INDUSTRIAL ORGANIZATION: CONTEMPORARY THEORY AND PRACTICE

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Industrial Organization: Contemporary Theory and Practice

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PREFACE

Industrial Organization: Contemporary Theory and Practice presents the essentials of modern industrial organization. Our principal goal is to educate students about the economist's way of thinking about public policy issues in industrial economics. The heart of this process involves the practice of model building, which is a way of constructing rational arguments whose implications are, in principle, empirically verifiable. The text consistently reflects our belief that both model building and model testing are important. The setting of our analysis is the field of industrial organization. Consequently, we place considerable emphasis on understanding the relationship among firms in an industry or across industries and on the nature of strategic interaction among firms.

Few fields in economics have undergone as thorough a change in paradigm as has industrial organization. Thirty years ago, this was a field dominated by a simple, almost atheoretical framework, based on the empirical determination of a market's structure as the fundamental determinant of market outcomes. If that structure was found to be sufficiently monopolistic, the market performance was predicted to be sufficiently bad to warrant public policy intervention. This view extended well beyond the halls of academe. It exerted considerable influence on both the antitrust authorities and the courts, as evidenced by the Justice Department's 1968 Merger Guidelines and several Supreme Court rulings such as that in the 1967 *Von's Grocery* case.

Today, the empirical approach has been supplanted by one that places considerable weight on analytical reasoning and that is rooted in the simultaneous development of noncooperative game theory. The "new IO," as it is often called, has become the language of the vast majority of journal articles in industrial economics. Indeed, game theory has become the framework for understanding all settings in which strategic interaction is present, whether they are microeconomic or macroeconomic ones. Public policy too has undergone dramatic change. The Federal Trade Commission's recent approval of the Boeing-McDonnell Douglas merger would have been unthinkable in 1967. Similarly, the 1997 decision of the Supreme Court in *State Oil Co. v. Khan* reflects reversal of a nearly 100-year-old tradition that viewed resale price maintenance agreements setting maximum prices to be illegal per se. Thus, modern industrial organization has worked its way into both contemporary antitrust policy and current jurisprudence.

The game theoretic paradigm that underlies contemporary industrial organization has become so pervasive in the work of professional economists and policy-makers that much of the "new IO" is no longer new. Yet, for a variety of reasons, it has taken some time for this type of thinking to work its way into undergraduate textbooks. In most texts, the modeling of strategic interaction makes only a cameo appearance. Such models typically appear in greatly abridged form with little surrounding discussion and with all the modeling details often relegated to an appendix. This is, in our view, a great loss because a major contribution that economics can make to undergraduate education is instruction in the ability to understand and, even more important, to develop an analytical argument. Thus, we have tried to fashion a text that makes transparent the critical role of modeling in the creation of a coherent economic argument, including the determination of what evidence is relevant to that argument's confirmation or rejection. It is this process that is typically meant when people talk about "thinking like an economist."

Industrial organization is a particularly appropriate area in which to convey the economist's perspective because examples of the tactical considerations and public policy issues that such a course must, by definition, address can be found every day in the business press. Discriminatory pricing, mergers, advertising, and allegations of predation and/or patent infringement are constantly observed on the corporate battlefield. People in the street and students in classrooms form opinions about these events as well as whether any public policy response is appropriate. It is because of this interest that we think a class presenting a clear analysis of such situations should be fun. Yes, modeling in and of itself can be arduous. But we keep the models quite simple—working almost exclusively with either the Cournot-Nash model (including the Stackelberg-Nash variant), the Bertrand-Nash model, or the spatial price-competition model first introduced by Hotelling. We develop these models early in the text and then use and extend them to illuminate a number of points in each succeeding chapter. Moreover, we always provide simple numerical illustrations of the model at hand and consistently relate that model to a real-world case. Our students in applied economics classes at both Tufts University and the Sloan School of Management at MIT have reacted favorably to this approach. It has enabled them to think about economic issues—and even about noneconomic events—in a new and more meaningful manner.

GOALS AND INTENDED AUDIENCE

Empowering students with the tools of modern economic analysis is precisely our goal. Many people wish to participate in the debates concerning such matters as Microsoft's bundling practices, the effects of advertising, and the 1997 proposed merger of the retail office supply firms Staples and Office Depot. The topics are interesting, and the stakes—both for the private parties involved and from the viewpoint of public policy—are high. Yet effective participation in such debates requires the ability to think through carefully the logic of an argument; to understand the argument's implications for observable behavior; and to examine whether those predictions are consistent with reality. We believe that developing this skill and learning its value are what teaching economics is all about.

We wish to emphasize that our book is about industrial organization. It is not about game theory. Public policy questions are always present. We make this clear at the outset with an extended discussion of antitrust policy in Chapter 1. We maintain this involvement with policy discussions throughout the remainder of the text. Wherever possible, we also attempt to introduce any consensus that appears to have developed based on formal econometric studies. To be sure, one disappointment with the "new IO" has been its inability to generate broad empirical regularities. Yet we believe that there is enough empirical meat in the text to convince readers that the analysis is far from mere "ivory tower speculation." Indeed, we think that our presentation makes clear that corporations, judges, and antitrust officials, among others, have ample opportunity to put the insights of contemporary industrial economics into practice.

The book is primarily intended for undergraduate students who have completed an intermediate microeconomics course and have a solid foundation in the basic textbook models of competition and monopoly. For the most part, we do not assume familiarity with calculus. However, we do rely heavily on an ability to work through algebraic equations. The text could also be used in a managerial or applied economics class in a graduate business program. In addition, it might serve as a background text for those taking a first graduate course in industrial organization. Indeed, some reviewers have described the book as a more accessible version of Tirole's superb advanced text.

ORGANIZATION OF THE BOOK

A particular strength of the text is that each chapter attempts to build on the ones that precede it. Thus, Chapter 1 begins with a historical review of both the development of antitrust law and industrial organization as a formal subdiscipline of economics. Along the way, we present the standard competitive and monopoly models. We also make clear that the essential requirement for a firm to have market power is that it be large relative to the market. This sets the stage for Chapter 2, in which we present the neoclassical theory of the firm and the technological determinants of firm size and industry structure.

Chapters 3 and 4 introduce students to the general subject of market tactics by examining the various price and product strategies that a monopolist—either a single product one or a multiproduct one—might use. All of these reflect efforts to achieve some degree of price discrimination. Among other things, these chapters enable us to make clear that techniques that enable the monopolist to earn more profit may not be bad from the viewpoint of economic efficiency. The discussion of the multiproduct monopolist is also a good setting in which to introduce the basic Hotelling spatial model.

Chapter 5 then raises the issue of how the models of Chapters 3 and 4 might be altered if, instead of one, two or more firms are in the market. Because this setting requires the analysis of strategic interaction, we also present the pivotal tool for understanding such interaction, noncooperative game theory. We present three models: (1) the Cournot-Nash model; (2) the Bertrand-Nash model both with and without product differentiation; and (3) the Stackelberg-Nash model. We try to show both the insights of these models and their limitations in explaining practical events. This discussion then serves as a motivation for the extensions of the three basic models to cover issues of entry deterrence (Chapter 6) and collusion (Chapter 7).

The remaining chapters all build upon and extend the ideas developed in Chapters 5, 6, and 7. Chapters 8 and 9 use the models of strategic interaction to examine the contractual ties among different firms. In Chapter 8, the focus is on the legal joining of firms, specifically horizontal and vertical mergers. In Chapter 9, the focus is on the vertical relations and restraints that emerge between upstream producers and downstream retailers. Chapters 10 and 11 introduce two strategic elements: advertising (Chapter 10) and research and development (Chapter 11). Chapter 12 concludes the text by presenting a variety of topics of current interest, including international trade and the issue of network externalities. The subject matter of this chapter allows us to emphasize again the crucial role of commitment in any setting of strategic interaction.

In principle, the entire book can be covered in a standard 13-week semester. However, a thorough understanding of the material might well take the better part of two such terms, or at least two 10-week quarters. We suspect that most instructors of a one-semester class (and especially their students) will find it preferable to complete the first six or seven chapters and to choose selectively as to which additional chapters they wish to explore.

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