Managerial Economics: Analysis and Cases

Thomas J. Coyne, Ph.D

Professor of Finance

John Carroll University

Managerial Economics: Analysis and Cases

Thomas J. Coyne, Ph.D.
Professor of Finance
John Carroll University

Fifth Edition
BUSINESS PUBLICATIONS, INC.
Plano, Texas 75075

ISBN 0-256-[illegible]

Library of Congress Catalog Card No. 83-62[illegible]

Printed in the United States of America

1 0 9 8 7 6 5 4

PREFACE

Courses in applied price theory, business economics, decision making, and/or managerial economics are relatively new to academe. Yet, the subject matter ranks among the most fascinating studies a person can undertake. The first serious, formal treatment of managerial economics was probably done by Joel Dean in 1951.[1] Since that time, many colleges and universities throughout the United States, Canada, and elsewhere have introduced courses designed to enable one to apply abstract economic theory to the daily operations of profit as well as not-for-profit institutions. Professors located in business and arts and sciences colleges applaud these efforts.

Economic theorists believed at one time that economic theory was not intended to be applied. They thought theory should be studied for the sake of theory. Such study broadens one's mind, thereby making him/her an educated, well-rounded individual. While retaining the strengths of sound theory, professional schools of business have demonstrated that formalized presentation of the tools and techniques contained in this volume, once mastered, cause the student to become the most proficient of persons functioning in the business world.

Several hundred colleges throughout the United States, Canada, and abroad teach formal courses in managerial economics. Judging by the quality of their graduates, they have been and are doing excellent work. One major problem remains, however, and this book is written in the hope that it will contribute in some modest way to alleviation of that situation. The problem is this: Unlike more conventional courses—such as algebra, French, chemistry, and so on—the model building associated

[1] Joel Dean, *Managerial Economics* (New York: Prentice-Hall, 1951).

with managerial economics cannot be taught; yet, as Baumol reminds us, it can be learned.[2]

Many subjects can be learned but cannot be taught. Consider, for example, the dilemma of a professor who writes and a student who reads a book describing how to ride a bicycle. The probability is high that no one will ever so successfully reduce to writing an explanation concerning how to ride a bicycle that a student, having read the book, will be able to jump on the bike and pedal across town. The same general statement, of course, holds for swimming. One interested in learning to swim must jump into the water and practice again and again the few successful techniques that have worked for others. These techniques help the novice swimmer to overcome fear of the water, to develop breathing and timing, and to build self-confidence. The rest is up to the novice. In essence, the same principles hold when economic theory is applied to the real world of business. As with riding a bike or swimming, once managerial economics is learned, it cannot be forgotten.

This book is not a treatise on how to succeed in business by applying basic economic theories. It does, however, present in a methodical manner several theoretically sound economic principles, which taken together, constitute a tool kit of sorts. This kit contains various methodologies that one should employ when analyzing business problems. To the greatest extent possible, it provides the reader with explanations of how, when, and why certain applications are appropriate. The analysis is based on qualitative as well as quantitative data.

Responsibility for successful implementation of the tools and techniques contained in this tool kit rests with the student, not with the professor. Each student has a business background and work experience that is unique. As a student reads this text, insights and understanding of the materials presented are limited only by one's imagination and creativity.

The book is appropriate for upper division undergraduate students and potential M.B.A. degree holders, both traditional and executive-type programs. The book assumes the student has introduced himself/herself to the fundamentals of math, accounting, finance, economics, statistics, and marketing. It appeared initially in colleges and universities as the sole effort of the late William W. Haynes.[3]

Dr. Haynes served as Dean, College of Business Administration, SUNY–Albany. His numerous articles on economics and the state of many industries and our national economy benefited the business and

---

[2] William J. Baumol, "What Can Economic Theory Contribute to Managerial Economics?" *American Economic Review*, May, 1961, pp. 142–46.

[3] William Warren Haynes, *Managerial Economics, Analysis and Cases* (Homewood, Ill.: Dorsey Press, 1963).

private organizations for whom he was researcher and consultant. The anthology to which he was contributing at the time of his death is now in its third edition.[4]

Economics is not only fascinating, it is practical. When corporations find they cannot operate to the right of their break-even point, losses occur, heads roll; major confrontations within the firm and between the firm and its creditors, unions, organizers, governments, stockholders, managers, and so on, inevitably arise. When a family encounters financial difficulties, conflicts arise that might lead to marital problems. When a nation finds too large a segment of its population not prospering as it would like, major military conflicts often develop. Such conflicts and confusion could be avoided with a proper understanding and application of economic theory. This book helps one gain a proper understanding of applied economic theory. It combines textbook exposition with cases in a manner that avoids having the student develop the principles of economics on his/her own.

In using this book be reminded that it represents an integral set of concepts as opposed to a variety of divergent and independent ideas. It presents a cumulative flow of analysis, which reaches a higher degree of complexity as the learning proceeds. The book introduces basic ideas in the earlier chapters and uses and builds upon those theories in the later sections. This method of presentation requires constant application, for a failure to master the earlier material will create difficulties in understanding what follows. This method also involves some repetition: the same ideas crop up from time to time throughout the volume. The author considers repetition of this nature advantageous. By considering the same ideas in different settings, the student grasps their full significance. After all, a medical student does not become a brain surgeon by reading about one operation. The same statement holds true for other professionals. A college of business student does not become an economist who can manage scarce and costly resources by successful one-time exposure to crucial concepts.

Managerial economics is not merely another course in economic theory; it requires a different approach than found in a theory text. The understanding of a graph revealing the theoretical equilibrium in perfect competition, for example, is less important in managerial economics than are the marginal tools of analysis incorporated in the theory. An understanding of theory *is* mandatory; this book assumes at least elementary training in economic theory. But managerial economics is concerned with application of that theory, a special subject in itself. When theoretical analysis is presented in this book, its relevance to practice is developed.

[4] Thomas Joseph Coyne, *Readings in Managerial Economics* (Plano, Tex.: Business Publications, 1981).

Nothing may be more irritating to a student than to read a section on pure theory and then another on practice with little obvious connection between the two. The connection between theory and practice is the reason for being of this book. Every effort is made to make these connections as clear as possible.

The presentation of analysis without case material is inadequate for the purposes of managerial economics. The very nature of managerial economics is one of application, and the best way to learn application is to apply. Anyone should be able to learn a formula for calculation of the elasticity of demand. But the estimation of price elasticities in actual markets requires a variety of skills; moreover, application of the knowledge of such elasticities to decision-making problems is far from simple. Procedures for the treatment of risk and uncertainty (Chapter 12), for example, cannot displace completely the more subjective skills in determining the extent to which such analysis should be carried and the degree of refinement, if any, that is justified. A course in managerial economics without cases misses the point, misses some of the judgmental skills considered by the author as an essential, vital part of the subject.

Price policy, a major subject of managerial economics, is governed in part by antitrust and other government regulations. This book makes no effort to teach the intricacies of such legislation and its interpretations in the courts. The reader is reminded of the importance of the legal environment within which decisions are made. The case method is used for this reminder because, again, it is an excellent way of introducing such considerations. A good case is never exclusively concerned with economic variables but reveals how economic factors are mixed with other variables. Chapter 3 and the cases associated with it suggest the complexity of the "total situation" found in actual business practice.

Decision analysis, Bayesian statistics, quantitative methods, strategic planning, and management science are subjects that have a close relationship to managerial economics. In fact, in 1984, it is impossible to determine whether capital budgeting is in the field of economics or finance. The same statement is true of operations research, a field distinguished by its mathematical approach. But as managerial economics becomes more mathematical, these differences lose significance. This book introduces the student to a variety of econometric studies and approaches that move in the quantitative direction of modern management science; it also contains a number of models of the sort that are characterized by new developments. But this book cannot hope to go into the quantitative approaches as deeply and thoroughly as do volumes specializing in those topics. Many of the simplifying assumptions in quantitative models are like those in managerial economics, so that the overlap with books in management science is substantial.

Some generalizations of managerial economics seem quite obvious when stated simply but take on a different character when related to concrete reality. *The economist who can manage* is one who can mold fundamental analytical tools to meet the needs of a specific decision-making situation. The materials presented in this book (of course, including the cases) provide the training necessary for successful application of theory to solution of real-world problems.

Numerous persons have given generously of their time and talent in the development of this book. Bruce Allen of Michigan State University provided helpful suggestions in the very early stages of this volume's development. Chandra Akkihal, Marshall University, reviewed rough drafts of one chapter. John M. Trapani, University of Texas at Arlington; Michael Stoller, SUNY–Plattsburgh; and John Claire Thompson, University of Connecticut, reviewed the book and offered meaningful suggestions.

Herschel Heath, Marshall University; Donald Anthony, Kent State University; and Welden Welfling, Case Western Reserve University each had a hand somewhere in the preparation of this text.

David Krazewski and Glen Weber are former research assistants of the author. They were graduate students at the University of Akron and Carnegie-Mellon University, respectively, when most of the book was in its mimeographed form. David and Glen helped find research materials and contributed ideas for improving certain problems. Hundreds of graduate students have been subjected to most of the materials presented in the text in mimeographed form and have contributed ideas for improving the exposition.

Thanks are due to Alain Remly-Post and to John Michael of John Carroll University (JCU) for their encouragement. Colleagues at JCU have read parts of the manuscript and have made helpful suggestions. Thanks in general are expressed to V. Ray Alford, Dean, JCU, for creating an atmosphere and environment conducive to research, and in particular for giving support and having patience during the writing stages of this volume.

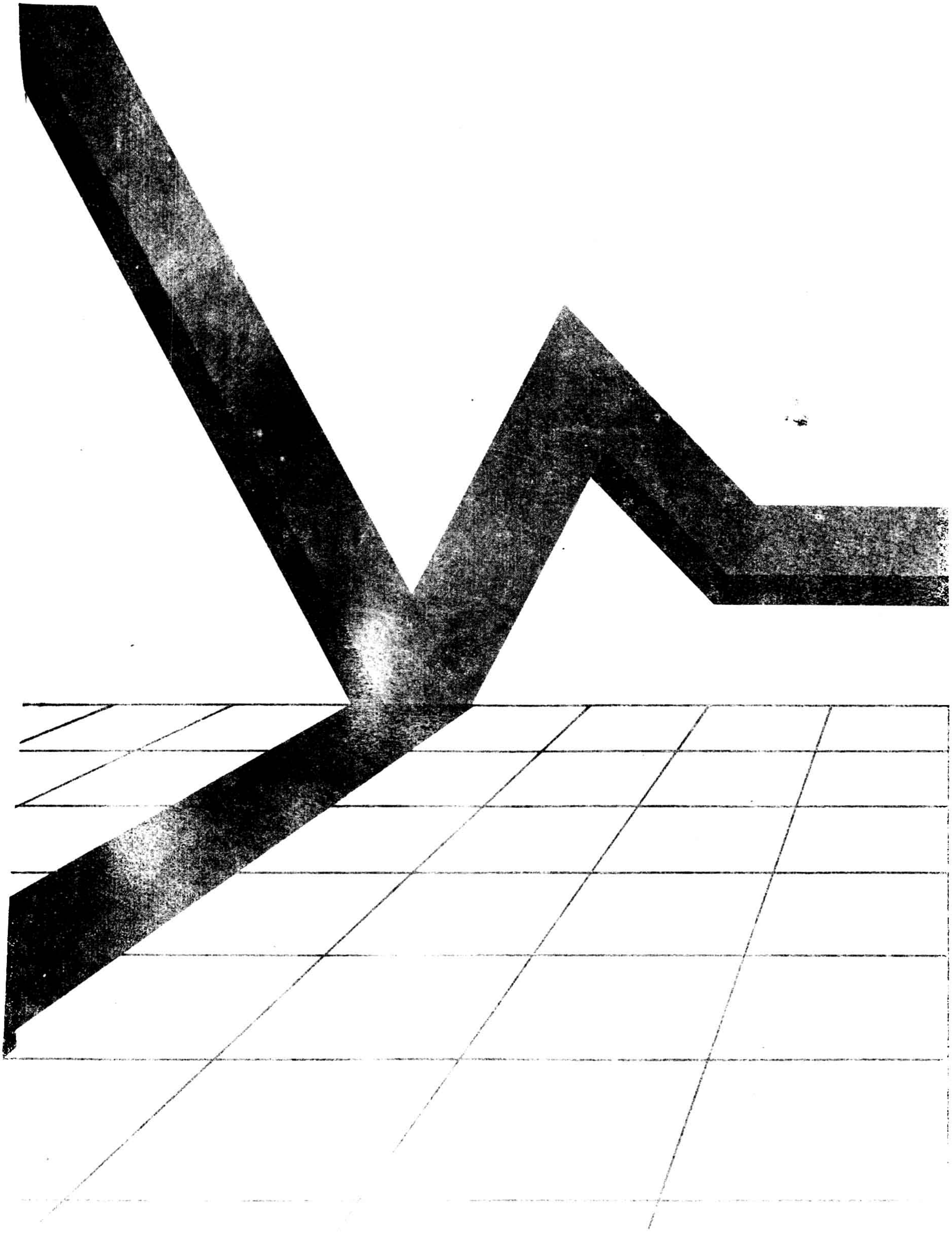
Margie Wasdovich, the faculty secretary, and her staff and Marge Mauk, Joan Milenock, and others of JCU, and Dianne Berecek of Economic Consultants Incorporated (ECI) were helpful in typing and in correcting mistakes. JCU honors student Jeff Linkler suggested a title for one case and Clayton Cerny helped with the index. The author is very grateful to all but takes full responsibility for the errors that remain.

The assistance of businesspeople who provided materials for many of the applications is also gratefully acknowledged. In addition, on-the-job experiences gained by the author while employed or otherwise affiliated with the J. C. Penney Company; The Baltimore & Ohio Railroad; Vanpelt

and Brown, Inc.; Ross Laboratories; The Robinson Clay Products Company; The Chessie System; Tri-State Petroleum Corporation; Summit Petroleum Corporation, and ECI brought the kind of real world perspective that is indispensable to the writing of a book intended to help an economist manage resources more effectively.

Thomas Joseph Coyne

Managerial Economics: Analysis and Cases



PART

1

Introduction to managerial economics