INDEX

Accounting, information systems and, 109 Auction models, innovation and, 854-855, 869, Adverse selection, 90, 660, 688, 693, 936 870, 875-876 Advertising, 391; conveying information, 773, Authority, 123-124; delegated, 70, 124. See also 774, 819, 829, 842-843; dealer free riding, Control: Decision-making: Management 682-689; entry barriers and, 503-505, 522; Average cost functions, 8-9, 24-25, 29, 35-38 free riding across manufacturers, 696–697; retailers, 204; vertical contractual relations and, 711-712, 715 Backward integration, 196-199, 208-211, 219, Agency, 105-106; common agency, 123, 701-237, 239 704; competition and, 103-104; costs, 80-81; Balkanization, 750–751; product differentiation, effort-based models, 93; supervision, 149; 760 vertical integration and, 209-211. See also Bandwagon strategy, 903 Moral hazard; Opportunism; Principal-agent Bankruptcy, 85, 86 Bargaining: Nash bargaining outcome, 227, 228; models Aggregation, 42-45; network structure and, 44; positions in incomplete contracts, 69, 71, 72; output data, 42-45 Rubinstein's bargaining game, 287; Alchian-Demsetz model, 67, 111 supergames, 379-380; terms, 144-145. See also Anticompetitive behavior, 537-596; Areeda and Contracting: contract law Turner rule, 580, 581-583; Baumol rule, 585; 'Bargains and ripoffs' model, 641-642, 791-795, dominant firm conduct analysis, 540-545; government facilitation of, 570-579; Bayesian games and equilibria, 296-302, 450, international trade, 577-579; Joskow and 554; Bayesian perfect equilibrium, 405, 554; Klevoric rule, 580, 583-584; nonpricing definition, 299; proving existence, 299; to models, 562-565; Ordover and Willig rule, justify mixed strategy equilibria, 302-304 586-588; political and legal process, 573-577; Behavioral strategy: fat cat, 389, 509, 510, 709; Posner rule, 584; pricing models, 542-545, game theory, 263-264, 331; in limit pricing 545-562; protectionism, 576-577; public theory, 485-493; lean and hungry, 389, 391, policy treatment, 544; R&D and, 544; raising 509, 510; noncooperative game theory, 263rivals' costs, 499-503, 566-570, 573; regulated 264, 331; oligopoly, 382-383; puppy dog, 388, firms, 571-573; S-S-K rule, 586, 588-590; 390, 509, 510; sign of, 386; signaling, 406-407; Salop-Scheffman-Schwartz analysis, 575-576; substitutes and complements, 388; taxonomy tests for, 579-590 (filters, 580, open ended of, 388-389; top dog, 388, 509, 510; welfare rules, 580). Willianson rule, 583, 584-585. See effects of, 386-387. See also Anticompetitive also Competition; Dominant firms; Entry behavior; Antitrust policy; Industrial policy barriers; Predation Bertrand model of oligopoly, 268-269, 343-348, Antitrust policy: tests for anticompetitive 404, 765; Bertrand reversion, 370-372; behavior, 579; transaction cost economics, comparison with Cournot model, 348-352; 176-177; vertical contractual relations, noncooperative game theory, 268-269; 717-719. See also Anticompetitive behavior; reversion, 450 Vertical integration Bidding: collusion and, 453; franchise bidding, Arbitrage, 78, 79, 91, 665, 666, 772 175; joint, 440; large numbers bidding Arbitration, 124-125 condition, 144, 145 Areeda and Turner rule, 580, 581-583 Bounded rationality, 109-110, 138-139, 170-171 Arrow-Debreu contracts, 68 Brands: entry barriers and, 504, 506-508; free Asset specificity, 142-143, 188, 213-215; exit riding across manufacturers, 696-697; barriers and, 520-523; investment and, 169; intrabrand competition, 679-682, 683, 694, optimal, 154; vertical integration and, 150, 699-707; monopolistic competition and, 642, 151, 213-215 643; vertical integration, 220 Auction markets, 911 Bribes, side contracting, 121

947a Index

BSL limit pricing model, 480–485, 486, 491, 505–506, 510; behavior in, 485–493 Budget-breaking, 68 Bundling, 626–630, 657; Adams and Yellen, 626–628; price discrimination, 657; Schmalensee's simulations, 628–629 Buyer-integration, 70, 71, 72, 73

Calvo-Wellisz model, 110-112, 118 Capital market discipline, 97–101 Capital structure, 78-86; agency costs, 80-81; capital for investment, 83-84; choice of finance instruments, 85-86, 167-168; control argument, 85-86; incentive argument, 79-82; signaling argument, 82-84; transaction cost economics, 167-169 Career concern, 75, 95, 119; managerial behavior and, 103 Career marriages, 166-167 Cartels: arrangements, 425-430; criminal pricefixing, 429; free entry, 428-429; natural resource cartels, 429; objectives, 428; punishment strategies, 425-427; stability, 427-428. See also Collusion; Mergers Celler-Kefauver Antimerger Act, 436 Certification, 838 CES see Constant elasticity of substitution (CES) Chain-store paradox, 442, 551, 552, 553 Cheating: detection, 421-422, 445; incentives to cheat, 420-421; prevention, 422-423; profitability of, 421; punishment, 422, 425-427 Checking see Monitoring Cho-Kreps criterion, 313-314 Clayton Act, 241, 244-247, 643-644 Closed-loop equilibria, 296 Coase, R.H., 63-64, 635-636 Collusion, 363-366, 370-371, 374, 376; among manufacturers, 700-701; bidding strategies, 453; cartel arrangements, 425-430; cheating see Cheating; competition restriction and, 453-459; deviations from price-taking behavior, 451-452; dynamic efficiencies (learning, 461, technical change, 461–463); economies of scale and scope, 459-461; evidence, 423-424; games theory, 370-371, 374, 376 (noncooperative, 280, 282, 284, 290): horizontal, 424-441; identification of, 451-453; implicit, 280, 282, 284; market definitions, 454-455; meet or release clause, 422-423; precommitment, 422-423; price wars, 442, 445-447; public interest and government policy, 450-466; punishment, 422, 425-427; reaching an agreement, 417-420; side contracting and, 122; signaling, 420, 429; static efficiencies, 459-461; tacit see Tacit collusion; welfare loss, 455-459. See also

Cartels; Game theory; Joint ventures; Mergers Common agency, 123; vertical contractual relations, 701–704

Companies see Firms

Competition: agency and, 103–104; discipline provided by, 95–96; induced by incentives, 114; law in EC, 248–249; law in U.K., 247–248, 249; managerial incentives and, 103–104; market clearing, 912–913, 926–928; multiple industry, 40; naturally competitive industry, 34; product market competition, 115–116; restriction by collusion, 453–459; structurally competitive industry, 35; yardstick competition, 114. See also Anticompetitive behavior; Imperfect information in product market; Monopolistic competition

Concentration, 941–943; index of, 430, 431; innovation and market concentration, 462; price rigidity and, 922. See also Cartels; Collusion; Joint ventures; Mergers

Conditions precedent, 222-223

Constant elasticity of substitution (CES): benefit function, 202–203; production function, 191, 192

Contestable markets, 66; entry barriers, 526–528, 529, 585

Contracting: bargain terms, 144–145; breach and renegotiation, 223–224, 225–226, 228, 920; conditions precedent, 222–223; contract as promise, 140; contract law, 221–224; ex ante, 139, 160, 175; ex post, 139, 140, 144, 160, 175; hostages, 148, 158–163, 698–699; incomplete see Incomplete contracts; large numbers bidding condition, 144, 145; meet or release clause, 422–423; multi-lateral, 120; observable contracts, 704–705; overreaching, 163–164; requirement contracts, 658; side-contracts, 107, 120–122; single comprehensive and multi-lateral, 107; unobservable contracts, 705–706. See also Incomplete contracts; Vertical contractual relations

Control: capital structure, 85–86. See also Decision-making; Management

Cooperation: game theory, 278, 290, 320, 361, 442, 466; government policy, 466; investment in innovation, 857, 860–861, 866–868; invisible hand, 142, 741–742; pricing, 758; welfare analysis of ventures, 715–716
Corporate culture, 76–77

Corporate finance, 167–169
Corporate mergers see Mergers
Correlated equilibrium, 272–274
Cost functions: aggregation and hedonic approach, 42–45; average, 8–9, 24–25, 29, 35–38 (U-shaped, 36, 37–38); economies

approach, 42–45; average, 8–9, 24–25, 29, 35–38 (U-shaped, 36, 37–38); economies of scale, 8; hybrid translog, 52–53, 54; long-run and short-run, 45–46; multiproduct *see*

Index 947b

Multiproduct cost function; product set, 12-13, 14, 27-29; quasiconvexity, 31-32; trans-ray convexity, 31; trans-ray supportable, 30-32; translog, 51-52, 54; weak cost complementarities, 21-23 Cost subadditivity, 20, 23-24, 31-32, 55. See also Natural monopoly Cost superadditivity, 20, 25, 26-27, 27-29 Countercyclical margins, 923-924 Cournot model of oligopoly, 268-269, 277, 333-343, 384-385, 485, 486, 765; characterization of equilibrium, 336-339; comparative statics, 340-342; comparison with Bertrand model, 348-352; Cournot reversion, 363, 365, 367-370, 376-377; dual to equilibrium, 339-340; Hahn condition, 337; noncooperative game theory, 268-269, 272, 277, 278, 280; parameter shift and, 340–342; performance measures, 342-345; with discounting, 444

Dealing, exclusive, 658, 699, 701, 706, 708 Debt finance: as incentive device, 81; bankruptcy mechanism in contract, 85; choice as instrument, 85-86, 167-168; non-voting shares and debt, 85-86; oligopoly strategy, 392; transaction cost economics, 167-169 Decision-making: financial, 79; nature of within firm, 63; reputation capital management, 77; residual decision rights, 68-69. See also Authority; Control Deep pocket see Long purse scenario Delivery costs see Transportation costs Demand curves: derived, use of, 774–779; discontinuity in, 777-778; imperfect information, 791-793, 795, 802-803; kinked demand curve, 402, 775-777, 797-798, 821-822, 914-915; market, 33, 35, 36-37 Demand fluctuation models, 234-235 Deregulation, 175-176 Design changes, 70-73, 74 Diffusion of innovation, 893–904; adoption date, 896, 897-899; bandwagon strategy, 903; competition to adopt first, 899-900; continuous time model, 900; diffusion function, 896-897; instantaneous adjustment, 898; noncooperative, 900-902; optimal adoption rule, 894-896, 900; preemption threat, 899; prior beliefs, 896 Dilution rights, take-overs, 98-99 Discipline see Internal discipline: Management Diversification incentive, 205-206 Division of labor, 229–230 Dominant firms: analysis framework for conduct, 540-545; facing price-taking fringe, 588-590;

price discrimination, 193, 195; profit

maximization, 541; welfare maximization, 538–539. See also Anticompetitive behavior Double marginalization, 673 Duality theory, modern, 46–48

Economic natural selection, 140 Economies of scale, 7-11; collusion and, 459-461; cost function, 8; cost superadditivity and, 26-27; entry barriers, 508, 528; long-run and short-run returns to, 45-46; maximum efficient scale, 38; measure using transformation or cost function, 9-10; multiproducts, 10-11, 14, 27-29; natural monopoly and, 25-26; product specific, 11-15, 27-29; single product, 7, 8-9, 13-14; technological, 8. See also Specialization Economies of scope, 15-23; collusion and, 459-461; cost superadditivity and, 26-27; definition, 15-16; degree of, 16-17; Marshallian joint production, 17; natural monopoly and, 26; public input model, 17, 18; shared inputs, 19-21; weak cost complementarities, 21-23 Edgeworth cycles, 345-346, 402, 404 Efficiency, 38 Elasticity of substitution: CES, 191, 192, 202-203; unitary, 48 Electrical power, empirical studies, 46-51 Entry barriers, 475-575; absolute cost advantage, 493-495, 521; advertising, 522; asymmetric costs, 476, 477, 478, 491, 495-498; Bain's determinants, 477, 480-508; behavior strategies, 509-510; blockaded entry, 482; brands, 504, 506-508; BSM limit pricing model see BSL limit pricing model; contestable markets, 526-528, 529; Cournot competition, 485, 486; definitions, 475-478; dynamic limitpricing, 511-515; dynamics and industry structure, 510-520; economic performance and, 528-530; economies of scale, 508, 528; effectively impeded entry, 482; endogenous cost advantages, 495-503; exit barriers and asset specificity, 520-523; financing and, 514; Gaskin's model, 511-512, 514-515; Gilbert and Vives model, 516-518; height of, 476; incumbents, 477, 487–493; ineffectively impeded entry, 482; information and, 523-536 (imperfect information, 525-526); Kamien and Schwartz model, 512-513; learning economics, 496-497; multiple incumbents and entrants, 515-520; network economies, 498-499; nomination problem, 520; oligopoly, 406, 408 (with free entry, 513-514); opportunity cost, 494, 522; patent activity, 499; preemptive acquisition, 500-501, 758, 761; price rigidities, 825; products, 498-499, 503-506, 522, 528;

947c Index

profitability of entry, 486, 494; raising rivals' costs, 499–503, 565–570, 575, 706–709; rational entry, 513; rent, 494; scarce resources, 500; sequential entry, 519; signaling, 525; sunk costs, 488–491, 520, 522, 528; switching costs, 506–508. See also Anticompetitive behavior Equity finance, 167–169 Exclusive dealing, 658, 699, 701, 706, 708 Exclusive territories, 659, 679, 684, 686, 689, 692 Exit barriers: asset specificity, 520–523; games, 465–466; sunk costs, 520

Family firms, 163-166 Fat cat strategy, 389, 509, 510, 709 Firms: aggregation and hedonic approach, 42-45; empirical issues, 41-55. See also Dominant firms; Economies of scale and of scope; Industry configurations; Theory of the firm Fixed costs, 931-934 Folk theorem, 279-281, 284, 287, 442 Foreclosure, 244-246 Forward integration see Vertical integration Franchises, 147–149; franchise bidding, 175; franchise fee, 657; hostages use, 148, 698-699 Free cash flow theory (Jensen), 81 Free entry equilibrium, 733, 740-741, 760; absence of invisible hand, 741-742; nonuniqueness of, 741 Free riding: across manufacturers, 696-697; dealers, 682-685; defecting firms from cartels, 425; incentives and joint production, 67; shareholders in take-over raids, 98, 99 Fudenberg, Drew, 259-327 Fungibility, 143 Futures markets, 936-937, 940

Game theory, 259-327; agent normal form, 317-318; alternating move game, 352, 400-402; backward induction, 264, 268, 278, 287, 442, 549, 552, 553; balanced temptation equilibrium, 379; Bayesian games and equilibria see Bayesian games and equilibria; behavioral strategy, 263-264, 331; Bertrand model see Bertrand model of oligopoly; chain-store paradox, 442, 551, 552, 553; Cho-Kreps criterion, 313-314; coalitionproof, 267, 275-276; collusion see Collusion: Tacit collusion; communication effects, 263; complete information, 276-296; constituent game, 279; continuous-time games, 288-289; cooperation, 278, 290, 320, 361, 442, 466; correlated equilibrium, 272-274; Cournot model see Cournot model of oligopoly; Debreu, Glicksberg, Fan theorem, 271; dominance, 265, 286, 312-314; early stopping, 290-291; Edgeworth cycles, 345-346, 402, 404; exit games, 465-466; extensive form, 261-264; feedback strategies, 862, 864-865; finite games, 285–288, 315–320; focal points theory, 267; folk theorems, 279-281, 284, 287, 366, 442; game trees, 261-262; Glicksberg theorem, 271; graph continuity, 271; Green-Porter model, 282-284; hybrid of semi-separating equilibria, 307; impatience, 281; imperfect information, 445, 448; incomplete information, 304-322, 447; information set, 262, 263, 264, 321; intangible state variables, 405-407; intuitive criterion, 312-314; investment games, 403-405; Kakutani fixed-point theorem, 270; kinked demand curves, 402, 775-777, 797-798, 821-822, 914-915; Kreps and Scheinkman's model, 404-405, 756; Kuhn's algorithm, 264; least-cost separating quantity, 310; limitpricing game, 308-311; long purse scenario, 546, 548-550; long-term competition effects see Repeated games; Markov equilibrium, 289-292, 377, 401, 402, 403; mixed strategy, 265, 270, 271, 274, 279, 302-304, 345, 371, 790-791, 813; most favored customer clauses, 394; Nash equilibrium see Nash equilibrium; Nature and states of world, 262-263; normal form, 264-265; open-loop, 296, 382-383, 862; out-of-equilibrium events, 315; perfect competition, 485-486; perfect equilibrium, 266, 360-361; perfect information, 264; perfect recall, 262, 265; perturbed games, 320-322; pooling equilibria, 307, 310-311, 524, 558; price wars, 368, 442, 445-447; pricing and quantity games, 400-403; proper equilibrium, 319; proper subgames, 277; punishments see Punishments; pure strategy, 271, 272, 274, 275, 345; rational opponents, 264; reasonableness, 265-266, 269, 286, 315, 321; renegotiation, 380-381; repeated games see Repeated games; reputation, 286, 306-308, 320-321; robustness, 320, 321, 360; Rubinstein's bargaining game, 287; self-generation concept, 283-284; Selton criterion, 316-318; sequential equilibrium, 316; signaling, 273-274, 305-306, 311, 312, 314, 378, 406-407, 420, 429, 525; smooth equilibrium, 292; stable equilibrium, 311, 319-320; Stackelberg model, 268-269, 280, 389-390, 491, 505-506, 508, 517, 578, 855; stage game, 357; state space see State space games; static games, 296-304; strong equilibria, 275-276; subgame perfection, 276-278, 317, 358, 359, 363, 364, 382-383, 445, 450, 487, 553, 635, 738, 743, 749, 863, 873, 878; supergames see Supergames; timing, 292-295, 378, 382, 559 (discrete and continuous time, 295-296, preemption games,

Index 947d

293-295); tit-for-tat strategy, 361, 443-444, 448; topsy-turvy principle, 365, 371, 380; tournaments, 113, 114-115, 443-444; trembles, 315, 316-318; trigger price strategies, 373-377, 448, 449; two-stage competition, 381-397; 'type' of player, 297-298; war of attrition, 302, 303 Georgetown Project, 574 Gibrat's Law, 78 Government policy: collusion, 450–466; cooperative behavior, 464-466; declining industries, 465-466; research activity, 465. See also Antitrust policy; Industrial behavior Great Depression, 918, 919, 924, 930 Green-Porter model, 282-284 Guarantees, 838-839

Happy Hours Theorem, 625-626 Hazards: idiosyncratic trading hazards, 144. See also Moral hazards Hedonic cost functions, 42-45 Herfindahl index, 342, 343 Herfindahl-Hirschman Index, 239, 246, 430, 441, 589 Hierarchies: authority structure, 123–125; incentive structures, 114-117; information systems, 107-110; internal labour markets, 117-120; nexus of contracts, 120-123; supervision in, 110-113 Hirschman-Herfindahl index see Herfindahl-Hirschman Index Home economics, 165-166 Homogeneity hypothesis, 48 Homotheticity hypothesis, 48 Hostages, 148, 159-163, 698-699 Households, 165-166; wealth distribution and monopolies, 459 Human capital, 71, 143, 218

Idiosyncratic risk, 102-103, 144 Imperfect information in product market, 769-847; advertising, 773, 774, 819, 829, 842-843; bargains and ripoffs, 791-794, 795; cyclical variation in mark-ups, 831-833; demand curves see Demand curves; discriminating firms, 807; economies of scale, 778–779; extensive margins, 808; information acquisition technology, 783-786; information intermediaries, 778-779; introductory offers, 827-829, 842; kinked demand curve, 775-777, 797-798; market destruction, 781; market heterogeneity, 786-787; methodology, 773-774; mixed strategy, 790-791, 813; monopolistic competition, 818; monopoly power, 775, 818-820; noise in the market, 783; non-linear price schedules, 782, 807; price and quantity sold, 788-790; price dispersion, 783, 820-821; price distribution see Price distribution; price rigidities, 773, 777–778, 798-799, 821-822, 825, 832-834; quality of goods, 773, 822-834 (certification, 838, disclosures, 838, guarantees, 838-839, prices, 839–842); random price, 790; reputation mechanism see Reputation; search see Search; signaling, 840; single-price equilibrium, 805-806, 835-836; storage see Storage of commodities; theory of sales, 799-807; twoprice equilibrium, 836-838; variety of product, 773, 834-838 (matching, 835-838, price discrimination, 835-838); Walrasian auctioneer, 771, 773, 817, 843. See also Game theory, incomplete and imperfect information; Information

Incentive contracts, 70

Incentive contracts, 71; Alchian and Demsetz theory, 67, 111; capital structure and, 79–82; debt financing as, 81; hierarchies, 112, 114–117; inducing competition, 114; job rotation, 116–117; managerial incentive schemes see Managerial incentive schemes; ownership, 73; product market competition, 115–116; promotion, 115; separation of ownership and participation, 68–69; tournament literature, 113, 114–117. See also Management, internal discipline

positions, 69, 71, 72; information flows and, 74-76; interest in design change, 70; irreversible investments, 68-69; joint production incentives, 67; monitoring see Monitoring; residual decision rights, 68–69, 70, 71; transaction cost economics and, 139–140. See also Contracting; Vertical integration, incomplete contracts Incumbency see Dominant firms: Entry barriers Index of concentration see Herfindahl Index of monopoly power, 430 Industrial policy, 463-466; cooperative behavior, 464-466. See also Antitrust policy Industry configurations, 33-41; cost minimizing number of firms, 36; definition, 33; efficient industry configuration, 34-35; empirical issues, 41-55; feasible industry configuration, 33, 34; market demand curve, 33, 35; multiple industry, 38-41; naturally competitive, 34; network technologies, 44-45; productive efficiency, 38; single product industry, 35-38; structurally competitive, 35 Industry performance gradient indexes, 342-343 Influence costs, 75–76 Information: accounting and, 109; as transaction

cost, 64; asymmetric, 89-90, 576-577 (dealers,

vertical integration and, 208-211, 211-212. See also Game theory, imperfect and incomplete information; Imperfect information Innovation, 64, 849-908; accumulated and required knowledge, 877-880; action-reaction character, 876; adoption see Diffusion of innovation; appropriability of investment, 866, 868; asymmetric models, 868-884; auction model, 854-855, 869, 870, 875-876; bidding game, 869; central planning, 868; challenger firms, 873-875; compatibility changes, 563-564; cooperative investment, 857, 860-861, 866-868; creative destruction, 873; diffusion see Diffusion of innovation; drastic innovations, 871, 873; far-enough ahead, 877-878; feedback strategies, 862, 864-865, 881-884; hazard rate, 871; imitator's (follower's) payoff, 861; incentives, 868-869, 870-873, 889-890; information/response lags, 877; innovator's (leader's) payoff, 861; invention date, 853-854, 855-857, 862; investment variation, 861; joint ventures, 855, 857, 868, 888-889; knowledge spillovers, 866-868; leadership turnover, 874-876; leading or lagging position, 880–881; licensing see Licensing: Patents; multi-stage models, 877–884; noncooperative behavior, 857–860, 861, 867; not-so-drastic, 875; patents see Licensing: Patents; predatory, 562–563; preemption, 869-870, 876; stochastic nature of invention, 855; stochastic racing model, 870-872, 876, 881; symmetric models, 853-868; uncertainty, 882. See also Research and development Institutions, Coase's hypothesis, 63-64 Internal discipline, 87-94, 101-104; incentives and, 87, 89; independence of directors, 88; moral hazard problem, 89-90, 90-92; preference differences, 88-89; principal-agent models, 87-88; relative performance evaluation, 92-93. See also Management Internal labor markets: career see Career concern; hierarchies as, 117-120; job assignment, 117; job duplication, 116; job mobility, 118; job rotation, 116-117; learning models, 118, 119-120; levels of ability and jobs, 117-118; promotion see Promotion Internal organization, 106-126; governance costs, 156; hierarchies see Hierarchies; internal reciprocity games, 122; multi-lateral

680, market clearing and, 934-936, vertical

75; hierarchies as information systems,

to manager, 89; transfer of authority, 75;

contractual relations, 667–670, 674–675); cost,

107-110; incomplete contracts, 74-76; private

contracting, 107, 120; multidivisional form (M-form), 125, 126, 154, 170, 171–172: organized forms, 125-126; side-contracts, 107; single comprehensive contracting, 107; team theories, 108-109; transaction cost economics and, 170; unitary form (U-form), 125-126, 154, 170. See also Vertical integration International trade, protectionism, 576-579 Intervention, selective see Selective intervention Intrabrand competition see Brands Introductory offers, 827-829, 842 Inventories, 941-942 Investment decisions: diversification, 103; managerial incentive schemes and, 101-102; portfolio choice see Portfolio choice; preperformance, 224-225 Investment games, 403-405 Invisible hand, 142, 741-742 Irrelevance proposition, 78 Job duplication, 116 Job mobility, 118 Job rotation, 116-117. See also Internal labor markets Joint production, 67, 73; incentive problems, 67; Marshallian, 17; public input model, 17, 18 Joint ventures, 437-441; advantages, 439-440; exchange of information, 439-440; inefficiencies, 438-439; innovation, 855, 857, 868; investment rationalization, 439; licensing, 868, 888-889; partial-equity interest, 438-439; R&D, 440. See also Cartels, Collusion; Mergers Joskow and Klevoric rule, 580, 583-584 Katz, Michael L., 655-721 Kinked demand curves, 402, 775-777, 797-798. 821-822, 914-915 Kuhn's algorithm, 264 Law of the Single Price, 771, 772, 820 Lean and hungry strategy, 389, 391, 509, 510 Learning models, 118, 119–120; learning by doing, 496 Leasing contracts, 70 Legal centralism, 140-141 Lemon's market, 83, 839 Leontief input-output matrix derivative, 238 - 239Lerner index, 430, 431, 432 Leverage, 169, 708-709 Licensing, 391, 656, 867, 870, 884-893; ex post, 870; fixed fee contracts, 886-889; incentive to develop, 889-890; joint ventures, 868; magnitude of innovation and, 890; oligopolistic downstream product market, 885;

Index 947f

posting a contract, 886–888; transaction cost economics and, 163; when another technology possible, 890–893

Limit pricing model, 558. See also BSL limit pricing model

Long purse scenario, 546, 548-550; borrowing by target firm, 549-550

M-locus, 11, 12, 39, 40, 43; bowed-out, 40, 41 Management: black box view of firm, 104–105; capital market discipline, 97–101; internal discipline see Internal discipline; labor market discipline, 94–95; managerial capitalism, 86; participatory, 109; product market discipline, 95–97; separation of ownership and control, 86–106. See also Authority

Managerial incentive schemes, 84, 87, 89; contingent compensation, 87; investment decisions and, 101–102; oligopoly strategy, 393; performance evaluation, 92–93; preference differences, 88–89; principal-agent models, 87–88; production decisions and, 101, 103–104; signaling through, 84; stock option scheme, 87, 92, 93

Market clearing, 909-946, 938-939; administered markets, 918-919; asymmetric information, 934-936; auction markets, 911; availability of product, 917, 932, 934; competition, 912-913, 926-928; costs of making markets, 936-937; countercyclical margins, 923-924; delivery lags, 927; fixed costs of changing price, 931-934; future demand influence, 930-931; general theory of allocation, 936-940; heterogeneity of product, 937-938; information role, 910; international, 924; intertemporal substitution, 910, 925-931; inventories, 941-942; monopolies, 915-916, 930-931; no organized market, 938-940; non-price allocation methods, 939-940; not by price alone, 936-937; oligopoly models, 913-915, 929-930; preferred and new customers, 916-917, 953; price rigidity, 910, 920-922, 931; price role in allocating goods, 916-924 (Bils study, 923-924, Carlton study, 920-922, casual observation, 916-917, Domowitz, Hubbard and Peterson study, 922-923, Means' theory, 918-919, Mills' findings, 917-919, Stigler-Kindahl data, 919-920, 922); procyclical margins, 922-923; product to order or to stock, 941-942; search, 911, 938-939; shocks, responses to, 928, 942-943; time and, 925-928; unsatisfied demand, 917, 932, 934

Market definitions, 454-455 Market exchange, 188-189 Market foreclosure, 244-246 Market imperfections, 188–189
Market power, from information, 772
Markov equilibrium, 289–292, 401, 402, 403
Marshallian joint production, 17
Matching, product variety and, 835–838
Measurement, 149–150, 163
Mergers, 448; economies of scale and scope, 460; horizontal, 430–437; in Europe, 436; industry

horizontal, 430–437; in Europe, 436; industry price-cost margins and, 431–432; oligopoly game, 391–392; predation in anticipation of, 559–560; preferred to predation, 547–548; private profitability of, 433–437; SSR model, 434–435. *See also* Cartels; Collusion; Joint ventures

MM-logic, 79, 83

Mobility barriers *see* Entry barriers: Exit barriers

Mobility of work, 118 Modern duality theory, 46–48 Monitoring, 67–68; by owner, 73; hierarchies,

110–112; independent agents, 68; moral hazard in teams, 112; owner-monitor model, 67–68; quota system, 113; soft data, 112–113; supergames with imperfect, 373–379; tournaments, 113, 114–115; type of evidence

tournaments, 113, 114-115; type of evidence collected, 112-113

Monopolies: future demand influence, 930-931;

market clearing, 915–916, 930–931; natural see Natural monopoly; preemption (predatory entry, 758, product differentiation, 744, 746, 758); product market discipline, 95–96. See also Anticompetitive behavior; Price discrimination; Vertical integration

Monopolies and Mergers Commission (MMC), 248, 249

Monopolistic competition, 772, 818; price discrimination, 641–643; product differentiation, 731–734, 765. See also Vertical integration

Monopoly power, 775, 818-820; incentives to innovate and, 868-869, 870-873; index, 430 Monopsony, backward integration see Vertical integration

Moral hazard, 138, 660; asymmetric information, 89–90, 576–577, 936; dealers, 664, 685, 692, 693; investment choices, 102; manufacturers, 672, 697; monitoring teams, 112; statistical intuition, 90, 91–92. See also Opportunism

Most favored customer clauses, 394 Most favored nation clauses, 356 Multi-lateral contracting, 120 Multidivisional form (M-form), 125,

Multidivisional form (M-form), 125, 126, 154, 170; reproductive link, 171–172 Multiple bids, 99

Multiproduct cost function, 4-33; aggregation and hedonic approach, 42-45; cost

947g Index

subadditivity see Cost subadditivity; economies of scale see Economies of scale; economies of scope see Economies of scope; minimum cost function, 5, 18; natural monopoly see Natural monopoly; product specific fixed costs, 7; ray average cost, 10–11; smoothness property, 6; startup jump discontinuities, 6; technology set, 4–5; telecommunications industry, 51; weak cost complementarities, 21–23; weak regularity condition, 5

Nash equilibrium, 265-272, 288, 303, 358-359,

Nash bargaining outcome, 227, 228

380, 384, 443, 487; coalition-proof and strong equilibria, 275-276; correlated equilibria, 272-274; definition, 266-269; existence of, 269-270; games theory, 384; in production decisions, 227; perfect, 487 Nash theorem, 270-271 Natural monopoly, 754; cost subadditivity and, 23-33; declining average costs and, 24-25, 29; definition, 24; economies of scale and, 25-26; economies of scope and, 26; market demand curve and, 35; product differentiation and, 757; sufficient conditions for, 27-29; telecommunications, 54-55; trans-ray convexity and, 31-32; trans-ray supportability and, 31. See also Cost subadditivity Natural selection, 140 Neo-Hobbesian, 139 Network competition, 391

Network economies, entry barriers, 498-499

Noncooperative game theory see Game theory

Network technologies, 44-45

No-mill-price undercutting, 749, 755 Noerr-Pennington doctrine, 573-574

Office of Fair Trading, 247–248 Oligopoly, 36, 104; bargaining, 379–380; Bertrand model, noncooperative game theory, 268-269; Bertrand model see Bertrand model of oligopoly; competition in outputs see Cournot model of oligopoly; competition in prices see Bertrand model of oligopoly; conjectural variation, 353-355; consistent conjectures, 354-355; critique of supergames as, 379-381; dynamic rivalry, 397-408 (investment games, 403-405, sources of dynamics, 397-398, state-space approach, 398-400); Edgeworth nonexistence argument, 345-346; entry barriers, 406, 408, 513-514, 516; history of, 330-331; in lean and boom years, 929-930; intangible state variables, 405-407; international oligopoly, 396; kinked demand curves, 353, 914-915; Klemperer and

Meyer model, 350; Klemperer and Scheinkman's model, 350-351; market clearing, 913-915, 929-930; meeting competition clauses, 356; most favored nation clauses, 356; multimarket oligopoly, 396; over course of business cycle, 371-373; overlapping, 750; price discrimination by forward integration, 194; price wars, 929; R&D competition, 408; rationing rules, 351; repeated games see Repeated games; state-space games see State space games; static theory, 333-356; Stigler's work on, 343, 356-357, 374; strategic behavior see Behavioral strategy; sunk costs, 382; tacit collusion see Tacit collusion; trigger price strategies, 373-377, 448, 449; two-stage competition, 381-397 (advertising, 391, cost reducing R&D, 391, financial structure, 392, information exchange, 391, investment in disinformation, 394-395, labor contracts, 393, learning-by-doing, 390-391, long-term contracts with customers, 393-394, managerial incentives, 393, mergers, 391-392, model of, 383-386, network competition, 391, patent licensing, 391, product selection, 392, Stackelberg leadership, 389-390, strategic investment, 390); vertical differentiation and natural, 752-755; welfare, 337-338. See also Game theory **CPEC, 458** Open-loop equilibria, 296, 383, 862 Opportunism, 697-699; bounded rationality and, 138, 139. See also Moral hazard Options incentives plans, 87, 92, 93 Ordering, 140-141 Ordover and Willig rule, 586-588 Organization, internal see Internal organization

Organizational design changes, 70–73, 74
Output decisions see Production decisions
Overreaching, 163–164
Ownership: bargaining costs and change in,
71–73; joint production, 67, 73; owner-monitor
model, 67–68; separation of control and see
Management

861, 865; preemptive patenting, 869–870, 876; protection ineffective, 866; sleeping patents, 869; valuation, 878, 884–885; value variation, 862–864. See also Licensing Performance evaluation, 92–93; overlapping generations, 93; repetition, 93–94 Performance measures: Cournot model and, 342–345; Herfindahl index of concentration, 342, 343; industry performance gradient indexes, 342–343
Perishables, vertical integration, 219

Patents: entry barriers, 499; imperfect protection,

Index 947h

Pooling equilibria, 307, 310–311, 524, 558 Portfolio choice: agency considerations, 102–103; capital asset pricing model, 102; idiosyncratic risk, 102–103 Posner rule, 584

Predation: compatibility changes, 563–564; in anticipation of merger, 559–560; international, 578–579; long purse scenario, 546, 548–550; merger preferred to, 547–548; predatory entry and product differentiation, 746–747, 758; price, 542–543, 545–562, 561–562 (Clayton Act, 643–644, tests for, 581–583); product innovation, 562–563; product preannouncements, 565; rationality, 546–547, 549; reputation models, 546, 547, 550–556; signaling, 546, 547, 556–561; test-market, 558; toughness of incumbent, 553–554, 555–556; vertical restraints, 564–565. See also Anticompetitive behavior

Price discrimination, 597–654; applications, 630–646; bargains and ripoffs, 641–642, 791-795, 809; bundling, 626-630, 657, 709; consumer sorting, 599, 637, 640-641, 642, 643; definitions, 598-599; delivery costs, 631-632; first-degree, 600, 601-611 (output effects, 602-603, prevalence of, 603-604, two-part tariffs see two-part tariffs, welfare effects, 602-603); forward integration incentive, 192-196 (dominant firm model, 193-195); imperfect information, 637-639, 665-672; intertemporal, 632-636 (Coase conjecture, 635-636); intrabrand competition and, 679-682, 683, 684; legal aspects, 643-646; meeting competitors prices, 645-646; monopolistic competition, 641-643 (Borenstein model, 642-643, Katz model, 641-642); necessary conditions, 599; noisy prices, 637; product variety and, 835-838; public policy, need for consistency, 717-718; quality differences, 640-641; resale price maintenance, 686, 692, 701; resale restraint, 559, 599, 659, 675–677, 680–681, 683–684, 688-689, 695; second-degree, 600, 611-617, 645 (consumer types, 612-614, demand constraints, 612-614, hazard rate, 616, output effects, 617, self-selection constraints, 613-615, welfare effects, 617); spatial, 631-632, 684; theory, 600-630; third-degree, 617-624 (bundling, 626-630, 657, Happy Hours Theorem, 625-626, intermediate goods markets, 623-624, market definition, 624, output effect, 622-623, welfare effects, 619-622); two-part tariffs, 604-611, 656-657, 657-658, 665, 666, 676, 683 (Pareto improving, 610-611, welfare effects, 607-610); vertical integration and, 636-637; welfare

consequences, 607–610, 807. See also Price distribution; Vertical contractual relations Price dispersion, 820–821
Price distribution: alternative theories of, 807–817; constructing models with, 787–791; equilibrium conditions, 791; friendly neighbors, 808, 815; imperfect information, 780, 783, 787–791, 807–817; non-degenerative equilibrium, 791, 802–803; with transportation costs, 815–817. See also Price discrimination Price rigidity, 773, 777–778, 798–799, 821–822,

Price rigidity, 773, 777–778, 798–799, 821–822, 825; imperfect information, 832–834; industry concentration and, 922; market clearing, 910, 920–922, 931

Price squeeze, 243

Price takers, 451-452, 771

Price wars, 442, 545, 929; Green and Porter model, 445–446; Slade model, 446–447

Principal-agent models: asymmetric information, 935–936; incentives conflict with insurance, 93; managerial incentive schemes, 87–88; vertical contractual relations and, 660–661; vertical integration, 209–211

Procyclical margins, 922-923 Product differentiation, 723-768; address approach, 727-728, 734-739, 757-759 (aspects of model, 738-739, illustrative model, 739-744); awkward facts, 725-726, 759; balkanization, 750-751, 760; Chamberlin's model, 728, 729, 731-734, 759, 763-764; characteristics model, 751; competition in addresses, 739-740; competition in prices, 755-756, 758; competition in quantity, 755-756, 758-759; consumers' preferences, 727-728, 735-737; cooperative pricing, 758; demand side explanations, 727; describing a good, 734-735; diversity of tastes, 731-734; economic policy and product diversity, 759-761; endogenous prices, 748–749; entry barriers, 498–499, 503–506, 522, 528; foresighted entry, 742-744; free entry equilibrium see Free entry equilibrium; historical development of models, 761-766; Hotelling's model, 756, 765; integer problem, 749–750; interlaced market structure, 757; Lancaster model, 735-736, 765; localized competition, 750, 751, 760, 764; monopolistic competition, 731, 765; monopoly preemption. 744, 746, 758; multi-address firms, 756-759; no-mill-price undercutting, 749, 755; nonaddress approach, 728-734, 757; past histories, 744; predatory entry, 746-747; preemption via product proliferation, 761; Prescott-Visscher equilibrium, 742-743, 744; product diversity, 760-761; product selection bias, 729-730; production non-convexities, 727; profit

947i Index

dissipation, 748; pure profit, 741, 745-751; representative consumer approach, 728–730; segmented market structure, 757; sequential entry, 742-743, 753-754; sunk costs, 745-747, 760; supply side explanations, 727; technology, 726–727; transportation costs, 750–751, 760; vertical differentiation and natural oligopoly, 752-755 Product market: competition, 115-116; discipline, 95-97; imperfect information see Imperfect information in product market Production costs, 151, 152, 158-159 Production decisions, 101, 103-104 Production roundaboutness, 230-231 Productive efficiency, 38 Promotion: behavior change to influence, 119; incentives and, 115; job assignment and, 118–119; performance evaluation, 92; process of learning and, 119-120; seniority, 119 Promotional activities see Advertising Protectionism, 576-579 Public input model, 17, 18 Public interest, collusion and, 450-466 Public policy: anticompetitive behavior, 570-579; vertical contractual relations and, 713-714, 716-718. See also Transaction cost economics, public policy

Puppy dog strategy, 388, 390, 509, 510 Raising rivals' costs: anticompetitive behaviour,

499-503, 566-570, 573; entry barriers,

Punishments, 280, 281, 284, 357, 363, 366-367,

368, 369-370, 377, 380, 381, 422, 425-427,

499-503, 565-570, 575, 706-707 Rate of return regulation, 571-573

Rational utility maximiser, 138

442, 824

Rationality, bounded, 109-110, 138-139, 170-

Rationing, vertical integration and, 206-208 Reciprocity: Robinson-Patman Act and, 161; tie breaking, 162

Regularity conditions, 5, 6 Regulation, 175-176

Renegotiation, 223–224, 225–226, 228, 380–381,

Repeated games, 356-381, 377, 441; alternative approaches to rivalry, 360-361; imperfect monitoring, 282-285; infinitely repeated see Supergames

Reputation, 76-78, 94, 95, 819, 823-834; bootstrap phenomena, 78; boycotting firms and cheating, 824-825; consistency of beliefs, 826-827; conveying information, 819, 823-834; corporate culture and, 76-77; dealers and, 685-686, 687, 699; decision rights and

management of, 77; disciplinary powers of, 95; effect mechanisms, 149; game theory, 286, 306-308, 320-321; heterogeneous firms, 829-834; joint responsibility for, 77; market equilibrium, 827-829; model of, 826-829; predation for, 546, 547, 550-556; profiting in loss of, 830; signaling by, 831; transfer between generations, 77

Requirement contracts, 658

Resale price maintenance, 559, 659, 680-681, 684; vertical contractual relations, 686, 692,

Resale restraint: price discrimination, 675–677; vertical contractual relations, 688-689, 695 Research and development: anticompetitive behavior and, 544; competition, 408;

concentration and, 462; government policy, 465; joint ventures for, 440; oligopolistic cost reducing model, 391; vertical integration and expenditure on, 218. See also Innovation

Retailers: advertising, 204; monopolistic competition, 200-205; vertical integration, 207-208, 209, 220

Risk: idiosyncratic, 102–103; sharing, 660, 666-667; statistical, 144; tolerance, 66; uncertainty and, 144

Robinson-Patman Act, 161, 195, 623, 632, 644-646, 688, 715

Rotation of work, 116-117

Royalty schemes, 90; vertical contractual relations, 658, 675, 690, 691

Rubinstein's bargaining game, 287

Sales: compensation, 173-174; theory of, 799-

Salop et al. (S-S-K) rule, 586, 588-590

Scale economies see Economies of scale Scope economies see Economies of scope

Search, 773, 774, 778, 779-781, 795-799; friendly neighbors, 808, 815; limited number of stores, 813-815; market clearing, 938-939; markets, 911; prices at subset of stores, 808, 809; with limited information, 809-813; with replacement, 797–798

Second best theory, 458, 463

Selective intervention, 66, 71, 78; in corporate finance, 168

Self-interest seeking see Opportunism Seller-integration, 70, 71

Selton trembling-hand perfection, 316-318 Seniority, 119

Shared inputs, 19-21

Sherman Act, 241, 242-244, 539; Noerr-Pennington doctrine, 573-574

Side-contracts, 107, 120–122; bribes, 121;

Index 947j

collusion and, 122; curbing, 122; with arbitrator, 125 Signaling, 420, 429; capital structure, 82-84 (audiences for signal, 84, treatment of manager's preferences, 84); competitors' performance observation, 96; entry barriers, 525; game theory, 273-274, 305-306, 311, 312, 314, 378, 406–407, 420, 429, 525; imperfect information in product market, 840; noncooperative game theory, 273-274, 305-306, 311, 312, 314; oligopoly, 406-407; predation, 546, 547, 556-561; reputation and, Single-price equilibria, 805-806 Specialization, 229-232, 235, 764 Spence-Mirrlees (single-crossing) condition, 310 Spot prices, 833-834 Stackelberg model, 268-269, 389-390; noncooperative game theory, 280; Stackelberg leader, 389, 491, 505-506, 508, 517, 578, 855 State space games, 289-292, 398-400, 407-408; consumer switching costs, 408; learning by doing, 407-408; network externalities, 407-408; shallow pockets, 408; sunk investments, 407 Statistical risk, 144 Stigler-Kindahl price index, 920 Stigler vertical equilibrium model, 231-234 Stock incentives, 87, 92, 93 Storage of commodities, 786, 799-807; model, 801 - 802Strategic behavior see Behavioral strategy Subadditivity see Cost subadditivity Sunk costs, 698; entry barriers, 488-491, 520, 522, 528; oligopoly, 382; product differentiation, 745-747, 760 Superadditivity see Cost superadditivity Supergames, 278-282, 357, 361-381, 399; bargaining, 379-380; critique as oligopoly theory, 379-381; imperfect monitoring, 373-379; Pareto optimal equilibria in, 366-370; perfect equilibria infinitely, 357-360; pricesetting, 370–373; tacit collusion with reversion, 363-366; with discounting, 367-369 Supervision see Monitoring Tacit collusion, 356-359, 363-366, 370-371, 374, 376, 441-450; enforcement of, 448; models of, 443-449; testing for, 449-450 Take-overs: capital market discipline, 97–101; defensive tactics, 100; dilution rights, 98-99; multiple bids, 99 Talent, 66

Team theories, 108-109, 125, 149

Telecommunications, empirical studies, 51-55

Territories, exclusive, 659, 679, 684, 686, 689, 692

Textile industry, 236; vertical integration, 240 Theory of the firm, 61-133; black-box view of firm, 104-105; capital structure see Capital structure; contractual view, 63; decisionmaking, 63; internal organization see Internal organization; limits of integration, 65-78 (incomplete contracts, 66–74, information flows, 74–76, reputation, 76–78); reputation, 76-78; separation of ownership and control see Management Tie breaking, 162 Ties, 657-658, 674, 707, 708 Timing see Game theory, timing Tit-for-tat strategy, 361, 443-444, 448 Top dog strategy, 388, 509, 510 Topsy-turvy principle, 365, 371, 380 Tournaments, 113, 114-115, 443-444; detrimental to cooperation, 115; elimination tournaments, 114; sequential tournaments, 114 Transaction cost economics, 135-182; antitrust, 176–177; background, 137–141; behavioral assumptions, 138-140; bounded rationality, 138-139; career marriages, 166-167; combined neoclassical-transaction cost treatment, 155-159; common reference condition, 161; contract as promise, 140; corporate finance, 167-169; distribution, 174; evidence, 172-174; families and family firms, 165-166; franchises, 175; fundamental transformation, 144-145; general purpose inputs, 160; general purpose technology, 145-147; governance costs, 151, 154, 156, 214; hostages, 159-163 (franchises and, 148, release of, 163); human capital, 143, 218; incomplete contracting, 139–140; information, 64; legal centralism, 140-141; leveraged buyouts, 169; licensing and, 163; main case framework, 137-138; measurement problems see Overreaching; modern corporation, 170-172; nonstandard commercial contracting, 159-164 (hostage model, 159-163; overreaching, 163-164); operationalizing, 141-150 (measurement branch, 149-150); ordering, 140-141; overreaching, 163-164; production costs, 158-159, 214-215; public policy, 174-178 (regulation/deregulation, 175-176); sales compensation, 173-174; self-interest seeking assumption, 138, 139; simple contractual schema (franchise illustration, 147–149. general approach, 145-147); special purpose inputs, 160; special purpose technology, 145-147; stagflation, 177-178; strategic behavior, 176–177; technology of transacting, 142-145; uncertainty, 143-144; vertical integration see Vertical integration. See also Asset specificity; Contracting

947k Index

Transportation costs, 174; price distributions with, 815–817; product differentiation, 750–751, 760
Trigger price strategies, 373–377, 448, 449
Trucking firms, 43

Uncertainty, 143–144; distinction between risk and, 144; primary, 143; secondary, 143–144; vertical contractual relations and, 692 Undercutting prices, 749, 755 Unitary elasticities of substitution, 48 Unitary form (U-form), 125–126, 154, 170

Vertical combination, 186 Vertical contractual relations, 655–721; antitrust policy and, 717-718; asymmetric information, dealers, 680; bundling, 709; double marginalization, 673; entry deterrence, 707-709; exclusive dealing, 658, 699, 701, 706, 708; exclusive territories, 659, 679, 684, 686, 689, 692; franchise fee, 657; intrabrand competition, 694, 699-707; multiple manufacturers, 696-709 (collusion among, 700–701, common agency, 701–704, consumer search costs, 700, free riding across manufacturers, 696-697, hostages, 698-699, leverage, 708-709, lock-in, 697-699, lower cross-price elasticities, 700, observable contracts as precommitments, 704-705, raising rivals costs, 706-707, unobservable contracts, 705–706); principal-agent relationship and, 660-661; quantity-dependent pricing, 655–657; refusal to deal, 717; reputation, 699; requirement contracts, 658; resale price maintenance, 559, 659, 676-677, 680-681, 684, 686, 692, 701; resale restraints, 658, 680–681, 683-684, 688-689, 695; royalties, 658, 675, 690, 691, 697; single manufacturer and single dealer, 661-667 (agent's rationality constraint, 663, basic model, 661-663, incomplete information, 665-672, informed dealer, 667-670, informed manufacturer, 670-672. manufacture moral hazard, 672, multi-product pricing, 672-675, pricing above cost, 665-672, resale restraints, 675-677, risk sharing, 666-667, single-product pricing, 664-665); single manufacturer with many dealers, 677-696 (dealer free riding, 682-689, dealer numbers, 693-696, erosion of price-cost margin, 678-679, externalities across dealers, 678-689, insurance and incentives, 691-693, price competition, 678-682, price discrimination, 679-682, product reputation, 685-686, 687, promotional activities, 682-683, quality certification, 687-689, relative performance schemes, 689-691, resale restraints, 680-681);

ties, 657–658, 674, 686, 699, 707, 708; two-part tariff see Price discrimination, two-part tariff; under uncertainty, 692; welfare analysis, 709–718 (benchmarks, 714–716, cooperative ventures, 715–716, dealer numbers, 713, nonprice distortions, 711–713, price distortions, 710–711, product quality and productive efficiency, 712–713, product variety, 713, promotional activities, 711–712, 715, public policy, 713–714, 716–718, rule of reason approach, 714, two wedges, 709–710). See also Price discrimination

Vertical equilibrium, 229–235; demand fluctuation models, 234–235; Green model, 235; growing industries *see* Stigler model; production roundaboutness, 230–231; specialization, 229–233, 235; Stigler model, 231–234; Young model, 229–231

Vertical integration, 170; aerospace firms, 218; agency problems see Principal-agent problem; aluminium industry, 217, 242; antitrust issues, 176; asset specificity and, 150, 151; assurance of supplies, 206–208; automobile parts, 217; backward integration, 196-199, 208-211, 219, 237, 239; business history cases, 219-221 (branding, 220, consumer durables, 220, perishables, 219); CES benefit function, 202-203; CES production function, 191, 192; classification of, 237-238; combined neoclassical-transaction cost treatment, 155–159; common production technology, 155–158; control of subsequent decisions, 227-228; definition, 185-187; determinants of, 187-189; diversification incentive, 205-206; economies of synchronization, 219; forward integration, 192-196, 219, 220-221, 237, 243; governance costs, 151, 154, 156; heuristic model, 150-154; in employment terms, 237; incentives for, variable proportions, 191; incomplete contracts, 221-229 (conditions precedent, 222-223, contract law, 221-224, control rights, 227-228, long-term contracts as alternatives, 225-226, pre-performance investment problem, 224-225, 227, renegotiation, 223–224, 225–226, 228); information, 208-211, 211-212; input measures, 236-237; internal or market organization choice, 150-154, 158; iron industry, 240; labor and, 186; market imperfections, 188-189; mass production and, 219; measures (Herfindahl-Hirschman Index, 239, 246, input, 236-237, Leontief input-output matrix derivative, 238-239, prior to twentieth century, 239-241, ratio of valueadded to sales, 238, twentieth century, 237-239); monitoring mechanisms, 211;

monopolistic competition, 199-205 (competitive equilibrium, 200-201, externalities at retail stage, 203-205, kinked equilibrium, 201, monopoly equilibrium, 201, retail stage, 200-203); monopoly, 190 (price discrimination and, 192-196, variable proportions and, 191-192, See also Forward integration); monopsony, 196-199 (See also Backward integration); partial, 185; petroleum refiners, 215-216, 219; planning for prices versus quantities, 211-212; price discrimination and, 636-637; price squeeze, 243; principal-agent problem, 209-211; production costs, 151, 158-159; public policy in EC, 248-249; public policy in U.K., 247-248, 249; public policy in U.S. see U.S. antitrust policy; quantity integration, 195-196; quasi-integration, 186-187; R&D expenditure, 218; raising rivals' costs, 197; rationing, 206-208; retailers, 207-208, 209, 220; successive duopoly with price-setting, 197-198; symmetric information complete contract, 224-225; tapered, 217, 667; technological economies of, 187, 189; textile industry, 236, 240; transaction cost economics, 212-221 (evidence for, 215-219, See also Transaction cost economics); transaction costs, 187-188, 189; trends (prior to twentieth century, 239-241, twentieth century, 237-239); U.S.

antitrust policy, 241–247 (Clayton Act, 241, 244–247, 643–644, market foreclosure, 244–246, *Merger Guidelines*, 245–247, Sherman Act, 241, 242–244, substantial market share requirement, 243–244, vertical divesture, 242); vertical combination, 186; vertical creation, 187; vertical equilibrium *see* Vertical equilibrium; vertical expansion, 187, 193; vertical mergers, 187, 193, 218, 244, 246 (by monopsonist, 196, perceived trend, 246–247); welfare question, 191–192, 202, 203–204

Walrasian auctioneer, 771, 773, 817, 843, 936 Weak cost complementarities, 21–23 Welfare: collusion and losses, 455–459; dominant firms and maximization, 538–539; entry barriers effects, 528–529; oligopoly and, 337–338, 386–387; price discrimination and, 602–603, 607–610, 617, 619–622, 807; product differentiation effects, 730; second best theory, 458, 463; vertical integration and, 191–192, 202, 203–204. See also Vertical contractual relations

Willianson rule, 583, 584–585 Worker-job matches, 66

Yardstick competition, 114 Young model of vertical equilibrium, 229–231