THEORY OF INDUSTRIAL ECONOMICS

CLEMENT G. KROUSE

Theory of Industrial Economics

Clement G. Krouse

Basil Blackwell

First published 1990

Basil Blackwell, Inc.
3 Cambridge Center
Cambridge, Massachusetts, 02142, USA

Basil Blackwell Ltd
108 Cowley Road, Oxford, OX4 1JF, UK

Library of Congress Cataloging in Publication Data
Krouse, Clement G.
Theory of industrial economics.

Includes bibliographical references.
1. Industrial organization (Economic theory) I. Title
HD2326.K76 1990 338.5 89-18147
ISBN 1-55786-029-7

British Library Cataloguing in Publication Data
A CIP catalogue record for this book is available from the British Library.

Typeset in 10 on 12 pt Times
by KEYTEC, Bridport, Dorset
Printed in Great Britain

Theory of Industrial Economics

To Elke,
who is always my co-author

Preface

This is a text in economic analysis. Its purpose is to set out systematically the theoretical foundations underlying the economics of industrial markets. The long list of references which make up the final pages of the text is a clear indication not only of the scope of the material, but also of my debt to others for their ideas. I would, however, like to specifically express my gratitude to those colleagues who have read and commented on early drafts of the manuscript: William Comanor, Ted Frech, Stanley Ornstein, Ivan Png, Eric Rasmusen, and Stanley Reynolds deserve particular mention in this regard. David Li and Lee Motley were careful and cheerful student readers. In addition, an acknowledgment is again due to my friend J. Fred Weston for his intellectual support. I also appreciate the patience of Becky Davis, David Alix, and Bee Hanson, whose TROFF skills brought some order out of a chaotic first draft. Finally, there is a salute to Bryan, who says he will peruse, but not study, this sort of thing.

Clement G. Krouse
Santa Barbara, CA

Introductory Note

What is written here concerns economic theory generally and the economic theory of markets specifically. The nature of competition, the determinants and welfare effects of market structure, the variety of products that will be produced, and the price and sales policies of suppliers are indicative of the topics addressed. This is the usual stuff of the industrial economics field.

Perhaps the most widely noted shortcoming of traditional industrial economics has been the tendency to move too rapidly from economic analysis to empirical study and policy prescription. That impatience with building solidly on underlying theory has changed in the last decade. Compared with earlier work, recent research makes systematic use of microeconomic theory in a way which recognizes that industry history matters, that the costs of information in part determine what is preferred and what is supplied, and that competition is a dynamic process. Property rights, moral hazard, transaction costs, and complex contractual arrangements, both implicit and explicit, are more carefully considered, and the structure and solution concepts of game theory are used to unify these things.

While there have been these important advances, very little of this has found its way into modern texts. This book is written in response to these observations. That does not mean that this is a compendium. Of necessity topics have been dealt with selectively in both their depth and their breadth. Despite this, I have attempted to cover the major issues along with solution concepts and principles of analysis. While the theories that are addressed in this way generally lead to testable implications, this is not always the case. Some analyses are included largely because they provide a basis for further study by offering insight and simplicity to otherwise complex and confused topics.

The treatment of topics found in the following pages differs from most prior work in three ways. First, I am able to draw on extensive literature in dynamic models of competition that was not available a decade ago. That is a major advantage in the analysis of industrial markets. Second, rather than viewing microeconomic theory and institutional description as being in essential conflict, I am inclined to think of these as complements which jointly contribute to our understanding. When the opportunity arises, the solution *concept* is tailored to what is actual in an industry. Third, I have attempted to be explicit, sometimes painfully, about the "rules of play" in each analysis and to point to those which are at the heart of any startling results.

The table of contents provides a clear view of the specific topics covered and their sequence. While some old issues are considered, this is meant primarily to sharpen the reader's understanding of recent developments. As to how these things unfold, the book gives more or less equal weight to the logical structure of the theory and its results. Because these are sufficient tasks in themselves, there are only introductory comments concerning empirical tests of the regularities that are deduced and policy implications are briefly noted, and not dealt with in detail. The material is theoretical in this sense, but it is not designed to require extensive mathematical abstraction. This is in part because new ideas and results are introduced step by step (some will say laboriously) and in part because a large number of applied examples (E) are developed. There are also longer and more integrative supplementary examples (SE) at the ends of the chapters (except chapters 1 and 2). Finally, to limit the required techniques some ideas are not presented in their most rigorous or most general form when there appear to be rapidly diminishing returns to mathematical precision. Graduate students with a good foundation in microeconomic theory and standard mathematical skills should therefore find the material within their reach.

The material covered in chapters 1 and 2 is background, but it is essential and must be understood by the reader at the onset. There are also some "wrinkles" which cast these things in a way more immediate to the problems in industrial economics. That explains the prominent location of this material instead of the alternative and slighted appendix position. Chapters 3 and 9 are the centrepieces of the book. In chapter 3 the classical conjectural variation approach to timeless oligopoly models is developed. Inappropriate dynamic interpretations of the models are noted and there is an alternative interpretation of conjectural variations as representations of the static Nash solution concept. Some two-stage applications of the models are finally developed, each with one market date and a prior, prescient choice of strategy variable. These notions of static oligopoly equilibria with differentiated products are used in chapters 4–6, and the concepts are applied to discriminatory pricing in chapter 7. In chapter 8 the durable goods monopoly is dealt with and a bridge to the explicitly dynamic models of the remaining chapters is provided. The fundamental concepts in the game-theoretic representation of oligopoly are outlined in chapter 9. Special attention is given to refinements of the Nash solution concept which are appropriate to a dynamic treatment of repeated and other multistage games with and without complete information. Entry and exit as repeated and multistage dynamic games are described in chapters 10 and 11, and chapter 12 looks at how variations on the rules of play in oligopoly games cause competitive processes to have monopoly outcomes. Finally, chapters 13 and 14 deal with markets in which costs of pre-purchase and post-purchase quality determination are important. Chapters 3 and 9 must be read; thereafter the reader can choose as he or she will.

Contents

Examples

Figures