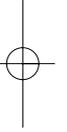
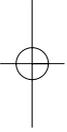




# Industrial Organization





# Industrial Organization

## Contemporary Theory and Empirical Applications

Fourth Edition

Lynne Pepall

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## Contents

List of Figures	xv
List of Tables	xviii
About the Authors	xx
Preface to the Fourth Edition	xxii
<b>Part I Foundations</b>	<b>1</b>
1 Industrial Organization: What, How, and Why	3
2 Basic Microeconomics	20
3 Market Structure and Market Power	44
4 Technology and Cost	59
<b>Part II Monopoly Power in Theory and Practice</b>	<b>85</b>
5 Price Discrimination and Monopoly: Linear Pricing	87
6 Price Discrimination and Monopoly: Non-linear Pricing	111
7 Product Variety and Quality under Monopoly	130
8 Commodity Bundling and Tie-in Sales	163
<b>Part III Oligopoly and Strategic Interaction</b>	<b>193</b>
9 Static Games and Cournot Competition	195
10 Price Competition	223
11 Dynamic Games and First and Second Movers	245
<b>Part IV Anticompetitive Strategies</b>	<b>263</b>
12 Limit Pricing and Entry Deterrence	265
13 Predatory Conduct: More Recent Developments	291
14 Price-fixing and Repeated Games	323
15 Collusion: Detection and Public Policy	352

vi Contents

<b>Part V Contractual Relations between Firms</b>	<b>385</b>
16 Horizontal Mergers	387
17 Vertical and Conglomerate Mergers	430
18 Vertical Price Restraints	462
19 Nonprice Vertical Restraints	489
<b>Part VI Nonprice Competition</b>	<b>513</b>
20 Advertising, Market Power, and Information	515
21 Advertising, Competition, and Brand Names	538
22 Research and Development	572
23 Patents and Patent Policy	604
<b>Part VII Networks and Auctions</b>	<b>635</b>
24 Network Issues	637
25 Auctions and Auction Markets	660
Answers to Practice Problems	676
Index	689

## Contents

List of Figures	xv
List of Tables	xviii
About the Authors	xx
Preface to the Fourth Edition	xxii
<b>Part I Foundations</b>	<b>1</b>
1 Industrial Organization: What, How, and Why	3
1.1 What Is Industrial Organization?	3
1.2 How We Study Industrial Organization	5
1.3 Why? Antitrust and Industrial Organization Theory	7
1.3.1 The “New” Sherman Act and the Dominance of Structure-based Analysis	10
1.3.2 The Tide Changes: The Chicago School and Beyond	12
Summary	15
Problems	15
References	16
Appendix: Excerpts from Key Antitrust Statutes	16
2 Basic Microeconomics	20
2.1 Competition versus Monopoly: The Poles of Market Performance	20
2.1.1 Perfect Competition	21
2.1.2 Monopoly	25
2.2 Profit Today versus Profit Tomorrow: Firm Decision-making over Time	30
2.3 Efficiency, Surplus, and Size Relative to the Market	35
2.3.1 The Monopolist and Producer Surplus	38
2.3.2 The Nonsurplus Approach to Economic Efficiency	39
Summary	42
Problems	42
References	43

viii	Contents	
3	Market Structure and Market Power	44
3.1	Measuring Market Structure	44
3.1.1	Measurement Problems: What Is a Market?	47
3.2	Measuring Market Power	51
3.3	Empirical Application: Monopoly Power—How Bad Is It?	54
	Summary	57
	Problems	57
	References	58
4	Technology and Cost	59
4.1	Production Technology and Cost Functions for the Single Product Firms	59
4.1.1	Key Cost Concepts	60
4.1.2	Cost Variables and Output Decisions	62
4.1.3	Costs and Market Structure	63
4.2	Sunk Cost and Market Structure	68
4.3	Costs and Multiproduct Firms	69
4.4	Noncost Determinants of Industry Structure	74
4.4.1	Market Size and Competitive Industry	75
4.4.2	Network Externalities and Market Structure	76
4.4.3	The Role of Government Policy	77
4.5	Empirical Application: Cost Function Estimation—Scale, and Scope	
	Economies	78
	Summary	81
	Problems	82
	References	83
	<b>Part II Monopoly Power in Theory and Practice</b>	<b>85</b>
5	Price Discrimination and Monopoly: Linear Pricing	87
5.1	Feasibility of Price Discrimination	88
5.2	Third-degree Price Discrimination or Group Pricing	91
5.3	Implementing Third-degree Price Discrimination or Group Pricing	93
5.4	Product Variety and Third-degree Price Discrimination or Group Pricing	100
5.5	Third-degree Price Discrimination or Group Pricing and Social Welfare	106
	Summary	108
	Problems	109
	References	110
6	Price Discrimination and Monopoly: Non-linear Pricing	111
6.1	First-degree Price Discrimination or Personalized Pricing	111
6.1.1	Two-part Pricing	113
6.1.2	Block Pricing	119
6.2	Second-degree Price Discrimination or Menu Pricing	120
6.3	Social Welfare with First- and Second-degree Price Discrimination	126
	Summary	128

Problems	128
References	129
<b>7 Product Variety and Quality Under Monopoly</b>	<b>130</b>
7.1 A Spatial Approach to Horizontal Product Differentiation	131
7.2 Monopoly and Horizontal Differentiation	132
7.3 Is There Too Much Product Variety?	139
7.4 Monopoly and Horizontal Differentiation with Price Discrimination	143
7.5 Vertical Product Differentiation	145
7.5.1 Price and Quality Choice with Just One Product	145
7.5.2 Offering More Than One Product in a Vertically Differentiated Market	150
7.6 Empirical Application: Price Discrimination, Product Variety, and Monopoly versus Competition	155
Summary	157
Problems	158
References	159
Appendix A: Location Choice with Two Shops	159
Appendix B: The Monopolist's Choice of Price When Her Shops Have Different Costs	160
<b>8 Commodity Bundling and Tie-In Sales</b>	<b>163</b>
8.1 Commodity Bundling and Price Discrimination	164
8.2 Required Tie-In Sales	172
8.3 Complementary Goods, Network Externalities, and Monopoly Pricing	175
8.4 Antitrust, Bundling, and Tie-in Sales	181
8.4.1 Bundling and the Microsoft Case	181
8.4.2 Antitrust Policy, Bundling, and Tying: Additional Developments	184
Summary	188
Problems	189
References	190
Appendix: Formal Proof on the Inefficiency Induced by the Marketing of Complementary Goods by Separate Monopolists	190
<b>Part III Oligopoly and Strategic Interaction</b>	<b>193</b>
<b>9 Static Games and Cournot Competition</b>	<b>195</b>
9.1 Strategic Interaction: Introduction to Game Theory	196
9.2 Dominant and Dominated Strategies	198
9.3 Nash Equilibrium as a Solution Concept	202
9.4 Static Models of Oligopoly: The Cournot Model	204
9.5 Variations on the Cournot Theme: Many Firms and Different Costs	211
9.6 Concentration and Profitability in the Cournot Model	217
Summary	219
Problems	220
References	222

## x Contents

10	Price Competition	223
10.1	The Bertrand Duopoly Model	224
10.2	Bertrand Reconsidered	229
10.3	Bertrand in a Spatial Setting	231
10.4	Strategic Complements and Substitutes	237
10.5	Empirical Application: Brand Competition and Consumer Preferences— Evidence from the California Retail Gasoline Market	238
	Summary	241
	Problems	242
	References	243
11	Dynamic Games and First and Second Movers	245
11.1	The Stackelberg Model of Quantity Competition	246
11.2	Sequential Price Competition	249
11.3	Credibility of Threats and Nash Equilibria for Dynamic Games	254
11.4	The Chain Store Paradox	258
	Summary	259
	Problems	260
	References	261
	<b>Part IV Anticompetitive Strategies</b>	<b>263</b>
12	Limit Pricing and Entry Deterrence	265
12.1	Monopoly Power and Market Structure Over Time: Some Basic Facts	266
12.2	Predatory Conduct and Limit Pricing	269
	12.2.1 An Informal Model of Entry Deterrence	270
	12.2.2 Capacity Expansion as a Credible Entry-detering Commitment	272
12.3	Preemption and the Persistence of Monopoly	283
12.4	Evidence on Predatory Capacity Expansion	284
	Summary	287
	Problems	288
	References	289
13	Predatory Conduct: More Recent Developments	291
13.1	Predatory Pricing: Myth or Reality?	293
13.2	Predation and Imperfect Information	298
	13.2.1 Predatory Pricing and Financial Constraints	299
	13.2.2 Asymmetric Information and Limit Pricing	302
13.3	Contracts As a Barrier to Entry	305
	13.3.1 Long-term Exclusive Contracts as Predatory Instruments	306
	13.3.2 Tying as a Predatory Contract	310
13.4	Predatory Conduct and Public Policy	312
13.5	Empirical Application: Entry Deterrence in the Pharmaceutical Industry	317
	Summary	319
	Problems	320
	References	321

14	Price Fixing and Repeated Games	323
14.1	The Cartel's Dilemma	326
14.2	Repeated Games	330
14.2.1	Finitely Repeated Games	331
14.2.2	Infinitely or Indefinitely Repeated Games	334
14.2.3	Some Extensions	337
14.3	Collusion: The Role of the Antitrust Authorities	341
14.4	Empirical Application: Estimating the Effects of Price-fixing	345
	Summary	349
	Problems	349
	References	351
15	Collusion: Detection and Public Policy	352
15.1	The Cartel Problem	353
15.2	Factors that Facilitate Collusion	355
15.2.1	High Industry Concentration	355
15.2.2	Significant Entry Barriers	356
15.2.3	Frequent Regular Orders	356
15.2.4	Rapid Market Growth	358
15.2.5	Technological or Cost Symmetry	358
15.2.6	Multi-market Contact	359
15.2.7	Product Homogeneity	360
15.2.8	Other Factors	361
15.3	An Illustration: Collusion on the NASDAQ Exchange	364
15.4	Detecting Collusion among Firms	369
15.5	Cartel Leniency (Amnesty) Programs	372
15.6	Empirical Application: An Empirical Investigation of Leniency	
	Programs	378
	Summary	382
	Problems	382
	References	383
	<b>Part V Contractual Relations Between Firms</b>	<b>385</b>
16	Horizontal Mergers	387
16.1	Horizontal Mergers and the Merger Paradox	389
16.2	Mergers and Cost Synergies	392
16.2.1	The Merger Reduces Fixed Costs	393
16.2.2	The Merger Reduces Variable Costs	393
16.3	The Merged Firm as a Stackelberg Leader	395
16.4	Horizontal Mergers and Product Differentiation	405
16.4.1	Bertrand Competition and Merger with Linear Demand Systems	406
16.4.2	Mergers in a Spatial Market	407
16.5	Public Policy toward Horizontal Mergers	414
16.6	Empirical Application: Evaluating the Impact of Mergers with Computer Simulation	419

xii	Contents	
	Summary	422
	Problems	423
	References	424
	Appendix A: Bertrand Competition in a Simple Linear Demand System	426
	Appendix B: Equilibrium Prices in the Spatial Model without a Merger	428
17	Vertical and Conglomerate Mergers	430
17.1	Procompetitive Vertical Mergers	431
17.2	Possible Anticompetitive Effects of Vertical Mergers	436
	17.2.1 Vertical Merger to Facilitate Price Discrimination	437
	17.2.2 Vertical Merger, Oligopoly, and Market Foreclosure	438
17.3	Formal Oligopoly Models of Vertical Integration	439
	17.3.1 Vertical Integration and Foreclosure in a Cournot Model	439
	17.3.2 Vertical Integration and Foreclosure in a Model with Differentiated Products	444
	17.3.3 Reappraisal and Application: The GE–Honeywell Merger	448
17.4	Conglomerate Mergers	450
	17.4.1 Possible Economies Associated with Conglomeration	450
	17.4.2 Managerial Motives	451
17.5	A Brief Digression on Mergers and the Theory of the Firm	453
17.6	Empirical Application: Vertical Integration in the Ready-mixed Concrete Industry	455
	Summary	458
	Problems	458
	References	460
18	Vertical Price Restraints	462
18.1	Resale Price Maintenance: Some Historical Background	463
18.2	Vertical Price Restraints as a Response to Double-Marginalization	466
18.3	RPM Agreements and Retail Price Discrimination	469
18.4	RPM Agreements to Insure the Provision of Retail Services	471
	18.4.1 Optimal Provision of Retail Services	473
	18.4.2 The Case of a Monopoly Retailer and a Monopoly Manufacturer	475
	18.4.3 The Case of Competitive Retailing	477
	18.4.4 Free-riding and the Provision of Retail Services	478
18.5	Retail Price Maintenance and Uncertain Demand	480
	Summary	485
	Problems	485
	References	486
	Appendix: Manufacturer’s Optimal Wholesale Price When Retailer Discriminates between Two Markets	487
19	Nonprice Vertical Restraints	489
19.1	Upstream Competition and Exclusive Dealing	489
19.2	Exclusive Selling and Territorial Arrangements	491
19.3	Aftermarkets	495
19.4	Public Policy toward Vertical Restraints	498
19.5	A Brief Discussion of Franchising and Divisionalization	500

	Contents	xiii
19.6 Empirical Application: Exclusive Dealing in the U.S. Beer Industry		505
Summary		509
Problems		509
References		510
<b>Part VI Nonprice Competition</b>		<b>513</b>
20 Advertising, Market Power, and Information		515
20.1 The Extent of Advertising		517
20.2 Advertising, Product Differentiation, and Monopoly Power		518
20.3 The Monopoly Firm's Profit-maximizing Level of Advertising		519
20.4 Advertising as Consumer Information		523
20.5 Persuasive Advertising		525
20.6 Advertising and Signaling		526
20.7 Suppressed Advertising Content		530
20.8 Truth versus Fraud in Advertising		532
Summary		534
Problems		535
References		536
21 Advertising, Competition, and Brand Names		538
21.1 Advertising as Wasteful Competition		538
21.2 Advertising and Information in Product-differentiated Markets		540
21.3 What's in a Brand Name?		550
21.3.1 Advertising and Building Brand Value		552
21.3.2 Advertising and Extending the Reach		554
21.3.3 Brand Name Advertising and Prices		555
21.4 Too Much or Too Little Advertising: The Question Revisited		557
21.5 Cooperative Advertising		560
21.6 Empirical Application: Advertising, Information, and Prestige		564
Summary		569
Problems		569
References		571
22 Research and Development		572
22.1 A Taxonomy of Innovations		576
22.2 Market Structure and the Incentive to Innovate		577
22.2.1 Competition and the Value of Innovation		578
22.2.2 Preserving Monopoly Profit and the Efficiency Effect		581
22.3 A More Complete Model of Competition via Innovation		583
22.4 Evidence on the Schumpeterian Hypothesis		585
22.5 R&D Cooperation between Firms		588
22.5.1 Noncooperative R&D: Profit, Prices, and Social Welfare		589
22.5.2 Technology Cooperation		593
22.6 Empirical Application: R&D Spillovers in Practice		597
Summary		600
Problems		601
References		602

xiv	Contents	
23	Patents and Patent Policy	604
23.1	Optimal Patent Length	605
23.2	Optimal Patent Breadth	608
23.3	Patent Races	610
23.4	Monopoly Power and “Sleeping Patents”	616
23.5	Patent Licensing	619
23.5.1	The Incentive for an Oligopolist to License a Nondrastic Innovation	620
23.5.2	Licensing, Drastic Innovations, and Monopoly Power	621
23.5.3	Patent Licensing, Social Welfare, and Public Policy	622
23.6	Recent Patent Policy Developments	624
23.7	Empirical Application: Patent Law and Practice in the Semiconductor Industry	628
	Summary	631
	Problems	632
	References	633
	<b>Part VII Network and Auctions</b>	<b>635</b>
24	Network Issues	637
24.1	Monopoly Provision of a Network Service	638
24.2	Networks, Competition, and Complementary Services	642
24.3	Systems Competition and the Battle over Industry Standards	645
24.4	Network Goods and Public Policy	652
24.5	Empirical Application: Network Externalities in Computer Software—Spreadsheets	654
	Summary	657
	Problems	658
	References	659
25	Auctions and Auction Markets	660
25.1	A Brief Taxonomy of Auctions	661
25.2	The Revenue Equivalence Theorem	662
25.3	Common Value Auctions	666
25.3.1	The “Winner’s Curse”	666
25.3.2	Almost Common Value Auctions	669
25.4	Auction Design: Lessons From Industrial Organization	669
	Summary	673
	Problems	674
	References	674
	Answers to Practice Problems	676
	Index	689

## Figures

2.1	Market demand curve	21
2.2	The long-run competitive equilibrium	24
2.3	The marginal revenue from increased production for a monopolist	26
2.4	The textbook monopoly case	27
2.5	Competition maximizes the total surplus	36
2.6	The deadweight loss of monopoly	38
3.1	Some possible concentration curves	45
4.1	Typical average and marginal cost curves	62
4.2	Location of cola products along the sugar content line	73
5.1	Non-discriminatory pricing: constant marginal cost	94
5.2	Third-degree price discrimination or group pricing: constant marginal cost	95
5.3	Non-discriminatory pricing with non-constant marginal cost	96
5.4	Third-degree price discrimination or group pricing with non-constant marginal cost	97
5.5	Welfare effects of third-degree price discrimination or group pricing	107
6.1	No price discrimination	115
6.2	First-degree price discrimination with a two-part tariff	117
6.3	Diagram for the amusement park problem	119
6.4	Second-degree price discrimination	122
6.5	Total surplus	126
6.6	Impact of second-degree price discrimination on welfare	127
7.1	The full price at the shop on Main Street	133
7.2	Lowering the price at the shop on Main Street	134
7.3	Opening two shops on Main Street	135
7.4	Opening three shops on Main Street	136
7.5	Stand-alone retail shops on Main Street	138
7.6	Cost of serving customers when there are $n$ shops	140
7.7	Impact of quality on demand	146
8.1	Consumers' reservation prices for goods 1 and 2 and simple monopoly pricing	166
8.2	Monopoly pricing of a pure bundle of goods 1 and 2	167
8.3	Monopoly pricing under mixed bundling of goods 1 and 2	167

## xvi Figures

8.4	Pricing of complementary goods: the nuts and bolts case	178
9.1	Firm 2's demand curve in the Cournot Duopoly game depends on firm 1's output	207
9.2	Best-response (reaction) curves for the Cournot Duopoly model	208
9.3	The Cournot Duopoly model with different costs across firms	214
10.1	Firm 2's demand curve in the Bertrand model	225
10.2	Firm 2's profits as a function of $P_2$ when firm 1 prices above cost but below the pure monopoly price	226
10.3	Snow Richards residual demand curve	231
10.4	The Main Street spatial model once again	232
10.5	Best-reponse functions for price competition with imperfect substitutes	235
10.6	Best-response functions for the Cournot (quantity) case and the Bertrand (price) case	237
10.7	"Thrifty" competition and gasoline prices in southern California	241
11.1	The Cournot and Stackelberg outcomes compared	248
11.2	Sequential price competition: firm 1 sets its price first anticipating that firm 2 will price below firm 1's price	252
11.3	The extensive form of the Microhard–Newvel game	256
12.1	The limit output model	270
12.2	The effect of previously acquired capacity on current marginal cost	273
12.3	The best-response function of the incumbent firm depends on its first-stage choice of capacity	274
12.4	The rational bounds on the incumbent's initial choice of capacity, $K_1$	276
12.5	Possible locations of the entrant's break-even point	278
12.6	An example of entry deterrence	280
12.7	Extensive form for Practice Problem 12.3	282
13.1	The bank and Newvel for just one period	299
13.2	The decision tree in the two-period loan contract	300
13.3	Extensive form of the Sequential Entry game with asymmetric information on cost	303
14.1	Criminal antitrust fines for fiscal years 2002–6	324
14.2	Cartel maintenance with uncertain demand	338
14.3	The Folk theorem	339
15.1	A collusive agreement between firms with different costs	354
15.2	The distribution of inside spreads on NYSE/AMEX and NASDAQ	365
15.3	Demand and supply for a stock	366
15.4	Equilibria with a leniency program	376
16.1	Product differentiation: no price discrimination	408
16.2	Price equilibrium without a merger	409
16.3	Price equilibrium after merger of firms 2 and 3	411
16.4	Price equilibrium with price discrimination	412
17.1	Independent retailer's optimum pricing as a function of manufacturer's wholesale price, $r$	432
17.2	Upstream and downstream profit maximization without vertical integration	434
17.3	Upstream and downstream profit maximization with vertical integration	434
18.1	The effect of services on demand, costs, and the social surplus	472

	Figures	xvii
18.2	The integrated firm's optimal price as a function of the service level, $s$	474
18.3	Resale price maintenance and variable demand	481
21.1	Advertising in a Hotelling spatial model	543
21.2	Marginal and total advertising cost assumed for the spatial competition model	545
21.3	Effect of advertising services $\alpha$ on firm's demand when advertising raises brand value	553
21.4	Effect of advertising services $\alpha$ on firm's demand when advertising extends reach	556
22.1	Drastic and nondrastic process innovations	577
22.2	Market structure and the incentive to innovate	579
22.3	Extensive form for the Innovation and Entry game	581
22.4	Best-response functions for research intensity in the noncooperative R&D game	592
23.1	Innovation gains during period of patent protection ( $T$ years) and after patent protection	606
23.2	A patent race with a duopoly	613
23.3	Patterns of regression time coefficients in semiconductor patent behavior	631
24.1	Demand to a monopoly provider of a network service	639

## Tables

3.1	Calculation of the HHI for industry C	47
3.2	Concentration measures for selected industries	48
3.3	Estimated Lerner Index for selected industries	53
4.1	Average and marginal cost	63
4.2	Christensen and Greene (1976) cost function estimates and scale economies in electric power generation	80
5.1	Comparison of prescription drug prices (U.S. dollars)	88
5.2	Schedule of annual membership fees for the American Economic Association	92
7.1	Ticket restrictions and air fares	157
8.1	Consumer reservation prices	169
8.2	Determination of simple monopoly prices	169
8.3	Pure bundling as the sustainable equilibrium	187
9.1	Strategy combinations and firm payoffs in the flight departure game	200
9.2	Strategy combinations and firm payoffs in the modified flight departure game	201
9.3	Payoff matrix for the airfare game	203
10.1	Brand competition and gasoline prices	240
13.1	Detail advertising by category of entry probability, 64 pharmaceutical markets	319
14.1	Violations yielding a corporate fine of \$10 million or more since 2000	324
14.2a	Payoffs (U.S. dollars, thousands) to cooperation ( <i>M</i> ) and defection ( <i>D</i> ) in the Cournot duopoly game	329
14.2b	Payoffs (U.S. dollars, thousands) to cooperaton ( <i>M</i> ) and defection ( <i>D</i> ) in the Bertrand duopoly game	329
14.3	Summary statistics for the auction cartel	347
14.4	Regression results	348
15.1	Cartels and industry concentration	356
15.2	Payoff matrix for a $2 \times 2$ pricing game	363
15.3	Profits in the NASDAQ example	367
15.4	Payoff matrix for the NASDAQ cartel game (U.S. dollars, thousands)	367
15.5	The great salt duopoly	372

15.6	Payoff matrix with a leniency program	375
15.7	Profits for the leniency program game	376
15.8	Cartel formation	379
15.9	Agreed-upon prices	380
15.10	Average market prices	380
15.11	Cartel breakdown	381
16.1	Necessary condition for possible merger	391
16.2	Profit effect of two follower firms merging to become a leader, given $N$ followers and $L$ leaders prior to the merger	400
17.1	Vertical integration, foreclosure, and strategic commitment	447
17.2	Vertical integration in cement/ready-mixed concrete market	456
17.3	Results for regressions explaining ready-mixed concrete prices in the U.S.	457
19.1	What explains the use of exclusive dealing in U.S. beer contracts?	506
19.2	Effect of exclusive dealing on market outcomes	508
20.1	Estimate industry advertising-to-sales ratio, 2006	523
20.2	Advertising expenditures as a % of sales by different categories of products	524
20.3	Price and quality in the upright vacuum cleaner market	529
21.1	Effect of advertising and price on demand for new Yoplait product: preliminary results	565
21.2	Effect of advertising and price on demand for new Yoplait product: final (logit) results	567
22.1	Top ten patent receiving firms in 2006 and their rank in 2005 and 2004	574
22.2	Top ten patent receiving industries in 2006 and cumulative patents to that year	574
22.3a	Payoff matrix with low R&D spillovers, $\beta = 0.25$	593
22.3b	Payoff matrix with low R&D spillovers, $\beta = 0.75$	593
22.4	Regression estimates of international R&D spillovers	600
23.1	Payoff matrix for the Duopoly patent race	612
23.2	Patent use by inventor's employer	618
23.3	Parameter estimates for expected patent output by semiconductor firms	630
24.1	Excess inertia and excess momentum with network externalities (in U.S. dollars, millions)	646
24.2	Tweedledum and Tweedledee (in U.S. dollars, millions)	648
24.3	The Battle of the Sexes (in U.S. dollars, millions)	650
24.4	The Pesky Little Brother (in U.S. dollars, millions)	651
24.5	Hedonic regression results for spreadsheet programs, 1986–91	656
24.6	Quality adjusted price indices for spreadsheet programs, 1986–91	657

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## About the Authors xxi

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## Preface to the Fourth Edition

We are greatly pleased by the publication of the fourth edition of *Industrial Organization: Contemporary Theory and Practice*. It confirms our view that students want to learn the essentials of modern industrial organization and, more generally, the process of economic modeling and empirical application. There are immediate insights that come from thinking rigorously through the implications of strategic interaction. However, one of the most important lessons from studying industrial organization is understanding how to construct a rational economic argument whose implications are, in principle, able to be empirically tested. We believe that this edition of our textbook teaches this lesson successfully with its new emphasis on empirical applications.

Overall, the organization of the book remains the same as the previous edition. We have updated the checkpoints so that they remain contemporary illustrations of the underlying analysis. We have also done some pruning to make room for important new contributions and insights. Chapter 3 now includes a more formal presentation of Sutton's (1991) analysis of the relationship between sunk cost and market structure. Similarly, Chapter 8 now includes a discussion of the recent work by Evans and Salinger (2005) and Evans (2006) on competitive bundling and tying. In Chapter 14 we have eliminated the lengthy discussion of possible collusion in a market with two non-cooperative Nash equilibria. Instead that chapter now includes a formal model of optimal antitrust policy in regard to cartels. This theme is continued in Chapter 15 where we have an extended discussion of the role of leniency or amnesty programs in inducing cartel members to confess their activities. Chapter 16 begins with the "merger paradox," but now includes the recent work by Fauli-Oller (2000) and others on sequential mergers as ways to resolve this paradox. In Chapter 20, we have added a section on the Anderson and Renault (2006) model of suppressed advertising content. In Chapter 23 we now give a more formal derivation of the Gilbert and Shapiro (1990) and Klemperer (1990) results on optimal patent length and breadth. We also note briefly the recent work by Lerner and Tirole (2004) on efficient patent pools.

The major innovation in this edition is, however, the new emphasis on empirical industrial organization. Fourteen of our twenty-five chapters now conclude with an in-depth treatment of a relevant empirical investigation. These sections are called Empirical Applications. For the most part, they are expositions of regression-based studies. However, there are also some non-regression-based analyses. Chapter 3 offers the first Empirical Application with a

review of Harberger's (1954) study and the many studies that followed on the welfare losses from market power. While this is an old controversy, it serves to introduce students to the idea that important hypotheses can be tested using data in combination with calculations rooted in formal economic analysis. Chapter 4 also has an empirical case study. Here, we focus on the classic work of Christensen and Greene (1976) that helped initiate the estimation of cost functions and, specifically, the translog cost relation. This is a very accessible piece and it allows the instructor to take the student through the basic steps of deriving a cost function from a production relationship, input price data, and the assumption of cost minimization. It also helps students gain some familiarity with regression analysis.

The next Empirical Application comes in Chapter 7. Here we use the short study by Stavins (2001) to demonstrate the role of price discrimination in airline markets. The application helps to document the nature of airline price discrimination and to explore its strategic use in product differentiated competition. In Chapter 10 we provide another empirical analysis of a product differentiated market in a presentation of Hastings' (2004) study of competition in the southern California retail gasoline market. This application serves nicely to make clear that the nature of consumer preferences and, specifically, whether the relevant differentiation is horizontal or vertical, is an important empirical question. It also serves to illustrate the role that regression analysis can play in isolating the effect of a specific treatment or policy intervention.

Chapters 12 and 13 address predatory conduct, and in Chapter 13 we present the recent Ellison and Ellison (2006) study of possible predation by pharmaceutical firms who are about to face generic competition due to expiration of their patents. Among other features, the two-stage procedure in this study—first testing markets for the likelihood of entry and then testing for entry-detering conduct in those markets where entry is most probable—helps to make clear how careful we must be in identifying any sort of predatory conduct. In addition, this Empirical Application alerts students to the problems that accompany the use of limited dependent variables.

Both Chapters 14 and 15 are on collusion and price-fixing and each has an extended Empirical Application. Chapter 14 presents Kwoka's (1997) clever analysis of the price effects of collusive bidding in real estate auctions in Washington, DC. In Chapter 15, we review the recent Hinloopen and Soetevent (2006) study of the impact of antitrust policies that grant leniency or amnesty to the first cartel member to confess. This application makes clear that such policies potentially wield a double-edged sword. While they make confession more likely once a cartel is under suspicion, the fact that they offer an escape from punishment for at least one firm may also encourage the formation of cartels in the first place. A further advantage of the Hinloopen and Soetevent (2006) study is that it is based on experimental analysis, and hence, introduces students to the use of this alternative empirical technique.

The next extended discussion of empirical work comes in Chapter 16. Here we present the technique of merger simulation. This application has two major benefits. First, it demonstrates how economic modeling indicates which parameters are needed for evaluating the likely post-merger market outcome. Second, because the effects of merger simulation are relatively sensitive to key elasticity estimates, the application also makes clear how and why economists can differ in their evaluation of a merger. We drive this point home more forcefully by also including a brief review of the Staples and Office Depot merger and the very different conclusions reached by different economists in that case.

Chapter 17 focuses primarily on vertical mergers, and we go over in the Empirical Application the recent study of vertical integration in the ready-mixed concrete industry by

## xxiv Preface to the Fourth Edition

Hortaçsu and Syverson (2006). Chapter 19 includes an Empirical Application on vertical contracts. In this case, it is the study by Sass (2005) of exclusive dealing in the U.S. domestic beer market. Both applications offer clear and accessible results that serve to emphasize that contemporary industrial organization practice involves data analysis. The Sass (2005) study has the added benefit of introducing students to the Seemingly Unrelated Regressions technique.

Chapter 21 on advertising includes an application on Akerberg's (2001) empirical analysis of the introduction of a new yogurt product by Yoplait in the late 1980s. This application demonstrates perhaps more clearly than any other that when we have access to very detailed data, we can, if great care is taken, distinguish the validity of two competing hypotheses. Here the question is whether advertising works by raising prestige or by providing information. Moreover, because this study uses logit analysis, it gives us a second chance to present to students the underlying logic of empirical models that use limited dependent variables.

We also have included Empirical Applications in Chapters 22 and 23, which are on research and development (R&D). The focus of Chapter 22 is R&D competition under various degrees of spillover from one firm's innovative efforts to the productivity of its rivals and we conclude this chapter with Keller's (2002) empirical study of such spillovers at an international level. Among other benefits, this application helps students understand how research in one area of economics may have implications for policy in other areas. It also introduces students to the idea of non-linear regression. In Chapter 23, which is on patents, we now include an Empirical Application on the Hall and Ziedonis (2001) study of patenting behavior in the U.S. semiconductor industry during the 1980s and 1990s. This application provides a neat illustration of how to identify the sources of dramatic changes in industrial conduct. It also briefly introduces students to the Poisson distribution.

Our final Empirical Application comes in Chapter 24. Here we describe Gandall's (1994) early test for network externalities in the market for spreadsheet software. Although a little older than most of our other empirical studies, this piece is very accessible. Moreover, it has the additional advantage of introducing students to the notion of hedonic regressions and, subsequently, the construction of a hedonic price index.

Our goal in revising the textbook for this edition was to expand and update the material covered. Generally speaking, we have included new material by becoming more efficient and without making extensive cuts to the content covered in previous editions. The updating of theory combined with the inclusion of the fourteen Empirical Applications makes the text more reflective of contemporary theory and practice in industrial organization.

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xxvi Preface to the Fourth Edition

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