colour television sets? (2) *how much* of each good and service should be produced? (3) *who should get* what is produced?

The country with a centrally planned economic system can answer these questions by a committee, perhaps called the Central Planning Authority, making estimates of how many shoes, coats, television sets are needed by its population and then sending directives to its factories telling them what and how much to produce. Assuming the Central Planning Authority also knows what resources are available in the country, it will probably also tell the factories how they are to produce their products. The nation's resources will thus be allocated in such a way that what needs to be produced *is* produced. Naturally such an economic system can only work where the State owns the vast majority of the land and capital (machines and buildings etc.) and where the inhabitants do what they are instructed to do. Furthermore, the Central Planning Authority will need to have available a vast range of frequently updated information on consumer preferences, the available resources and the technical details of production on which to base its planning decisions.

In the other extreme type of society, that of the unhindered free-market economic system, there is no central planning of what, how much and for whom production takes place. There is thus no centrally planned allocation of the nation's resources and these resources are owned by individuals, not the State as in the centrally planned economy. What is produced, and how much, is determined by consumers going to shops and buying goods. Surpluses of certain goods will soon disappear because, if shopkeepers cannot sell, say, a type of shoe and have to drop its price, they will not order any more from the factories, so production will be cut back. On the other hand, if not enough of a good is being produced, say, not enough colour television sets, so that consumers are waiting for delivery, shopkeepers will badger the factories for supplies. Consumers' wants are rapidly indicated to the producers, and they reallocate their labour force, capital etc. so that what the consumer wants and is able to pay for is produced. Resource allocation hence is a reflection of the wants of consumers; if consumers want a lot of colour television sets, resources will be switched to producing more of them.

No country in the real world is either completely centrally planned or operates a completely unhindered free-market system. However, the problem of resource allocation exists in both types of society and in all intermediate types; only the mechanism of making the choice differs. The study of economics—the study of how men and society choose to allocate scarce resources between alternative uses in the pursuit of given objectives—is equally appropriate in *all* types of society.

The Scientific Approach to Economics

A scientific approach to any subject follows the same basic pattern. The scientist becomes aware, through observation of his subject, of a pattern of circumstances. This might be that, when hydrogen and oxygen mix and are ignited, a liquid—water—is produced. Or it might be that roots of a plant tend to grow downwards even if the plant is turned upside down. Or it might be that consumers buy a greater quantity of petrol when its price is reduced. In an attempt to explain or to account for these observations, the scientist develops a hypothesis, or theory. This is a "positive", or testable, statement about a certain sequence of events with the conditions under which the statement is supposed to apply clearly stated. As well as improving our knowledge of the world about us, a successful theory is useful in that it enables the outcome of various occurrences to be predicted.

A positive statement says what was, is, or will be and its validity can be tested by an examination of the facts. For example, "lowering the price of petrol will increase daily petrol sales" can, or at least might be tested. Normative statements, however, are value judgements. For example, "old age pensions should be doubled" is a normative statement. It may be morally right, but it is untestable. Economics as a science is concerned only with positive statements, although this will not prevent economists from holding opinions, just like any other members of society, on what they consider to be ethically right or wrong.

A scientific theory or hypothesis, then, is a positive statement about a certain set of conditions developed by the economic scientist from his observation of the world about him. For example, the observed relationship between the price of petrol and the quantity sold might be expressed by the following theory: "The price of petrol and the daily quantity sold are related so that, if the price of petrol is reduced, a greater quantity is sold per day, and if the price is increased a smaller quantity is sold, all other things being equal". The last part, "all things being equal" (sometimes given in the Latin form *ceteris paribus*) is very important; it means that other influences on the volume of petrol sold, such as incomes of car owners (as people become richer they tend to spend more on petrol), or the other costs of running a car, do not vary. If they did, it would not be possible to tell whether the change in petrol sales had been the result of the change in petrol price *or* changes in the other influences.