



INDUSTRIAL ECONOMICS

**Economic Analysis and
Public Policy**

Stephen Martin

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Michigan State University

Macmillan Publishing Company
New York

Collier Macmillan Publishers
London

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Table 11-1, taken from Nelson, Philip "Advertising as Information," *Journal of Political Economy* Volume 82, Number 4, July–August 1974, p. 746. University of Chicago Press.

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Printed in the United States of America

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Macmillan Publishing Company
866 Third Avenue, New York, New York 10022

Collier Macmillan Canada, Inc.

Library of Congress Cataloging-in-Publication Data

Martin, Stephen.

Industrial economics.

Includes index.

1. Industrial organization (Economic theory)

2. Industry and state. I. Title.

HD2326.M35 1988 338.9 87-24031

ISBN 0-02-376780-4

Printing: 2 3 4 5 6 7 8

Year: 8 9 0 1 2 3 4 5 6 7

Idées non point neuves, mais renouvelées.
Charles de Gaulle

Preface

This is a book about firm behavior and market performance. The central topic of the book is the exercise of market power—the control of price and exclusion of competitors. Roughly equal attention is given to the economic analysis of market power and to the policy treatment of market power under the antitrust laws of the United States of America.

The book is written to serve as the primary text in undergraduate courses in industrial economics. It may also be useful as a reference book for graduate courses in the same field, and in business-oriented microeconomics classes, particularly those taught in connection with MBA programs.

My intention has been to peg the exposition at a level comparable to that found in intermediate macroeconomics texts. To this end, I have relied on models which can be formulated in simple algebraic terms, and which can be illustrated graphically. End-of-chapter problems hint at some of the details of the models treated in the text. I have found term papers to be an invaluable element of the undergraduate course in industrial economics, and paper topics are suggested at the end of most chapters. A floppy disk, available to instructors, contains data sets reported in the text. Some of these data sets may be useful for term papers. An Instructor's Manual is also available.

It is impossible to understand the fitful progress of the contentious field of industrial economics without an appreciation for the fundamental dichotomy between the analytical and policy positions of the Chicago and structure-conduct-performance schools. Rather than gloss over these differences, I have tried to present the full range of opinions held by industrial economists on major topics. The result is a "history of thought" aspect of the text which, although perhaps unusual, will give the student an appreciation for the background of the disparate policy positions taken by economists in this field.

Chapters 1, 2, and 3 introduce the field of industrial economics, basic microeconomic tools, and the American antitrust laws, respectively. Chapters 4 through 6 elaborate the analysis of dominant firm markets and oligopoly. Chapter 7 reviews empirical tests of the hypotheses developed in Chapters 4 through 6. Chapters 8, 9, and 10 treat the economics of market structure, firm structure, and public policy toward mergers.

Chapters 1 through 10 will form the kernel of most courses. A one-quarter

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course which focuses on economic analysis will continue with Chapters 11 through 14 and, time permitting, Chapter 18. A one-quarter course which emphasizes policy applications will cover any two of Chapters 15, 16, and 17, and conclude with Chapter 18. Those fortunate enough to operate on a semester basis will be able to cover most of the final eight chapters.

Acknowledgments

My debt to those who have commented on various portions of the manuscript is enormous. I have appreciated the various advice of Walter Adams, Michigan State University; Morris Adelman, Massachusetts Institute of Technology; Bruce Allen, Michigan State University; Mark Bagnoli, University of Michigan; Sanford V. Berg, University of Florida; Kenneth Boyer, Michigan State University; Elizabeth deGhellinck, Universite Catholique de Louvain; Elias Dinopoulos, Michigan State University; Catherine C. Eckel, Virginia Polytechnic Institute & State University; Daniel O. Fletcher, Denison University; Gary M. Fournier, Florida State University; Gary Galles, Pepperdine University; Alexis Jacquemin, Universite Catholique de Louvain; Albert N. Link, University of North Carolina, Greensboro; John Lunn, Louisiana State University; Craig R. MacPhee, University of California, at Los Angeles; Ellen M. Miller, University of North Carolina, Charlotte; David E. Mills, University of Virginia; Edward L. Sattler, Bradley University; Peter M. Schwarz, University of North Carolina, Charlotte; John T. Scott, Dartmouth College; Wade L. Thomas, Ithaca College; Michael Waldman, University of North Carolina, Charlotte; Lawrence J. White, New York University; Glenn A. Woroch, GTE Laboratories, Inc.; Bruce Yandle, Clemson University. Special thanks are due to Frederick H. deB. Harris and Diana L. Strassmann, who classroom-tested the manuscript, and to students in successive classes at Michigan State University, who endured and contributed to the development of the text.

I am further grateful to the Centre de Recherches Interdisciplinaires Droit & Economie Industrielle at the Universite Catholique de Louvain, Louvain-La-Neuve, for providing a unique vantage point for the contemplation of antitrust economics. I am grateful to the College of Business, Michigan State University, for subsidizing the purchase of a Zenith Z-170 portable computer, and to Matthieu Wirtz, Zenith Data Systems, Brussels, for providing me with an AC power source conformable with European power outlets.

Despite these debts, responsibility for errors is entirely my own. Readers are invited to bring sins of omission and of commission to my attention.

The process of writing a textbook can be compared to the process of having a child. It is rather great fun at the beginning, involves a long gestation, a delivery which even at its best is not much to write home about, and finally is

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followed by many a sleepless night. Like having a child, writing a textbook disrupts the entire family. For putting up with it all, this book is dedicated to my family, and especially to Linda.

S. M.

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1

Introduction

All the world over and at all times there have been practical men, absorbed in irreducible and stubborn facts; all the world over and at all times there have been men of philosophic temperament, who have been absorbed in the weaving of general principles.

Alfred North Whitehead, *Science and the Modern World*

The subject matter of *industrial economics* is the behavior of firms in industries. Industrial economists study the policies of firms toward rivals and toward customers (which includes at least prices, advertising, and research and development). Industrial economists study firms in industries that are competitive, and they study firms in industries that are less than competitive. But this is nothing more or less than the subject matter of *microeconomics*—specifically, the theory of the firm. At a fundamental level, there is no difference between industrial economics and what is sometimes called *price theory*.¹

Beyond this basic level, however, there are differences between microeconomics and industrial economics. Especially at the introductory level, the focus of micro courses is usually on simple market structures—competition and monopoly. Here the arguments are straightforward and results come easily. In contrast, the most interesting and important applications of industrial economics concern *oligopoly*: the type of market in which firms are neither monopolists nor perfect competitors, but something in between. By and large, these are the kinds of firms and markets that we find in the real world.

There is another factor that distinguishes industrial economics from microeconomics. Industrial economics, in contrast to microeconomic theory, is profoundly and fundamentally concerned with policy questions. These questions concern government policy toward business. Government policy toward business includes antitrust policy, regulation, and public ownership of business, but industrial economics has special relevance for antitrust policy. In what sorts of markets, if any, will firms be able to exercise monopoly power—control over price? In what sorts of markets will cartels work, and in what sorts of

¹Stigler, George J. *The Organization of Industry*. Homewood, Illinois: Richard D. Irwin, Inc., 1968, p. 1.

markets will cartels break down? Can firms act in such a way as to make their environment less competitive? If the answer is yes, *can* the government do anything about it? *Should* the government do anything about it? Is there a way for government to set the rules for competition that will improve the way markets work?

Anyone who doubts the importance of public policy toward business should contemplate the impact of the Organization of Petroleum Exporting Countries (OPEC) on economies around the world after October 1973. Price theory lays the foundation for the analysis of public policy, business behavior, and market performance, but it is in industrial economics that these questions occupy center stage.

Two schools of thought have long contested the analysis of industrial economics. One group of economists feels that the private exercise of monopoly power is a persistent feature of many markets. In this view, the most serious impediment to the effective functioning of markets is strategic behavior by some firms, which prevents other firms from competing on the basis of merit. By using such strategic behavior, it is argued, firms can acquire and maintain the power to control the price of their products.

Another group takes a quite different position. They argue that anything one firm can do can be done by any other equally efficient firm, unless some higher power intervenes. In this view, the main source of monopoly power is government interference in the marketplace. Government, by intent or ineptitude, can prevent some firms from competing, to the advantage of other firms.

The debate over these two approaches to industrial analysis has shaped current industrial economics and has had a fundamental influence on the development of public policy toward business.² An understanding of the differences between these two approaches to the analysis of market power is essential if one is to follow the current debate over public policy toward business.

Structure-Conduct-Performance

Economists' concern with the private exercise of market power goes back at least to Adam Smith, who wrote:³

People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices.

²This is perhaps more so for the United States than for other countries, but the difference is only one of degree.

³Smith, Adam. *An Inquiry Into the Nature and Causes of the Wealth of Nations*. Edwin Cannan, editor. New York: The Modern Library, 1937, p. 128.

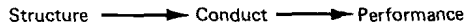


Figure 1-1 The linear structure-conduct-performance framework.

Economists who shared this concern developed what has come to be known as the *structure-conduct-performance* framework of industrial analysis. The simplest version of this framework is illustrated in Figure 1-1. In this basic view, market structure determines the behavior of the firms in the market, and the behavior of firms determines the various aspects of market performance. There is a sense in which the study of industrial economics amounts to fleshing out the relationships outlined in Figure 1-1.⁴

Structure

You will perhaps recall that the economist's model of perfect competition assumes many small buyers and sellers, dealing in a standardized product, under conditions of free and easy entry and complete and perfect knowledge. The major elements of market structure describe ways in which markets depart from the conditions that describe perfect competition.

Number and Size Distribution of Sellers

A classroom competitive market consists of many small buyers and sellers, no one of whom is able to influence the price. From a social point of view, a competitive industry is efficient under conditions and in a sense that will be made precise in Chapter 2. Among other things, a competitive industry will in the long run supply a product at a price equal to its *opportunity cost*—the value of the resources needed to produce it.

In contrast, a monopolized market is supplied by but a single seller, who is able to restrict output and hold the price above the opportunity cost of production. Some consumers who would be willing to pay the cost of producing the product are unable to obtain it. It is this output restriction that is central to economists' belief that monopoly is an inefficient way to organize production.

Concern with the number of sellers reflects the intuitive notion that the fewer the number of sellers in a market, the more likely is the market to perform as a monopoly. Concern with the size distribution of sellers reflects the belief that a market with one very large firm and several small ones is more likely to perform as a monopoly than a market with a few firms of roughly equal size. Like many intuitive notions, these (as we shall see) are sometimes correct and sometimes not.

⁴A referee has suggested that this sentence would read better if the word *fleshing* were replaced by the word *flushing*. You should reserve judgment on this until the end of the course.

Number and Size Distribution of Buyers

Interest in the number and size distribution of firms on the buying side of the market has a long tradition in economics, although it generates less publicity than conditions related to market power on the supply side. An important influence here is the theory of *countervailing power*.⁵ The gist of this theory is that concentrations of power in one part of a market will evoke balancing concentrations of power in other parts of the market. When a few large buyers bargain with a few large sellers (as when automobile manufacturers purchase steel or rubber tires), it will be more difficult for sellers to hold the price above the cost, all else equal. Thus the number and size distribution of buyers is an element of market structure that affects firm conduct and market performance.

Product Differentiation

In simple models of competition, rival firms sell a standardized product. This is never the case in the real world. Products are always differentiated in some way, if only by the location of the supplying firm. As differentiation increases, the products of different producers become poorer substitutes for one another. As differentiation increases, each producer becomes more and more like a monopolist. This makes competitive industry performance less likely.

But the overall implications of product differentiation are complex. One expects, for example, that an increase in differentiation in the cheese market would increase the power of individual producers to control the price of their brands of cheese. This is not a particularly convincing argument for compelling all cheese manufacturers to produce cheese spread. There is, in other words, a tradeoff between *market power*—the power to control price—and variety. Society will usually be willing to put up with some market power in order to get some product variety.

Entry Conditions

The economic analysis of entry conditions focuses on the various factors that influence the decision of a firm to enter a market. How large must a firm be to produce efficiently? How large an investment must a firm make to begin operations? If a firm enters a market and fails, how much of its investment can be recovered by selling off assets and how much will be sunk in the market? What sorts of sales efforts, if any, will be needed for a successful operation? How will established firms react to the prospect of new competition?

On a basic level, entry conditions help explain the number and size distribution of firms that operate in a market. Because entry conditions determine

⁵Galbraith, John K. *American Capitalism: The Concept of Countervailing Power*. Boston: Houghton-Mifflin, 1952. For a summary treatment, see Galbraith, John Kenneth. "Countervailing Power," *American Economic Review* Volume 44, Number 2, May 1954, pp. 7–14. For a critical appraisal, see Stigler, George J. "The Economist Plays with Blocs," *American Economic Review* Volume 44, Number 2, May 1954, pp. 7–14.

the nature of potential competition between established firms and firms that can enter a market, entry conditions affect market performance in their own right, as well as through their effect on market structure.

Conduct

Firm conduct is a subject that becomes interesting only when competition is imperfect. Under competition, a firm can sell all it wishes at the market price, but only at the market price. In such circumstances, a firm has no incentive to advertise, to react to what rivals do, or to attempt to discourage entry. Firms in a competitive market with free and easy entry have an incentive to collude, but any such attempt is doomed to failure. Even if all of the many small firms in a competitive industry could coordinate a cartel, new firms would come into the market. This situation is different when competition is imperfect.

Collusion

In the era of OPEC, there is no need to justify the interest of industrial economists in collusion. If nominally independent firms can coordinate their actions, they may be able to restrict group output and raise the price of their product above the marginal cost of production. By so doing, each firm will increase its own profit.

But by raising the price above the marginal cost, a cartel creates a situation in which each member has an incentive to increase its own output, and new firms have an incentive to enter the market. If cartel members cheat and increase their output, the price will fall and the attempt to restrict output will fail. If new firms enter the market, the cartel will have to cut back its own output, or total output will increase and the attempt to control the price will fail. In either case, whether collusion can be maintained will depend, in ways that will be specified in Chapter 6, on the elements of market structure: number and size distribution of firms, product differentiation, entry conditions.

Strategic Behavior

In some kinds of markets, established producers may be able to discourage the entry of new firms. They can do so by holding down the price, so that entry is less attractive. This works to the disadvantage only of less efficient firms and gives society the benefit of lower prices. This sort of rivalry is socially beneficial.

On the other hand, there are a variety of ways in which established firms can raise the costs of actual or potential rivals.⁶ This sort of strategic behavior is not socially beneficial, especially when (as is usually the case) it involves a costly investment.

⁶Examples may include vertical integration, advertising, R&D, and predatory pricing, all of which will be discussed in the chapters that follow.