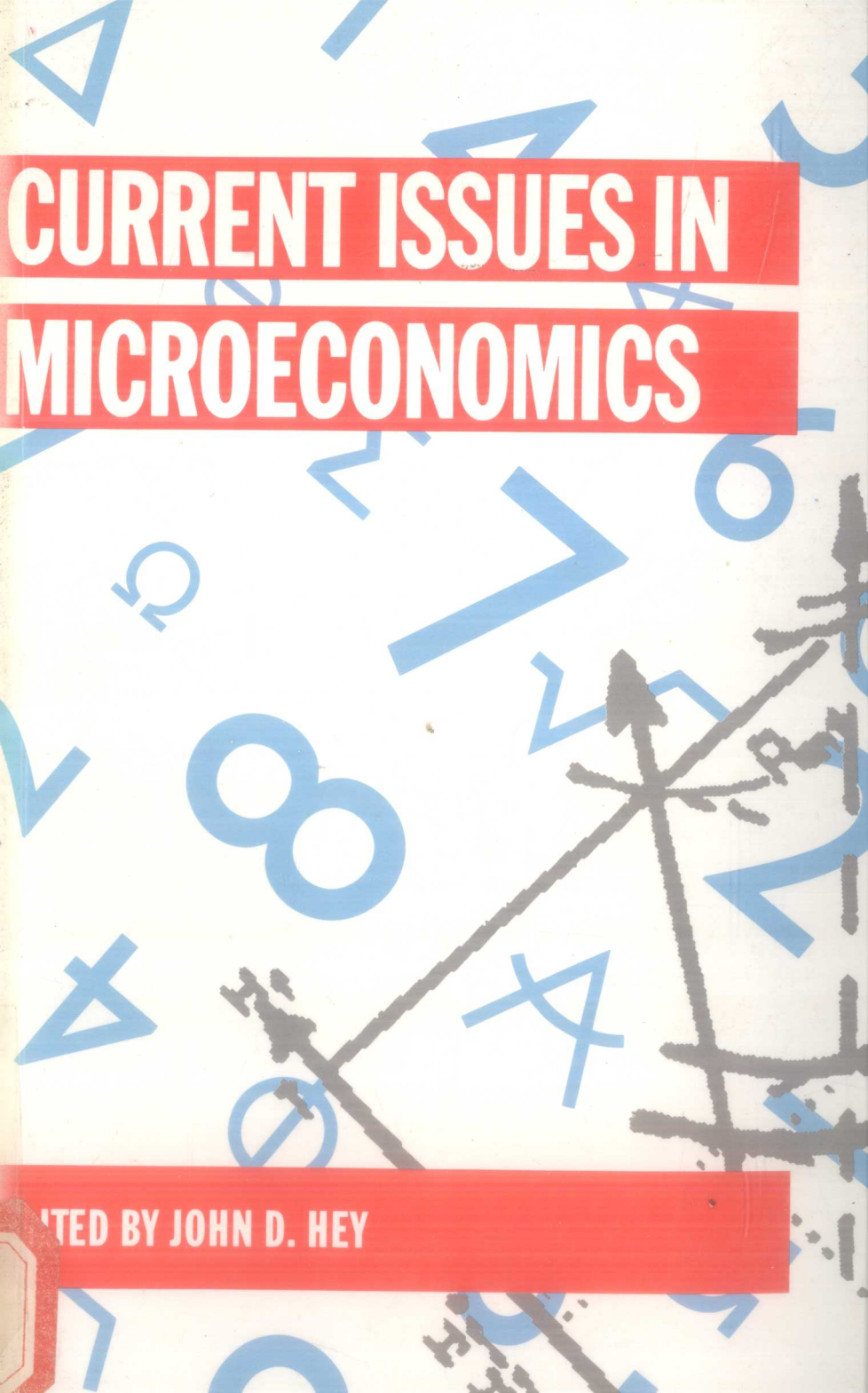
CURRENT ISSUES IN MICROECONOMICS



ITED BY JOHN D. HEY

Current Issues in Microeconomics

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CURRENT ISSUES IN ECONOMICS

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Series Editor's Preface

The *Current Issues* series has slightly unusual origins. *Current Issues in International Trade*, which Macmillan published in 1987 and which turned out to be the pilot for the series was in fact 'conceived' in the Horton Hospital, Banbury, and 'delivered' (in the sense of completed) in the Hilton International in Nicosia! The reader may be struck by the thought that a more worthwhile and enjoyable production process would start and finish the other way around. I agree! Be that as it may, that is how the series started.

As I said in the Preface to *Current Issues in International Trade* the reason for its creation was the difficulty of finding suitable references on 'frontier' subjects for undergraduate students. Many of the issues which excite professional economists and which dominate the journal literature take quite a time to percolate down into texts, hence the need for a volume of *Current Issues*. The reception which *Current Issues in International Trade* received persuaded me that it may be worth doing something similar for the other subject areas we teach. Macmillan agreed with my judgement, hence the series. Thus each volume in this series is intended to take readers to the 'frontier' of the particular subject area. Each volume contains ten essays, nine of which deal with specific current issues, and one which provides a general overview, setting the relevant current issues in the context of other recent developments.

As series editor the main challenge I faced was finding suitable editors for each of the volumes – the best people are generally the busiest! I believe, however, that I have been fortunate in having such an impressive and experienced team of editors with the necessary skills and reputation to persuade first-class authors to participate. I would like to thank all of them for their cooperation and assistance in the development of the series. Like me, all of them

will, I am sure, hope that this series provides a useful service to undergraduate and postgraduate students as well as faculty.

Microeconomics is the point of embarkation for almost all students of economics. Being at the core of the discipline, it is also an area to which most of us return from time to time, whatever our specialism. In this volume John Hey has selected nine issues which have been at the centre of recent developments in economics, issues which include: choice under uncertainty; microeconometrics; experimental economics; game theory; macroeconomics, and a number of others besides. He has persuaded a group of distinguished authors from the United Kingdom and North America to contribute. The result is a volume which should prove to be challenging, stimulating, and rewarding (in that order).

As well as being a first-rate economist, John Hey has considerable editorial skills. The combination of the two has resulted in what I think is a very fine volume. He himself provides a skilful overview of the chapters in his introductory chapter and it is unnecessary for me to comment on the detail of the chapters. I hope readers find the essays as interesting and rewarding as I have.

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1 Introduction: Recent Developments in Microeconomics

JOHN D. HEY

This Series of books is aimed at students of economics and non-specialist economists interested in learning about recent developments in economics. Usually, such recent developments first see the light of day in one of the academic journals, and take some time to filter through to the general economist. This process often takes several years. At the same time, however, the developments are assimilated – often in an informal (and sometimes mistaken) fashion by the leading economists, and are implicit in various pedagogical activities carried out within the profession. This puts the non-specialist at a considerable disadvantage. Unfortunately, there is usually no easy way for the non-specialist to make him-/or her-self aware of these recent developments, given that they are typically communicated in specialist language in high-level journals, from one highbrow economist to another. Often, advanced mathematics is used, and much – in the way of prior knowledge – is taken for granted in the exposition. Nevertheless, knowledge of such recent developments is of great importance: the greater the degree of dissemination of such developments, the more likely it is that those elements which are of practical importance for economics will eventually be put to use.

It is the purpose of this series of books – and of this book in particular – to help to close this information gap: to enable non-specialists to become acquainted with recent developments in the

subject; to communicate in non-specialist language to non-specialists. We hope that this series will be of immense value to students as well as economists in all walks of life who like to keep up with what is happening at the frontier.

This particular book is concerned with recent developments in *microeconomics*. I would contend that such developments lie at the very heart of economics – certainly given the way that economics is currently practised by the majority of the profession. It is increasingly recognised that all areas of economics rely on a central *core* of microtheory. This is true even in *macroeconomics*, where it is now widely agreed – in sharp contradistinction to the situation of twenty years ago – that theory must have a firm micro base. (This is not to imply that I agree with this: it is simply a comment on the situation as it exists at present.) So developments in microeconomics have possible implications well outside the narrow confines of micro itself. Conversely, developments in microeconomics – as we will see in the course of this book – have often been motivated by inadequacies in other areas of economics. This is particularly true of the ongoing macroeconomic quest to provide a satisfying theoretical explanation of various allegedly disequilibrium phenomena such as unemployment and inflation. We will find echoes of this particularly in Chapter 7 (which discusses the microfoundations of macroeconomics) but also in Chapters 4 and 5.

The recent history of microtheory can distinguish three broad phases (within the now-dominant mathematical neoclassical paradigm): first, the theory of the maximising agent (or agents) in a certain world; second – based on the triumphant rise of the Neumann–Morgenstern (now normally referred to as SEU – subjective expected utility) theory of behaviour under uncertainty – the theory of the maximising agent (or agents) in a (Neumann–Morgenstern) uncertain world; third, and most recently, the behaviour of agents in one we might call a post-SEU (post-Neumann–Morgenstern) world. It is with these latter two phases that this book is mainly concerned. (As will be or will become apparent, different parts of the subject are at different phases in their development: some are still absorbing the implications of the [SEU] theory of the rational agent in an uncertain world; others have moved on from there – for one reason or another.)

Much of this book is concerned with the treatment and effect of uncertainty – though there are deeper (methodological) issues to

which I shall come in a minute. The SEU theory of rational behaviour under uncertainty (of which I hope most readers are aware) fits in most satisfyingly with mainstream neoclassical economics in that it provides a logical (and rather elegant) description of how rational people *ought* to behave in an uncertain world. The application of this theory to economic problems has led to many satisfying predictions, which have, in many instances, been borne out by the facts. A number of illuminating examples can be found in Chapters 3 and 5. There is now a veritable cottage industry applying SEU theory across the whole range of economics. Although these are 'recent developments' in one sense, we do not include much discussion of such developments in this volume – for the simple reason that they do not describe 'current issues' at the frontier; in R&D terminology, recent applications of SEU theory are *developments* while the current issues discussed in this volume are *research*.

While SEU theory has proved a godsend in many areas of economics, there are other areas in which it has either proved 'unusable' and yet other areas in which it has proved empirically unsound. Accordingly, in these areas the literature has moved on, with current issues being concerned with alternatives to, or generalisations of, SEU theory.

Chapter 2 is concerned with some of these issues. Written by Mark Machina, this chapter is concerned, first, with the evidence casting doubt on SEU theory, and second, with the various alternative theories that have been put forward over the past few years. This is a very vigorous area of current research. To give a simple example which motivates the material of that chapter, consider (one variant of) the famous Allais Paradox: let A denote getting \$3000 with certainty, and let B denote a gamble which gives you \$4000 with probability 0.8 and \$0 with probability 0.2. If you were given a choice between A and B here and now, which would you choose? Now, consider the choice between C and D defined as follows: with C you would get \$3000 with probability 0.25 and \$0 with probability 0.75; with D you would get \$4000 with probability 0.2 and \$0 with probability 0.8. If you were given a choice between C and D here and now, which would you choose? Now, the conventional wisdom (SEU theory) requires that if you chose A (B) in the first problem you should choose C (D) in the second. Did you in fact do this? (To see why the conventional wisdom says that you

'should' have this pattern of choice, consider the following: precede both *A* and *B* in the first problem by a piece of preliminary risk – in each case a 25 per cent chance of getting to the initial starting-point and a 75 per cent chance of simply getting \$0; does this change your choice? Now note that *A* preceded by the preliminary piece of risk is simply *C*, while *B* preceded by the preliminary risk is simply *D*.) In practice, it is frequently observed that many people make choices that go against this prediction/prescription of the conventional wisdom. Moreover, many of these people continue to hold to their 'irrational' choices even after the error of their ways is pointed out to them. This is but one example of many which provide evidence to suggest that many people have preferences, and hence behaviour, which is inconsistent with the conventional wisdom in economics. Mark Machina describes this evidence, explains in what ways it departs from that indicated by SEU theory, and discusses the implications. In essence, these are two-fold: either the recommendation that we embark on a programme of education, so that 'irrational' people are taught the error of their ways; or the recommendation that economists produce some new theory to explain this apparently irrational behaviour. Naturally, this chapter is mainly concerned with this latter. Machina introduces us to a number of new theories – including Prospect theory, Regret theory, Disappointment theory and Machina's own generalised Subjective expected utility (SEU) theory ('SEU theory without the independence axiom').

In Chapter 3, we return to the conventional wisdom. Under the guidance of Ray Rees, we explore what SEU theory has to tell us about the impact of uncertainty on the behaviour of individuals and on the behaviour of markets. As might be anticipated, uncertainty not only affects behaviour but it also has adverse effects on individuals' welfare. Thus ways of evading or avoiding uncertainty are likely to prove of value (unless, of course, the evasion or avoidance is excessively costly). It is not surprising, therefore, that we see in the real world numerous instruments for avoiding risk: for example, various forms of futures markets; various price stabilisation schemes; various risk-sharing contracts; and so on. But, of course, the example *par excellence* is that of insurance. This is one of the main elements in Ray Rees's chapter. To begin with, Rees shows that a risk-averse agent would always choose to be fully insured if offered actuarially-fair insurance. A problem,

however, arises in a market situation if what is an 'actuarially-fair price' cannot be identified. This arises when the risk which the individual faces cannot be observed by the other side of the market. This is a classic example of what has now come to be termed the problem of *asymmetrical information* – when one side of any potential transaction has less information than the other side. Effectively, this means that (at least) one side of the market is uncertain about the nature of the good being traded. This problem frequently surfaces in economics – and resurfaces in later chapters of this book. When it arises, all sorts of problems can occur – at the worst trade may not take place ('the market ceases to exist'); at the best contracts are redefined in anticipation of the uncertainty (though this presupposes a critical amount of information available to market participants); in between, various suboptimal outcomes may result. This chapter discusses these issues – which are of crucial importance for the appropriate operation of economic policy.

Subjective expected utility theory is essentially aimed at the description of the behaviour of economic agents facing essentially exogenous uncertainty – uncertainty generated by Nature, rather than by the behaviour of other interested (possibly competing) agents. Crucially, in such 'games against nature', the nature of the uncertainty – although possibly modified by the agent's behaviour – is not essentially determined by it. In contrast, when there are other interested agents involved, the very essence of the uncertainty is affected (or perhaps can be affected) by the agents' behaviour. The most obvious example is that of duopoly. Consider the simple (mineral springs) model of duopoly used by Cournot in his classic study. In this each of the two duopolists must choose output in ignorance of the choice made by the other. So there is uncertainty – uncertainty about what the rival will do. But this is a different form of uncertainty from that encountered in games against nature: there is no exogenous probability distribution over the rivals' choices. But there is something else. This is seen in starkest form when the two duopolists are identical in all respects. In this case each duopolist can observe that the rival is identical and, in particular, must share the same reasoning about the appropriate solution to the choice problem. Thus, one duopolist can decide what to do by assuming that his or her rival is going through exactly the same mental process. In this way, possibly, the uncer-