Second Edition

Intermediate Microeconomics

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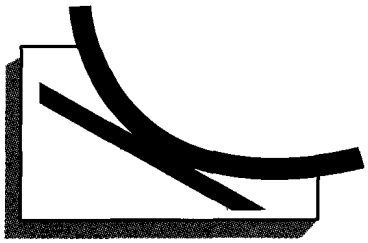

Preface

Intended for a course in intermediate or MBA microeconomics, or price theory, this second edition of *Intermediate Microeconomics* (former title: *Modern Price Theory*) brings modern topics—such as the economics of information, Nash equilibrium, and even a simple treatment of Shephard's lemma—into its discussions of traditional areas of study. No knowledge of calculus is assumed, but some footnotes explain concepts with the use of elementary calculus. The student is expected to be able to solve problems in algebra.

This edition differs from the first in including more applications, with 21 new boxed examples; substantive beginning-of-chapter quotes from the history of economic thought; better coverage of the economics of insurance in the earlier chapters; clearer treatments of difficult ideas (e.g., income and substitution effects; Shephard's lemma); fuller discussion of game theory; and a simplified appendix on linear programming.

The central vision of this edition remains the same as the first: To present modern microeconomics as both rigorous and practical. Some intermediate books emphasize the logical essence of economics; others excel in incorporating empirical illustrations into their discussions of economic theory. This book attempts to steer a course between a formal treatment suggesting that economics is abstract and sterile and an informal, intuitive approach suggesting that economics is not a rigorous, logical subject.

Consistent with my goal of presenting economics as a blend of the rigorous and the practical, each chapter attempts to set down the most logical treatment of any given theory or model. To demonstrate the applicability of the theory, each chapter includes illustrations in the text as well as boxed examples. In some cases, the examples illustrate the *usefulness* of the theory in the real world; in other cases, the examples show the *limits* of the theory in practice. Every chapter works out Practice Exercises to demonstrate how the theory is applied to a real problem. Each chapter concludes with a Summary, a set of Questions and Problems to test the student's understanding of the chapter, and a list of Suggested Readings for further study. Answers to the even-numbered

Questions and Problems are found at the end of the book; answers to the odd-numbered Questions and Problems appear in the *Instructor's Manual.*

Because a precise understanding of the vocabulary of economics is critical to an understanding of economic theories, every important term appears in boldface type at its first use in text and is accompanied by a formal definition in the margin. A glossary of all important terms can be found at the end of the book, with the definitions referenced by chapter. Key ideas appear in color following the paragraphs of text they summarize.

The following people gave me the benefit of their wise counsel and saved me from making errors of judgment or substance: Oded Palmon, Louis Stern, Paul Gregory, Tom Mayor, Ronald Jones, Farhad Rassekh, John Antel, and Joel Sailors. This book also benefited from the helpful suggestions of the following people, who reviewed it in the manuscript stage:

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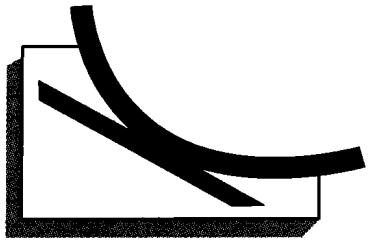
Roy J. Ruffin



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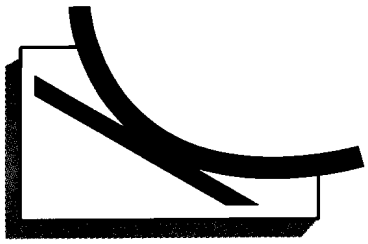


CHAPTER 1

Introduction

The experience of the past leaves little doubt that every economic system must sooner or later rely on some form of the profit motive to stir individuals and groups to productivity. Substitutes like slavery, police supervision, or ideological enthusiasm prove too unproductive, too expensive, or too transient.

Will and Ariel Durant, The Lessons of History

By tradition, modern economics was born in 1776 when Adam Smith (1723–1790), a Scottish economist, published his *Inquiry into the Nature and Causes of the Wealth of Nations.* The world of Adam Smith was one in which government not only set the rules of the game, but also controlled the play by granting monopolies and special privileges. Smith made the case for free enterprise and competition. He argued that decisions made by buyers and sellers to promote their own self-interests would be guided by an "invisible hand" to promote the best interests of society as a whole.

Economics is the study of people in their everyday business of earning a living, spending their income, and allocating their leisure time. While profit is the main goal of economic activity, the study of economics must consider many goals other than profit: altruism, fame, and knowledge are a few. A person may be just as strongly motivated toward the achievement of knowledge or social justice as toward the pursuit of wealth.

An economic system begins with the factors of production: land, labor, and capital. Land consists of all those things that are the free gift of nature; it includes cornfields, coal mines, diamonds, oil, and tumbleweed. Labor consists of the power of human beings to carry out the various tasks required to produce a vast array of goods and services. Capital comprises both physical capital and human capital: physical capital consists of the produced means of production such as buildings, computers, trucks, and lathes; human capital consists of the learned skills of human beings to perform complex tasks.

The goods and services produced by an economic system satisfy the various wants of the human population. The satisfaction that people derive from consumption is called *utility.* Thus, the resources of land, labor, and capital produce goods and services that in turn produce utility.

THE LAW OF SCARCITY

The **law of scarcity** is that our wants cannot all be satisfied by our resources.

The central problem of economics is scarcity. The **law of scarcity** is that people have unlimited wants, but society has limited resources. No matter how vast a country's resources, they are meager compared to the number of ways its population wishes to use those resources. As long as there is scarcity, scarce goods must be rationed in some way among individuals competing for them. In such a world, three questions are paramount: (1) *What* goods will be produced? (2) *How* should the goods be produced? (3) *For whom* will scarce goods be produced?

An economic system is a set of customs, institutions, and rules for answering the questions of *what, how,* and *for whom.* A market economy is one in which resources are allocated by private individuals in a setting where the state defends and defines property rights. The right to use a scarce good or service is conveyed by the institution of markets, where prices are freely established among competing individuals. This right could be distributed by many other mechanisms: on a first-come, first-served basis; to the strongest; to the most attractive; to the fastest; by rationing. All of these mechanisms are used to some extent in the world in which we live. For example, in the Soviet Union, a modest price system plus the first-come, first-served system is used to allocate the most desirable commodities. In wartime, ration tickets or coupons may be issued by a government to control distribution of scarce goods.

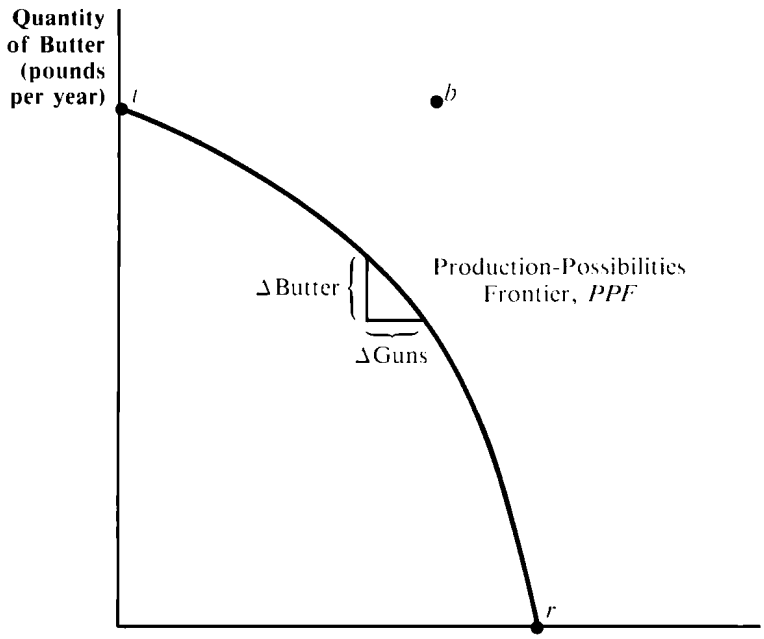
Free goods are goods or services for which supply exceeds demand even at a zero price.

Scarce goods are goods or services for which demand exceeds supply at a zero price.

Goods may be free or scarce. For **free goods,** such as air, supply exceeds demand even at a price of zero. Commodities or services are said to be **scarce goods** if the quantity people demand at a zero price exceeds the supply at that price. According to the law of scarcity, there will always be scarce goods in the economy. As long as human imaginations can soar, people will want the unattainable. How many times have we heard of very wealthy individuals owning as many as 85 Rolls-Royces, several Boeing 747s, or 3,000 pairs of shoes? The rest of us can only imagine having a Mediterranean villa staffed with servants, all the cars and clothes we want, or all the caviar we can consume. At a zero price, we would try to make our dreams become reality. But with few exceptions (the so-called free goods), most of the interesting goods we could contemplate would turn out to be quite scarce.

Economics, as traditionally defined, is the study of how society allocates scarce resources among competing ends. What makes the problem of scarcity serious is that allocating resources requires sacrifice. Because of scarcity, we must make hard choices, and some people end up with more than others.

FIGURE 1.1 Production-Possibilities Frontier: Guns Versus Butter



The production-possibilities frontier is downward-sloping and concave to the origin. Its slope, ΔButter/ΔGuns, reflects the opportunity cost of guns—the quantity of butter that must be given up to obtain one more gun.

Because of scarcity, people must economize and choose among the alternatives confronting them.

What makes the economic problem difficult is that information about the alternative uses of resources is costly to obtain. Indeed, it can be argued that the most important scarce commodity in society is *information*. If people had perfect information about everything, every resource could be immediately directed to its highest and best use. No consumer would ever be persuaded to pay too much for a product. No firm would ever commit resources to producing a product that did not sell. No skyscraper would ever stand empty. No family would receive charity without being deserving. No unqualified employee would be promoted over one who was more qualified. Nobody would be unemployed because of not knowing about the best available job.

Figure 1.1 gives a picture of the economic problem. An economy consists of resources (land, labor, and capital) for producing goods and services. To