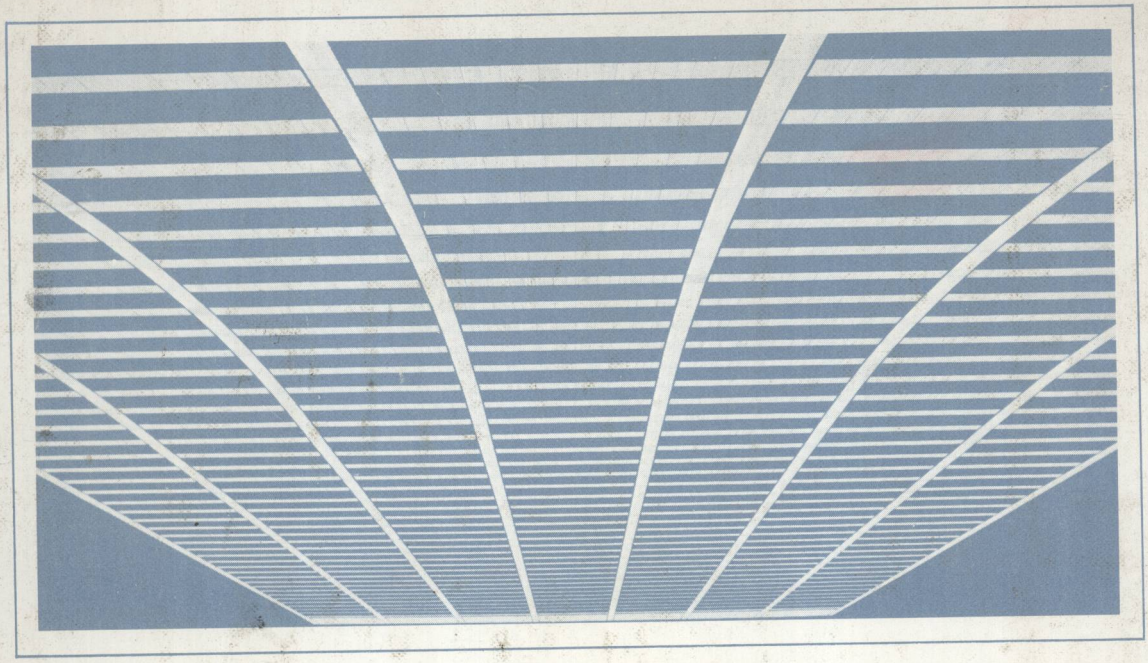

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THEORY AND APPLICATIONS

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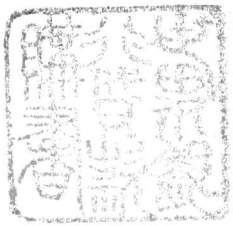

MICROECONOMICS

THEORY AND APPLICATIONS

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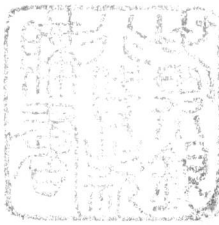

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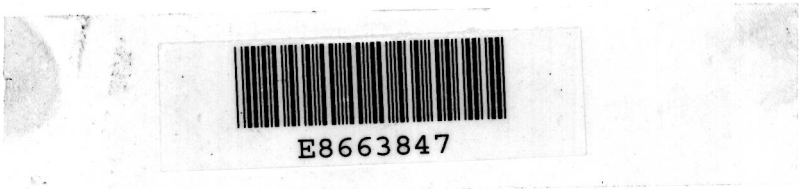

To Charles, Jeff, and Jennifer

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PREFACE

Our goal in writing this book has been to present in a clear, precise, and nonmathematical manner the essential core of microeconomics so that the student can acquire a solid understanding of the theory. To assist in the attainment of this goal, a large number of examples and applications that are relevant to the theory are discussed. These examples and applications are designed to shorten the lag that students encounter between the mastery of a theory and the illumination and satisfaction that result from applying it. Although they require no knowledge of statistical or econometric techniques, the examples and applications are often based on research that employs those methods.

The examples show how the theory that has just been examined is useful in understanding important and topical issues. The applications tend to be longer and to use, rather than simply illustrate, the theory developed in the chapter. Both the examples and the applications reinforce the theory that has been developed and further an appreciation for it. It is our belief that this presentation will appeal to students and will make their course in intermediate microeconomics an intellectually satisfying experience.

The book is also useful from the perspective of the professor. Although the chapters can be assigned out of sequence to parallel classroom lectures, there is a logical flow to the existing order that provides a useful continuity to the presentation. In many respects, this order should complement the organization of most microeconomics courses as they are conventionally taught.

There is one significant departure from the conventional sequence of topics. The chapter on welfare economics and general equilibrium is not the final chapter of the book. All too often, the last thing that the student learns from a microeconomics textbook is that some rather heroic assumptions must be satisfied if the market economy is to perform properly. The assumptions behind

the perfectly competitive general equilibrium model and the efficiency conditions that flow from those assumptions are important and are carefully developed in Chapter 12. But the theoretical and practical significance of this model needs to be put into a reasonable perspective—a perspective we strive for in the two remaining chapters. In Chapter 13, market failure is treated in detail in conjunction with the development of the theory of public goods and externalities, and an in-depth application dealing with the problem of pollution is provided. Chapter 13 also examines the importance of property rights and contains examples of how market arrangements develop spontaneously through the extension of property rights and then internalize previous externalities. This chapter provides both a justification of the political process and the means to take a realistic look at how this process works—a topic that is developed in the concluding chapter. By applying many of the tools that have served so well in analyzing private markets and by drawing on the increasingly important literature of public choice, useful insights into the political process are developed in Chapter 14. At this point, it should be clear to the student that the public sector does not provide a perfect substitute for imperfect markets.

A *Student Workbook* and an *Instructor's Manual* are available for use in conjunction with the text. The main feature of the *Student Workbook* is an extensive program review of each chapter. The workbook also contains a self-quiz for each chapter and problems that focus on the graphical and mathematical analyses. The *Instructor's Manual* contains a summary of the highlights of each chapter, comments on the problems in the text, and additional questions and problems for quizzes and examinations.

Many people have played an important role in the preparation of this book. We would especially like to acknowledge the assistance of our colleagues at the University of Colorado, particularly Philip Graves, Charles W. Howe, Larry Singell, Bernard Udis, Frank Vorhies, and Wesley Yordon. In addition, we are indebted to the critical reviewers of our manuscript: George Babilot, San Diego State University; Paul Barkley, Washington State University; Ralph Bradburd, State Universtiy of New York at Albany; Charles R. Chittle, Bowling Green University; Robert Cooter, University of California—Berkeley; James Moore, Purdue University; James Ramsey, Michigan State University; Eugene Silberberg, University of Washington; and Norman J. Simler, University of Minnesota. Lastly, we are indebted to Colene Priebe for her speedy and accurate typing of the manuscript.

Fred R. Glahe
Dwight R. Lee

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CHAPTER ONE

INTRODUCTION TO MICROECONOMICS

Introduction 1-1

This textbook is about basic economic theory and how it is used to analyze economic problems. The theory is somewhat conceptual and abstract, but the economic problems we will consider are unfortunately quite real and concrete. The feeling is sometimes expressed that a practical—rather than a theoretical—approach must be employed to address and understand real problems. What this view overlooks is that we are unable to formulate a practical approach if we do not understand the problem being considered—and all of our understanding is ultimately rooted in some theoretical structure. This opening chapter is intended to convey the concept of why theory is so important to our understanding of the real world and to provide an introduction to the ways in which economists theorize. The importance of theory will become increasingly evident as we progress through this book. We will develop theories and then apply them to practical problems that concern all of us, providing insights and understanding that will never be available to those who reject economic theory as impractical. As good theorists, however, we must first spend a little time defining our topic and looking at the types of questions that our definitions will lead us to consider.

What Is Economics? 1-2

Economics existed as a social science for many years before attempts were made to define it precisely. Once economists did begin to attempt to define the scope and nature of economics, they were often at odds with each other. In fact, the controversy over what economics is all about once reached such proportions that the Canadian economist Jacob Viner was prompted to quip, "Economics is what economists do." Although this may be an entertaining anecdote, it is not very satisfying to you as an economics student.

The English economist Alfred Marshall defined economics as the "study of mankind in the ordinary business of life." This was perhaps the most popular and widely used definition 60 years ago, but it fails to shed much light on the precise scope and nature of economics. Acknowledging the limitations of his definition, Marshall also remarked: "Every short statement about economics is misleading (with the possible exception of my present one)."

Recent definitions of economics have centered around aspects of the human condition, such as unlimited human wants versus the scarcity of resources available to satisfy these wants. The economist chiefly responsible for this approach to the problem of defining economics, Lord Lionel Robbins, states in his path-breaking book *The Nature and Significance of Economic Science*:[1]

> Economics is the science which studies human behavior as a relationship between ends and scarce means which have alternative uses.

Most contemporary definitions of the scope and nature of economics are merely elaborations and extensions of Lord Robbins' basic thought. For example, consider today's most widely read definition of economics, written by Nobel Laureate Paul A. Samuelson:

> Economics is the study of how men and society end up *choosing*, with or without the use of money, to employ *scarce* productive resources that could have alternative uses, to produce various commodities and distribute them for consumption, now or in the future, among various people and groups in society. It analyzes the costs and benefits of improving patterns of resource allocation.[2]

Throughout this book, we will demonstrate that Samuelson's (and our) definition of **economics** is applicable to all forms of conscious human action, ranging from such common, everyday problems as deciding how to allocate our time to the very important questions concerning the protection and quality of the environment in which we live.

The Fundamental Economic Problem

As more specific definitions of economics evolved, it became increasingly clear that one fundamental problem lies at the heart of all economic problems—the problem of **scarcity.** We are simply unable to convert our limited resources into all the goods and services we wish to consume. No matter how productive we become, or how many new resources we discover, we will still want more than what is available.

Economics has often been called the "dismal science"—a description first

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[1]Lionel Robbins, *The Nature and Significance of Economic Science,* 2nd ed. (London: Macmillan and Co., 1935), p. 16.

[2]Paul A. Samuelson, *Economics,* 9th ed. (New York: McGraw-Hill Book Co., 1973), p. 3.

applied by the Scottish historian Sir Thomas Carlyle in the early nineteenth century. There is an element of truth in Carlyle's remark, but this is not because economics is dull and uninteresting. Far from it. Any subject that deals with such a range of interesting problems could hardly be called dull. Economics is dismal only in the sense that the conclusions economists ultimately reach are often gloomy. Economic theory can guide us in the more efficient use of our resources, create more productive employment opportunities, and produce more wealth, but the end result will always be the same. Because resources are scarce, we will always be denied many things we would dearly enjoy having. So in some respects, economics is like the messenger who brings bad news, and many people resist the conclusions of economic analysis for the same reason that the king killed the messenger. Unfortunately, neither tactic changes the message.

An immediate implication of scarcity is that choices must be made and that each choice will be a costly one. Every time we choose to have more of one good, we are choosing to consume less of some other desirable commodity, and the value of this *sacrificed consumption* is the **opportunity cost** of every choice that is made. The economists' message is that every decision involves a cost—a message captured in the statement, popular among economists, that "there is no such thing as a free lunch." When someone begins talking about the benefits that will be realized from the expansion of a program or project, the economist is trained to point out that the resulting benefits can only be acquired by diverting resources from the production of other desirable goods and services. This does not make economists universally popular, of course; people often do not care to be reminded that their pet projects have disadvantages as well as advantages.

But if we are to make intelligent economic decisions, it is essential to consider opportunity cost. A rather obvious objective of any economy is to put available resources to use in the most valuable ways possible. The problem of scarcity can then be translated into the problem of directing limited resources into activities where they will be most valuably used. To do this, we must determine the value of a resource in each of its many possible employments, so that we can calculate the opportunity cost of each resource decision. A desirable resource decision directs that a resource be used where it will provide the most value—that is, where its value will exceed its cost.

Microeconomics

The branch of economics concerned with how individuals deal with the problem of scarcity is **microeconomics.** The analysis in this textbook will focus on individual decision makers and how they attempt to achieve their goals in their roles as consumers and producers. Understanding how consumers and producers behave and how their behaviors interact will help us understand how the economic process determines what goods will be produced, who will produce them, how they will be produced, and where they will be distributed. These are the basic questions that are answered by microeconomic analysis.

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