

# INDEX

Page numbers followed by “f” refer to figures; page numbers followed by “b” refer to boxes; page numbers followed by “t” refer to tables; page numbers followed by “fn” refer to footnotes.

- Absorbing barriers, in path dependence, 315
- Abuse of dominant position, 183
- Access pricing, 78–82, 80b–81b
- Acquisitions, 277–285. *See also* Mergers
- Advertising, 223–235
  - by diamond industry, 229–230
  - and drug prices, 4–5
  - and entry cost, 247–248
  - expenditure on, and product quality, 226
  - intensity of, 227–230, 227f–228, 229t
  - market structure and, 229–230
  - sensitivity of demand curve to, 227–228, 227f–228f
  - as inter-retailer externality, 194
  - optimal values of, 229t
  - persuasion vs. information in, 223–225, 224b–225b
  - price competition and, 231–235, 233b
  - and “prisoner’s dilemma,” 234
  - and public good, 229
  - signalling in, 225–226
  - social value of, 224
  - “wasteful,” 226
- Advertising-to-revenue ratio, 227, 251t
- Agency theory, 36
- Aircraft industry
  - learning curve in, 44, 44fn, 301
  - market entry in, 246–247
- Airline industry
  - entry deterrence in, 264
  - market power of, 6, 7
  - mergers in, 281
  - predatory pricing in, 269–270, 272fn, 276b
  - price dispersion in, 218–219
  - strategic behavior in, 259
  - in United States, multimarket contact in, 139b
- Allocative efficiency, 8, 26–27
  - in Cournot model, vs. monopoly, 154t
  - in monopolistic competition, 94
- AM radio, vs. FM radio, 321b
- Anheuser-Busch, price discrimination by, 182
- Antidepressants, research and development on, 300, 300t
- Arbitrage, 168fn
- Areeda-Turner test, 274
- Aspartame
  - and entry deterrence by Monsanto, 267, 268b
  - Nutrasweet, advertising of, 232
- Atomcity, and perfect competition, 85
- AT&T
  - as dominant firm, 71t, 71–72
  - rent seeking by, 9
- Austrian school of economics, 9
- Automobile industry, European, price discrimination in, 171b
- Automobiles, demand for, product differentiation and, 207–209, 208t, 210b–211b
- Average cost, 18–20, 19f
- Average cost pricing, in regulated monopolies, 76, 77f
- Backward induction, in sequential games, 56
- Bandwagon effect, 324
- Banking industry
  - business stealing effect in, 253
  - U.S., profit maximization by, 39b
- Beer industry, entry costs in, 247–248
- Belgium, industry concentration in, 241, 242f
- Bertrand model
  - equilibrium, 102–104, 103f–104f
  - vs. Cournot model, 113–114
  - vs. Hotelling model, 214
- Betamax, vs. VHS
  - incompatibility of, 324
  - path dependence and, 315–316, 316f, 317b–318b
- Blockaded entry, 262, 262f
- Boards of directors, composition of, 37b
- Branded drugs, advertising of, 225b, 230
- Brand equity, 231
- Breakfast cereal industry, product proliferation in, 265–267
- British Airways, predatory pricing by, 272, 272fn
- British Sky Broadcasting Group, market power of, 7
- Bromide industry, price wars in, 138
- Browsers, Microsoft’s control of, 74b
- Bundling, 178–179, 273–274
- Business stealing effect, 253
- Cable television industry, predatory pricing by, 273
- Calibration, 120
- Capacity choice, and entry cost, 285
- Capacity constraints, pricing with, in oligopoly, 104–107, 106f
- Capital markets, and profit maximization, 38, 40
- Cartels, 127
  - bromide, 138
  - diamond, 132b
- Causal ambiguity, 43
- Cellular phone industry. *See also* Telecommunications industry
  - nonlinear pricing in, 174b
  - standardization of service in, 327
- Central Selling Organization (CSO), 132b
- Characteristics approach, to product differentiation, 207–209, 208fn, 208t, 210b–211b
- Chicago school of economics
  - on market power, 9–10
  - on predatory pricing, 270–271
- Colgate, advertising of toothpaste by, 233b
- Collusion, 127–145
  - discount factor in, 129–130
  - disincentives to, 130–133, 132b

- Collusion (*continued*)  
 factors facilitating, 137–142  
   institutional, 140–142, 142b–143b  
   market structure as, 137–138, 138fn  
   multimarket contact as, 138–140, 139b, 141b  
 and market power, 160  
 and price wars, 133–137, 134b. *See also* Price wars  
 public policy and, 144–145  
 secret agreements and, 127  
 stability of, repeated interaction and, 128–133, 132b  
 tacit agreements and, 127  
 vertical restraints as, 197, 199
- Collusion effect, of mergers, 283
- Collusion hypothesis, of market power-market concentration relationship, 158–159
- Columbia  
 competition with RCA for development of quadraphonic sound, 322b–323b  
 purchase by Sony, 277
- Commitment, credible, in sequential games, 57–58, 57f–58f
- Comparative statics, in Bertrand and Cournot models, 114–124, 115f–119f, 123f
- Competition  
 among manufacturers, 196–199  
 dynamic, in oligopoly, 105  
 and incentive for research and development, 292–295, 293f  
 monopolistic, 91–94, 92f–93f  
 perfect, 85–87. *See also* Perfect competition  
 product market, and profit maximization, 38
- Competitive advantage, sustainable, 246
- Competitive selection, in perfect competition, 89–91
- Computer memory, research and development in, 301, 302t
- Concrete market, in Denmark, collusion in, 143b
- Conduct parameter, price and, 161, 161t
- Constant returns to scale, 24
- Consumer sorting, 175–180, 177b  
 bundling and, 178–179  
 durable-goods prices and, 179–180  
 versioning and, 176–178, 177b
- Consumer's surplus, 16, 16f, 26, 29
- Contracts  
 and entry deterrence, 267–269, 268b  
 nonlinear, in vertical relations, 192, 192fn
- Copier industry, research and development in, 296, 297b
- Copyrights, 304
- Corporate raiders, 38, 38fn
- Cost, 18–24, 19f  
 average, 18–20, 19f  
 economic, 23  
 fixed, 18, 21b  
 marginal, 18–20, 19f, 29. *See also* Marginal cost  
 opportunity, 20–23, 21b–22b, 29  
 sunk, 20–23, 21b–22b  
 total, 18  
 variable, 18, 21b
- Cost efficiency, mergers and, 278–279
- Cournot model, 107–112, 108f–112f  
 allocative inefficiency in, vs. allocative inefficiency in monopoly, 154t  
 comparative statistics in, 114–124, 115f–119f, 123f  
 dynamic interpretation of, 123f, 123–124  
 equilibrium in, 110fn, 110–111, 111f  
 vs. Bertrand model, 113–114
- Creative destruction, 295, 297–298, 299b
- Credit card industry, competition in, 205–206
- Critical mass, in network externalities, 313f, 313–314
- CSO (Central Selling Organization), 132b
- Culture, of firms, 44
- Customer markets, 133
- DaimlerChrysler merger, 279b
- Damaged goods, and versioning, 176–178, 177b
- DeBeers diamond cartel, 132b
- Decision node, 55, 56f
- Demand, 15–17, 16f–17f  
 fluctuations in, and price wars, 135fn, 135–136
- Demand curve, 16f, 16–17, 29  
 market, 16–17, 17f  
 and price, 161–162  
 sensitivity to advertising expenditures, 227–228, 227f–228f
- Demand elasticity, 17  
 market power and, 160  
 and monopoly power, 73  
 and optimal monopoly margin, 69–70, 70f
- Demand shocks, and price wars, 135–136
- Deregulation, in telecommunications industry, 80b–81b  
 and productivity, 255b
- Deutsche Telekom, access pricing by, 80b–81b
- Diamond cartel, 132b  
 advertising by, 229–230
- Digital Versatile Disks (DVD), standardization of, 327
- Disclosure requirements, of patents, 305–306
- Discount factor, 129–130
- Diseconomies of scale, 24, 245
- Doctrine of equivalents, 304
- Dog food industry, multimarket contact in, 141b
- Dominant firms, 69, 70–72, 71t, 72f  
 optimal price of, 72, 72f  
 telephone companies as, 71t, 71–72
- Dominant position, abuse of, 183
- Dominant strategies, 51
- Dominated strategies, 51–53, 52f–53f
- Double marginalization, 190–192, 191f
- Downstream firms  
 competition among, 193  
 vertical relations with, 189–190  
 vs. upstream firms, 79, 81
- DRAMs (Dynamic Random Access Memories), research and development in, 301, 302t
- Drastic innovation, vs. gradual innovation, 298
- Drugs  
 branded vs. generic, advertising of, 225b, 230  
 price of, 4–5
- Duopoly. *See* Oligopoly

- DuPont, entry deterrence by, 260, 261b
- Durable-goods prices, 179–180
- DVD (Digital Versatile Disk), standardization of, 327
- Dynamic competition, in oligopoly, and pricing, 105
- Dynamic efficiency, 27–29
- Dynamic Random Access Memories (DRAMs), research and development in, 301, 302t
- Easyjet  
 predatory pricing by, 269–270  
 strategic behavior of, 259
- eBay, network externalities and, 314, 314fn
- Economic cost, 23
- Economies of scale, 23–24  
 and market concentration, 245
- Economies of scope, 23–24
- ECPR (Efficient Component Pricing Rule), 81–82
- Efficiency, 26f, 26–29, 28f  
 allocative, 26–27  
 dynamic, 27–29  
 mergers and, 285  
 price discrimination and, 181  
 in production, 27, 28f  
 and research and development, 295–297, 297b  
 static  
 in perfect competition, 86, 96  
 vs. dynamic, 28
- Efficiency effect, 296
- Efficiency hypothesis, of market  
 power-market concentration  
 relationship, 159
- Efficient Component Pricing Rule (ECPR), 81–82
- Elasticity rule, 70, 70f  
 in price discrimination, 171–172
- Electrical utilities, as natural  
 monopolies, 78–79
- Eli Lilly, research on insulin by, 296–297
- Endogenous entry costs, vs.  
 exogenous entry costs,  
 247–252, 251t, 251f–252f
- Entry accommodation, 262, 263f
- Entry cost  
 advertising and, 247–248  
 and capacity choice, 285  
 endogenous vs. exogenous,  
 247–252, 251t, 251f–252f  
 and market structure, 243–247  
 and social welfare, 242–254, 253f
- Entry deterrence, 260–269  
 and blockaded entry, 262, 263f  
 commitment and, 263–264  
 contracts and, 267–269, 268b  
 product proliferation and, 265–267
- Entry rates, in perfect competition,  
 88, 88t
- EPROMs (Erasable Programmable  
 Read Only Memories), research  
 and development on, 301,  
 302t
- Equilibrium  
 free-entry, 243  
 fulfilled-expectation, 312  
 long-run  
 in monopolistic competition, 93,  
 93f  
 in perfect competition, 87  
 Nash. *See* Nash equilibrium  
 in repeated games, 60–62, 128  
 short-run, in monopolistic  
 competition, 92, 92f
- Erasable Programmable Read Only  
 Memories (EPROMs), research  
 and development on, 301, 302t
- Essential facilities, regulation of,  
 78–82, 80b–81b
- ETSI (European Telecommunications  
 Standards Institute), 327
- European Telecommunications  
 Standards Institute (ETSI),  
 327
- Excess inertia, vs. excess momentum,  
 and network externalities,  
 319–324, 320f, 321b–323b,  
 323f, 328
- Exchange rate, fluctuations in, and  
 market shares, 117–120, 118f
- Exclusive dealing, 197
- Exclusive territories, 194
- Exit rates, in perfect competition, 88,  
 88t
- Exogenous entry costs, vs.  
 endogenous entry costs,  
 247–252, 251t, 251f–252f
- Experience goods, 223
- Externalities, 127  
 investment, and vertical relations,  
 193–194  
 network. *See* Network externalities
- Exxon, merger with Mobil, 10
- Fax machines, installed base for,  
 critical mass in, 313f, 313–314
- Firms  
 boundaries of, 40–42  
 culture of, 44  
 dominant, 69, 70–72, 71t, 72f  
 optimal price of, 72, 72f  
 telephone companies as, 71t,  
 71–72  
 growth of, in perfect competition,  
 88  
 heterogeneity of, and efficiency of  
 free entry, 254  
 horizontal extension of, 40  
 performance of, differences among,  
 42–44  
 profit maximization by, 35–40, 37b,  
 39b  
 size of, in perfect competition,  
 88–89, 89f  
 survival of, in perfect competition,  
 88
- First-degree price discrimination, 170
- First-mover advantage, 246
- Fisher Body, vertical integration by,  
 41–42
- Fixed cost, 18  
 and shut-down decision, 21b
- FM radio, vs. AM radio, 321b
- Foreclosure, and manufacturer  
 competition, 196–197
- France, industry concentration in,  
 241, 242f
- France Telecom, deregulation of, and  
 entry deterrence, 264–265,  
 266b
- Franchising, 42
- Free entry  
 equilibrium, 243  
 product differentiation and, 254,  
 256  
 and social welfare, 252–254, 253f
- Free-rider problem, in research and  
 development, 306
- Fulfilled-expectation equilibrium,  
 312
- Games, 49, 62  
 centipede, 65, 66f  
 cover-story, 63, 64f

- Games (*continued*)  
 extensive form of, 55, 56f, 62  
 normal form of, 50, 62  
 “prisoner’s dilemma,” 50f, 50–51  
 repeated, 59–62, 60f  
 retaliation in, 59  
 sequential, 55–59, 56f–59f  
   backward induction in, 56  
   credible commitment in, 57–58, 57f–58f  
   decision node in, 55, 56f  
   game tree in, 55, 56f  
   long-run and short-run strategies in, 59, 59f  
   subgames of, 56–57  
   stage, 60, 60f  
 Game tree, 55, 56f  
 Gasoline stations, predatory practices by, 275b  
 Genentech, research on insulin by, 296–297  
 General Motors, vertical integration by, 41–42  
 Generic drugs  
   advertising of, 225b, 230  
   price competition by, 4–5  
 Glaxo Wellcome, pricing of Zantac by, 4  
 Gradual innovation, vs. drastic innovation, 298  
 Grim strategies, 128  
 Herfindahl index, 155  
 High-power incentive mechanisms, 77, 82  
 Hold-up problem, 41  
 Horizontal extension, of firms, 40  
 Horizontal mergers. *See* Mergers  
 Horizontal product differentiation, 206–209, 210b–211b  
 Hotelling model, 212, 212f–213f  
   Nash equilibrium for, 213f, 214–215  
   price competition and advertising, 232–233  
   vs. Bertrand model, 214  
 IBM  
   production of damaged goods by, 177b  
   research on plain paper copiers by, 296, 297b  
 Impediments to imitation, 43  
 Imputed cost. *See* Opportunity cost  
 Incentive-compatibility constraint, in nonlinear pricing, 175  
 Incentive mechanisms, high-power vs. low-power, 77  
 Industrial organization, 3  
   central questions in, 6–11  
   example of, 4–5  
 Industrial policy, 11  
 Industry, 3  
 Inertia, excess, vs. excess momentum, 319–324, 320f, 321b–323b, 323f  
 Information, vs. persuasion, in advertising, 223–225, 224b–225b  
 Innovation, gradual vs. drastic, 298  
 Input costs, and output price, 115f, 115–117  
 Insulin manufacturers, research and development by, 296–297  
 Intel, production of damaged goods by, 177b  
 Interconnection decision, in deregulation, 80b–81b  
 Interdependent decision-making, 49  
 Internet browsers, Microsoft’s control of, 74b  
 Investment externalities, and vertical relations, 193–194  
 Japanese Ministry of Industry and Foreign Trade, 11  
 Joint Executive Committee, 134b  
 JVC, development of videocassette recorders by, 317b–318b  
 Keiretsu, 42, 42fn  
 KLM, predatory pricing by, 269–270  
 Kodak, bundling by, 273–274  
 Kraft, merger with Philip Morris, 277  
 Labor market, and profit maximization by firms, 36–37  
 Laser industry, competitive selection in, 90–91  
 Law of one price, 167  
 Learning curves, 44  
   and research and development, 301, 302t  
 Lerner index, 154–155  
 Lloyd’s TSB, efficiency of, 38  
 Location, and product differentiation, 211–215, 212f–213f  
 Long-distance telephone rates, 71t  
 Long-purse theory, of predatory pricing, 270–271  
 Long-run equilibrium  
   in monopolistic competition, 93, 93f  
   in perfect competition, 87  
 Low-cost signaling, and predatory pricing, 271–272  
 Lowest-price guarantee, 180, 180fn  
 Low-power incentive mechanisms, 77  
 Lycra, advertising of, 230  
 Managers  
   goals of, vs. shareholders, 35–36  
   reputation of, and profit maximization, 36–37  
 Marginal cost, 18–20, 19f, 29  
 Marginal revenue, 25  
   in perfect competition, 86  
 Market concentration  
   in different sectors, 241, 242f  
   economies of scale and, 245  
   and market power, 151–156, 152f–153f, 154t  
   empirical estimation of, 156–159  
   measurement of, 154–155  
   simultaneity problem in, 157–158  
   market size and, 243–244  
   minimum efficiency scale and, 244  
 Market demand curve, 16–17, 17f  
 Market power, 6  
   acquisition of, 7  
   collusion and, 160  
   demand elasticity and, 160  
   empirical estimation of, 159–162, 161t  
   extent of, 6–7  
   implications of, 8–9  
   maintenance of, 7–8  
   market concentration and, 151–156, 152f–153f, 154t  
   empirical estimation of, 156–159  
   measurement of, 154–155  
   simultaneity problem in, 157–158  
   product differentiation and, 209–215, 212f–213f  
   public policy on, 9–11  
 Market segmentation, 170  
 Market size, and market concentration, 243–244  
 Market structure  
   and advertising intensity, 229–230  
   and collusion, 137–138, 138fn

- and incentives for research and development, 292–295, 293f
- MasterCard, antitrust lawsuit against, 294
- Matsushita, development of videocassette recorders by, 317b–318b
- Mergers, 277–285
  - causes of, 277–278
  - collusion effect of, 283
  - and efficiency, 278–279, 285
  - implications of, 278–281, 279b, 286
  - market definition and, 284
  - and price increases, 283
  - public policy on, 283–285
  - and stock prices, 281
  - and synergies, 278
  - and total output, 280
  - unilateral effect of, 283
  - waves of, 281–283, 286
- Microeconomics, principles of, 15–29
- Microsoft
  - bundling by, 178–179
  - monopoly power of, 74b
  - predatory practices by, 273
  - vertical restraints by, 198b
- Minimum efficiency scale, 24
  - and market concentration, 244
- MITI, and industrial policy, 11
- Mixed bundling, 178
- Mobil, merger with Exxon, 10
- Mobile phone industry, nonlinear pricing in, 174b
- Models, stylized nature of, 49fn
- Monopolies, 69–75, 70f, 71t, 72f, 74b
  - access pricing by, 78–82, 80b–81b
  - allocative inefficiency in, vs. allocative inefficiency in Cournot model, 154t
  - dominant firms and, 70–72, 71t, 72f
  - as essential facilities, 78–82, 80b–81b
  - and incentive for research and development, 292–297, 293f, 297b
  - natural, 75
    - utility companies as, 78–79
  - optimal margin of, demand elasticity and, 70, 70f
  - power of. *See* Monopoly power
  - pure, 69
  - regulation of, 75–78, 76f–77f
    - average cost pricing and, 76, 77f
    - price-cap, 77–78
      - vs. nonregulation, 76f
- Monopolistic competition, 91–94, 92f–93f
  - allocative inefficiency in, 94
  - long-run equilibrium in, 93, 93f
  - short-run equilibrium in, 92, 92f
  - similarities with perfect competition, 94–95, 95t
- Monopoly power, 72–75, 74b
  - demand elasticity and, 73
  - market definition and, 73
  - public policy and, 73
- Monsanto, entry deterrence by, 267, 268b
- Most-favored-customer clauses, and collusion, 141
- Multimarket contact, and collusion, 138–140, 139b, 141b
- Nash equilibrium, 53–55, 53f–54f, 54fn, 62
  - in Bertrand model, 103–104, 104f
  - in Cournot model, 103–104
  - in Hotelling model, 213f, 214–215
  - with network externalities, 312
- National Cooperative Research Act of 1984, 307
- Natural monopolies, 75
  - utility companies as, 78–79
- NEIO (New Empirical Industrial Organization), 160
- Nestlé
  - acquisition of Rowntree by, 277
  - merger with Perrier, 283–284
- Network externalities, 275
  - compatibility and, 324–326
  - consumer expectations and, 312–314, 313f
  - critical mass in, 313f, 313–314
  - excess inertia and, vs. excess momentum, 319–324, 320f, 321b–323b, 323f, 328
  - Nash equilibrium with, 312
  - path dependence and, 314–319, 316f, 317b–318b
  - public policy and, 326–328
- New Empirical Industrial Organization (NEIO), 160
- Newspaper industry, in Britain, price wars in, 136–137
- Nintendo, R&D competition with Sega, 298, 299b
- No-deviation constraints, 128–129
- Nondisclosure agreements, 294
- Nonlinear contracts, in vertical relations, 192, 192fn
- Nonlinear pricing. *See* Pricing, nonlinear
- Nutrasweet
  - entry deterrence by, 267, 268b
  - vs. aspartame, advertising of, 232
- Ocean shipping, anti-collusion policies affecting, 145
- Office Depot, merger attempt with Staples, 284
- Office of Fair Trading, 10
- Oligopoly, 101
  - Bertrand model of, 102–104, 103f–104f. *See also* Bertrand model
  - Cournot model of, 107–112, 108f–112f. *See also* Cournot model
  - dynamic competition in, and pricing, 105
  - interdependence of firms in, 101–102
    - Nash equilibrium in, 103–104, 104f
- Online auction houses, network externalities and, 314, 314fn
- Opportunity cost, 20–23, 21b–22b, 29
- Organizational inertia, 302
- Output
  - adjustment of, vs. price, 114
  - level, choice of, 24–25
  - marginal cost and, 115, 115fn, 116f
- Participation constraint, in nonlinear pricing, 175
- Patents, 303–306, 305f
  - breadth of, 303–304
  - disclosure requirement of, 305–306
  - and entry deterrence, 267–269, 268b
  - strength of, 304–305, 305f
- Path dependence, and network externalities, 314–319, 316f, 317b–318b
- Perfect competition, 85–87
  - assumptions of, 85–86
  - efficiency of, 86, 90–91
  - long-run equilibrium in, 87
  - long-run profits in, 87
  - marginal revenue in, 86

- Perfect competition (*continued*)  
 as model for markets with many firms, 153–154, 154t  
 profit in, 94  
 similarities with monopolistic competition, 94–95, 95t
- Perfect discrimination. *See* Price discrimination, first-degree
- Perfect information, and perfect competition, 86
- Perrier, merger with Nestlé, 283–284
- Persuasion, vs. information,  
 in advertising, 223–225, 224b–225b
- Pharmaceutical industry  
 advertising of branded vs. generic drugs by, 225b, 230  
 price discrimination by, 182  
 price margins set by, 4–5  
 research and development in, on antidepressants, 300, 300t
- Philip Morris, merger with Kraft, 277
- Photolithographic alignment industry,  
 research and development in, 301–302, 302t
- Plain paper copier industry, research and development in, 296, 297b
- Post-contractual opportunism, 41
- Predatory practices  
 debate on existence of, 274  
 by gasoline stations, 275b  
 identification of, 274, 275b–276b  
 legality of, 276  
 nonpricing, 273–274  
 public policy on, 274–277  
 and social welfare, 274–277
- Predatory pricing, 269–277, 275b–276b  
 growing markets and, 272–273  
 low-cost signaling and, 271–272  
 reputation for toughness and, 272  
 theories of  
 Chicago school of economics, 270–271  
 long-purse, 270–271
- Price  
 adjustment of, vs. output, 114  
 increases in, mergers and, 283  
 marginal cost and, 161t, 161–162
- Price-cap regulation, of monopolies, 77–78
- Price cuts, secret, and price wars, 133, 135
- Price discrimination, 167–184  
 cost differences and, 168  
 and efficiency, 181  
 first-degree, 170  
 legality of, 180–183  
 resale and, 167–168  
 Robinson-Patman Act and, 182  
 second-degree, 169–170, 184  
 self-selection and, 169  
 third-degree, 170–172, 171b, 184, 194  
 types of, 169–170
- Price dispersion, 218–219, 219fn
- Price fixing. *See* Collusion
- Price takers, 86
- Price wars, 133–137, 134b  
 asymmetric shocks and, 136–137  
 demand fluctuations and, 135fn, 135–136  
 secret price cuts and, 133, 135
- Pricing  
 nonlinear, 169, 172–175, 173f, 174b  
 incentive-compatibility constraint in, 175  
 participation constraint in, 175  
 two-part tariff in, 172–175, 174b
- in oligopoly  
 with capacity constraints, 104–107, 106f  
 product differentiation and, 105  
 predatory, 269–277, 275b–276b.  
*See also* Predatory pricing
- “Prisoner’s dilemma” game, 50f, 50–51  
 advertising and, 234
- Procter and Gamble (P&G), advertising  
 of toothpaste by, 233b
- Producer’s surplus, 26
- Product differentiation  
 characteristics approach to, 207–209, 208fn, 208t, 210b–211b  
 free entry and, 254, 256  
 horizontal, 206–209, 208t, 210b–211b  
 Hotelling model of, 212, 212f–213f  
 imperfect information and, 217–219  
 location and, 211–215, 212f–213f  
 and market power, 209–215, 212f–213f  
 price dispersion and, 218–219, 219fn  
 product positioning and, 215–217, 216f  
 spurious, 233  
 switching costs and, 217–219  
 vertical, 206–209, 208t, 210b–211b
- Product homogeneity, and perfect competition, 85
- Product market competition, and profit maximization, 38
- Product positioning, 215–217, 216f  
 direct effects of, 216, 216f  
 strategic effects of, 216
- Product proliferation, and entry deterrence, 265–267
- Product quality, advertising  
 expenditure and, 226
- Productive efficiency, 8, 27, 28f  
 deregulation and, in telecommunications industry, 255b
- Profit  
 entry deterrence and, 260, 260f, 262  
 long-run, in perfect competition, 87  
 maximization of, 24–25  
 by firms, 35–40, 37b, 39b. *See also* Firms, profit maximization by  
 in monopolistic competition, 94, 94fn  
 in perfect competition, 94
- Public policy  
 and collusion, 144–145  
 and market power, 9–11  
 and mergers, 283–285  
 and monopoly power, 73  
 and network externalities, 326–328  
 and predatory practices, 274–277  
 and research and development, 303–308, 305f  
 agreements related to, 306–308  
 patents and, 303–306, 305f. *See also* Patents  
 and vertical restraints, 199–200
- Pure bundling, 178
- Pure monopoly, 69
- Quadraphonic sound technology,  
 failure of, 322b–323b
- QWERTY typewriter system, path dependence and, 316–317
- Raiders, 38, 38fn
- Rate-of-return regulation, of monopolies, 76–77

- RCA, competition with Columbia for development of quadraphonic sound, 322b–323b
- R&D. *See* Research and development (R&D)
- Reaction function  
in Bertrand model, 102–103, 103f  
in Cournot model, 109f, 109–110
- Ready-mixed concrete market, in Denmark, collusion in, 143b
- Redsyke Quarry, and opportunity cost, 22b
- Regulation  
and market power, 9–10  
of monopolies, 75–78, 76f–77f
- Regulatory capture, 76
- Regulatory lag, 77
- Rent seeking, 8–9
- Repeated games, 59–62, 60f, 128
- Replacement effect, 294, 297–298, 299b
- Resale, and price discrimination, 167–168
- Resale price maintenance (RPM), 194–195
- Research and development (R&D), 291–308  
agreements concerning, 306–308  
and creative destruction, 297–298, 299b  
efficiency and, 295–297, 297b  
expenditure on, 291, 292t  
free-rider problem in, 306  
incentive for, 308  
learning curve and, 301, 302t  
market structure and, 292–295, 293f  
public policy and, 303–308, 305f  
agreements concerning, 306–308  
patents and, 303–305, 305f. *See also* Patents  
replacement effect and, 297–298, 299b  
risk choice and, 299–301, 300t  
spillover in, 306
- Residual demand, in Cournot model, 108
- Retailers  
competition among, and vertical relations, 193  
selling to, vs. selling to consumer, 189, 189fn
- Retaliation, in games, 59
- Risk, choice of, in research and development, 299–301, 300t
- Risk-neutral agents, 36fn
- Robinson-Patman Act, 182
- Rowntree, acquisition by Nestlé, 277
- RPM (resale price maintenance), 194–195
- Sacem* case, 73
- Scale economies, and market concentration, 245
- Schumpeter, Joseph, 9, 293
- SCP (structure-conduct-performance) paradigm, 12, 156  
simultaneity problem in, 157–158
- Search cost, 217
- Search goods, 223
- Second-degree price discrimination. *See* Price discrimination, second-degree
- Secret agreements, and collusion, 127
- Sega, R&D competition with Nintendo, 298, 299b
- Selection by indicators, and price discrimination, 169
- Self-selection, and price discrimination, 169
- Sequential games, 55–59, 56f–59f. *See also* Games, sequential
- Shareholders, goals of, vs. managers, 35–36
- Sherman Act, 144
- Shipping industry  
anti-collusion policies affecting, 145  
price wars in, 134b
- Short-run equilibrium, in monopolistic competition, 92, 92f
- Signaling  
in advertising, 225–226  
low-cost, and predatory pricing, 271–272
- Simultaneity problem, in structure-conduct-performance paradigm, 157–158
- Social welfare  
advertising and, 229  
free entry and, 252–254, 253f  
predatory practices and, 274–277  
price discrimination and, 180–183
- Software, upgrades of, excess momentum and, 324
- Sony  
development of videocassette recorders by, 317b–318b  
production of damaged goods by, 177b  
purchase of Columbia by, 277
- Spandex, advertising of, 230
- Spatial price discrimination, 170
- Specific assets, 41
- Spillover, in research and development, 306
- Spurious product differentiation, 233
- Stage games, 60, 60f
- Standardization, in development of new technology, 325–328
- Staples  
entry deterrence by, 267  
merger attempt with Office Depot, 73, 75, 284
- Static efficiency  
in perfect competition, 86, 96  
vs. dynamic efficiency, 28
- Stock prices, mergers and, 281
- Strategies  
choice of, 50  
dominant, 51  
dominated, 51–53, 52f–53f  
and firm performance, 43–44  
grim, 128  
long-run and short-run, in sequential games, 59, 59f  
and Nash equilibrium, 53–55, 53f–54f, 54fn, 62  
in repeated games, 60
- Structure-conduct-performance (SCP) paradigm, 12, 156  
simultaneity problem in, 157–158
- Structure-performance hypothesis, 157
- Subgames, 56–57
- Sunk cost, 20–23, 21b–22b
- Supermarket industry, mergers in, 282
- Supplier contracting, 42
- Surplus  
consumer's, 16, 16f, 26, 29  
producer's, 26  
total, 26  
and allocative efficiency, 27
- Sustained competitive advantage, 42, 246
- Switching costs, 217–219
- Synergies, mergers and, 278

- Tacit agreements, and collusion, 127
- Takeovers, threat of, and profit maximization, 38, 38fn, 39b
- Tapered integration, 42
- Tariff, two-part, 174b, 174–175 and vertical relations, 190–192, 191b
- Technology  
 access to, and entry cost, 245–247  
 adoption of, excess inertia vs. excess momentum in, 319–324, 320f, 321b–323b, 323f  
 development of, standardization in, 325–328  
 path dependence and, 314–319, 316f, 317b–318b
- Telecom Corporation of New Zealand, access pricing by, 82
- Telecom Italia, deregulation of, and entry deterrence, 264–265
- Telecommunications industry  
 deregulation of, 80b–81b and productivity, 255b  
 dominant firms in, 71t, 71–72  
 entry deterrence in, 264–265, 266b  
 in Europe, mergers in, 282–283  
 license allocation in, and entry cost, 248–249  
 mobile phone, nonlinear pricing in, 174b  
 wireless, standardization of service in, 327
- The Times*, pricing by, 10
- Third-degree price discrimination, 170–172, 171b, 184, 194
- Tie-in sales, 178–179
- Titanium dioxide industry, and entry deterrence by DuPont, 260, 261b
- Toothpaste, advertising of, 233b
- Total cost, 18
- Total surplus, 26  
 and allocative efficiency, 27
- Tourists-locals model, 219
- Treaty of Rome, 73, 144  
 on research and development agreements, 307  
 and vertical restraints, 199–200
- Turbine generator market, collusion in, 142b
- Two-part tariff, 172, 174b, 174–175 and vertical relations, 190–192
- Tying, 178–179, 273–274
- Typewriter keyboard layout, path dependence and, 316–317
- Ulcer medications, price of, 4–5
- United Brands, price discrimination by, 182
- Upstream bottleneck, 79, 81
- Upstream firms, vertical relations with, 189–190
- Utility companies, as natural monopolies, 78–79
- Variable cost, 18  
 and shut-down decision, 21b
- VCR (videocassette recorder) industry, path dependence in, 315–316, 316f, 317b–318b
- Venture capitalists, nondisclosure agreements with, 294
- Versioning, 176–178, 177b
- Vertical integration, by firms, 40–42
- Vertical product differentiation, 206–209, 210b–211b
- Vertical relations, 189–200  
 as collusion device, 197, 199  
 double marginalization in, 190–192, 191f  
 indirect control of, 194–195  
 investment externalities and, 193–194  
 legality of, 199–200  
 manufacturer competition and, 196–199  
 nonlinear contracts in, 192  
 retailer competition and, 193
- VHS, vs. Betamax  
 incompatibility of, 324  
 path dependence and, 315–316, 316f, 317b–318b
- Videocassette recorder (VCR) industry, path dependence in, 315–316, 316f, 317b–318b
- Video game industry, research and development competition in, 298, 299b
- Virgin Atlantic, predatory pricing by, 272, 272fn
- Visa, antitrust lawsuit against, 294
- Welfare. *See* Social welfare
- Willingness to pay, 15–16, 16f
- Windows operating system, and monopoly power, 74b
- Wireless telecommunications industry, standardization of service in, 327
- Xerox, research on plain paper copiers by, 296, 297b
- Yoplait yogurt, advertising of, 224b
- Zantac, Glaxo Wellcome's pricing of, 4