

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)

## Index

- adjustment cost estimation, 115
- AdPT model. *See* Anderson/de Palma/Thisse (AdPT) model
- advertising decisions
  - in dynamic model approach, 10
  - as market fundamental, 7
- advertising effects
  - as fundamental sources of dynamics, 116
  - on oligopoly models, 148
- advertising model (RS based)
  - assumptions, 163–164
  - consumer goodwill in, 163
  - envelope theorem, 165
  - estimation objectives, 163
  - Euler equation in, 165–166
  - hybrid form, 168–170
  - MPE in, 166–168
  - open-loop equilibrium in, 164–166
- aggregate conjectural variation, as
  - interpretation of  $\lambda$ , 45–47
- aggregation bias, 31–32
- Agmon, Noam, 226
- Aguirregabiria, Victor
  - dynamic oligopoly game, 216–217
  - dynamic programming equations, 158–159
  - MPE estimation, 178
- AIDS demand system. *See* almost ideal demand system (AIDS)
- airline industry. *See also* estimating strategies, airline case
  - dynamic games in, 216–217
  - marginal cost measures, 29–30, 236–237
  - market structure study, 216
- almost ideal demand system (AIDS), 78. *See also* linear approximate version of the almost ideal demand system (LA/AIDS) model
- American Airlines. *See* estimating strategies, airline case
- Anderson/de Palma/Thisse (AdPT) model, 84–85
- Anderson, Patricia M., 115
- Anderson, Simon P., 83
- Ashenfelter, Orley, 53–54
- asymptotic distribution estimators, 88–89
- Athey, Susan, 104
- AVC margin. *See* price–average variable cost (AVC) margin
- Bain, Joe S.
  - market power measurement, 3
  - rates of return and industry structure, 25–26
  - SCP approach, 13
- Bajari, Patrick
  - MPE estimation, 170, 173, 177
  - simultaneous move games, 215–216
- Baker, Jonathan B., 75, 77
- barriers to entry
  - and profitability, 25, 26, 34
  - and rates of return, 26
  - structural factors in performance, 24–25
  - and structure-to-performance relationship, 26
- Bayesian estimates
  - export market structure estimation, 205–206
  - inequality restrictions in, 202–203
  - in linear-quadratic models, 202–204
  - of market power parameters, 51
  - Monte Carlo integration, 202
- Bayesian firms, 106
- Bayesian method of moments (BMOM) model, 286–287

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)

326

*Index*

- Berry, Steven
  - market power estimation, 90
  - payoff functions in discrete games, 216
  - players' strategies in dynamic games, 215
  - strategic interactions, 216
- Bertrand competition model, described, 35
- Bertrand equilibrium
- Bertrand-Nash equilibrium, ML estimates of, 257
- Bjorn, Paul A., 213
- book value, 15, 17–18
- Bradburd, Ralph M., 32
- brand diversity, 86
- Bresnahan, Timothy
  - differentiated-product demand systems, 77
  - discrete games with stochastic payoffs, 214–215
  - entry and exit thresholds, 213–214
  - identification of parameter  $\lambda$ , 47–48
  - market power identification, 50
  - payoff functions in discrete games, 216
  - residual demand approach, 75, 77
  - simultaneous move games, 215–216
  - sunk costs in dynamic games, 216–217
  - use of conduct parameters, 43
- Brozen, Yale, 26
- Buhr, Brian L., 115
- Bureau of Census
  - data limitations, 31
  - publications of, 20
- C4/C8/C20/C50 concentration ratios. *See* concentration measures; concentration statistics
- capital-output ratios
  - and AVC margins, 27
  - and concentration measures, 26–27
- capital valuation, 15
- Cardell, Scott N., 234
- cartel equilibrium
  - in dynamic programming equations, 151
  - in linear-quadratic structures, 186
- cartel model
  - Bertrand equilibrium in, 35
  - competition in, 36
  - equilibrium market concentration in, 36
  - industry concentration levels, 39
  - and market size increases, 38–39
  - and output decisions, 171
  - and railroad industry (U.S.), 103–104
  - in recessions/depressions, 104
  - in repeated games, 98
- cartel prices
  - cheating, cost/benefit of, 100–102
  - and demand function estimation, 97–98
  - vs. equilibrium prices, 100
  - firm behavior and, 98
  - and output decisions, 120
- cartel profits
  - and investment incentive, 120
  - and optimization problems, 123–124
  - and output decisions, 120
- cartel solutions
  - in cooperative phase, 8
  - in Euler equations, 153–154
- certainly equivalence principle, in linear-quadratic models, 187–188, 189
- Chalfant, James A., 202–203
- Chamberlin model, 86
- cheating, cost/benefit of, 100–102
- Chern, Wen S., 43
- chicken, game of, 218
- Ciliberto, Federico, 216
- Clay, Karen, 60
- Cobb-Douglas model
  - in oligopoly simulation effectiveness, 60–62
  - in structural model effectiveness, 62–64, 71
- Coca-Cola. *See* estimating strategies, cola case
- coffee export markets. *See* market structure estimation, coffee exports
- cola demand equation, 248–249. *See also* estimating strategies, cola case
- Collins, Norman R., 27
- Comanor, William S., 30
- commodity export markets. *See* market structure estimation, coffee exports; market structure estimation, rice exports
- competition
  - in cartel model, 36
  - and firm share, 23
  - Hall's reduced-form model as test for, 65–69
  - price-to-marginal cost relationship, 54–55
  - and quality, 37–38
  - and tax incidence, 51–53
- concentration and competition, 39–40
- concentration measures
  - in airline industry, 29
  - buyer/seller impact on prices, 23
  - and capital-output ratios, 26–27
  - definition/classification considerations, 22
  - described, 20
  - geographic/international, 21, 22–23, 30–31
  - HHI*, 20
  - import/export bias, 23, 30–31
  - industry performance effects on, 32
  - and price changes, 32
  - problems with, 22–23, 31–34

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)*Index*

327

- profitability considerations, 22, 33
- and rates of return, 25–26
- concentration-profit relationship, 30
- concentration statistics
  - described, 20–21
  - global trends, 21
  - manufacturing sector, 21
  - U.S. trends, 21
- conduct parameters, and market structure
  - nesting, 43
- conjectural variation
  - in dynamic games, 135–136
  - in estimating strategies, airline case, 241–242
  - and MPE, 135–136
  - in static model approach, 5
- Connolly, Robert A., 33
- consistency assumptions, in GME-Nash estimator, 233
- consumers
  - behavior, and quality, 37–38
  - goodwill of, 163
  - representative model, 86
  - satisfaction of, 33
  - switching costs of, 116–117
- continuous strategies, 8–9. *See also* repeated games, continuous strategies
- continuous time models
  - Markov and open-loop steady states in, 192
  - multiplicity in, 128
- control variable estimates, dynamic
  - programming equation, 160
- cooperation breakdown
  - and punishment phase, 102–103
  - in repeated games, 102–104
- cooperative behavior
  - empirical implications (in dynamic games), 137, 139
  - in repeated games, continuous strategies, 104–105
  - in repeated games, trigger strategies, 99–104
- cooperative phase
  - cartel solutions in, 8
  - in dynamic model approach, 8–9
- Corts, K. S., 47
- cost margins
  - and Lerner index, 28
  - price-average, 27–28
  - price-marginal, 28–30
- Cotterill, Ronald, 34
- Cournot model
  - HHI* in, 20
  - oligopoly, 35
  - in SCP approach, 4
  - in static model approach, 5
- Cover, Thomas M., 264–265
- Cowling, Keith, 4
- Cressie, Noel A., 280
- Cressie-Read criterion
  - higher-order entropy, 280
  - in IT methods, 279–280
- cross-entropy (CE) measure. *See* maximum entropy (ME) principle
- Cubbin, John, 34
- cumulative density functions, 224
- “curse of dimensionality,” in dynamic programming equations, 160
- de Palma, André, 83
- Deaton, Angus, 78
- debt ratios, 16–17
- decision variables
  - in dynamic games, 119
  - empirical implications, 138
- demand curve rotation, 50
- demand elasticity
  - and Lerner index, 89–90
  - structure-to-performance relationship, 31
- demand function estimation, 97–98
- demand shocks, 101–102
- demand system estimates, 7
- Deneckere, Raymond, 86
- Denny, Michael G. S., 115
- Deodhar, Satish Y., 182
- depreciation measurement, 15–16
- derivation approaches, in Euler equations, 153–154, 179
- DiCiccio, Thomas J., 281
- differentiable Markov Perfect strategies, 127–128
- differential games. *See* dynamic games
- differentiated-product demand systems, 77
- differentiated-product structural models
  - advantages of, 91
  - approaches to, 74–75
  - estimation and hypothesis tests, 74
  - neoclassical demand system, 77–83, 91
  - overview, 74–75
  - problems with, 91
  - random parameter model, 83–90, 91
  - residual demand approach, 75–77, 91
- discrete games
  - examples of, 147–149
  - payoff functions in, 216
  - stochastic payoffs in, 214–215
- dominant firm (airline), defined, 29
- dominant pair (airlines), defined, 29

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)

328

*Index*

- Domowitz, Ian, 28
- Driskill, Robert
  - equilibrium selection approach, 132
  - production in dynamic games, 117
- Dutta, Prajit K., 126–127
- dynamic decision, defined, 118
- dynamic duality, in MPE estimation, 173
- dynamic estimation models
  - empirical implications, 98–99
  - equilibrium, continuous strategies, 109
  - equilibrium, trigger strategies, 109
  - repeated games, continuous strategies, 104–108
  - repeated games, trigger strategies, 99–104
  - strategic/fundamental reasons for, 93–94
  - supergames, 94–98
- dynamic games
  - adjustment cost inputs, 115
  - in airline industry, 216–217
  - conjectural variation in, 135–136
  - differentiable Markov Perfect strategies, 127–128
  - empirical implications, 136–140
  - fundamental reasons for, 114–117
  - Lerner index in, 113
  - MPE and conjectural variation, 135–136
  - open-loop decision rules in, 121–125
  - open-loop interpretations, 140–141
  - open-loop vs. Markov equilibria, 132–135
  - overview, 113–114
  - players' strategies in, 215
  - production in, 117
  - quasi-fixed inputs in, 117–121
  - sticky price models, 128–132
  - subgame perfection and Markov strategies, 121–125
- dynamic games, estimation
  - in advertising model (RS based), 163–170, 179
  - discrete-time examples, 147–149
  - in MPE, 170–178
  - in sticky price model, 10, 149–162
- dynamic model approach. *See also* market structure estimation, coffee exports; market structure estimation, rice exports
  - advertising decisions in, 10
  - competitive behavior in, 7–8
  - continuous strategies in, 8–9
  - cooperative phase in, 8–9
  - equilibrium in, 8
  - fundamental considerations in, 9
  - fundamental vs. strategic decisions, 7–8
  - game theory concepts in, 8
  - linear-quadratic models, 11
  - Markov equilibria, 10
  - Markov strategies, 9–10
  - misspecification in, 9
  - oligopoly strategy estimation, 11–12
  - parameter estimation, 10–11
  - punishment strategies in, 8–9
  - vs. static model approach, 7
  - static vs. dynamic decisions by firms, 9
  - subgame strategies, 8
  - supergames in, 8
  - time consistency in, 9–10
- dynamic oligopoly game, 216–217
- dynamic oligopoly model
  - estimation of, 147–148
  - lagged sales in, 249
  - in sticky price models, 162
- dynamic programming equation
  - cartel equilibrium in, 151
  - control variable estimates, 160
  - “curse of dimensionality” in, 160
  - discrete choice problem, 158–159
  - estimation use in, 158–162
  - loss function evaluations, 161
  - optimization errors in, 161
  - parameter estimation, 159
  - solution approximation, 160
  - in sticky price models, 151–152
- dynamic programming methods, 160
- econometric adjustments, 220–221
- econometric methods (modern)
  - as assessment tools, 263
  - Bayesian method of moments (BMOM) model, 286–287
  - EL formulation, 280–282
  - GME model, 266–279
  - GMM, 283–285
  - GMM estimator in, 285–286
  - and industrial organization research, 263
  - information measurement, 264–265
  - IT methods, 279–280, 287
  - maximum entropy (ME) principle, 265–266
  - in under-determined problems, 263–264
- economic market (for products), 22
- economic news effects, 27
- effective marginal revenue function, 43
- EL formulation. *See* empirical likelihood (EL) formulation
- empirical comparisons, of market power models, 69–70
- empirical implications (in dynamic games)

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)*Index*

329

- cooperative behavior and, 137, 139
- decision variables, 138
- equilibrium assumptions, 136–137
- open-loop vs. Markov equilibria, 137–138, 139–140
- quasi-fixed inputs, 138
- empirical likelihood (EL) formulation, 281
  - Lagrangian construction in, 281–282
  - in linear models, 280–281, 282
  - in modern econometric methods, 280–282
- Encoau, David, 30–31
- entry and exit thresholds, 213–214
- envelope theorem
  - in advertising models (RS based), 165
  - in open-loop equilibrium, 165
- Epstein, Larry G., 115
- equilibrium assumptions, in dynamic games, 136–137
- equilibrium calculations, in dynamic games, 123
- equilibrium condition requirements
  - in MPE, 195–197
  - in open-loop equilibrium, 193–195
  - restrictions and testing, 197–198
  - in subgames, 8
- equilibrium market concentration, in cartel model, 36
- equilibrium prices, vs. cartel prices, 100
- equilibrium properties, in linear-quadratic models, 189–192
- equilibrium selection approach, 132
- Erickson, Gary M., 249
- estimating strategies
  - game-theoretic restrictions in, 227–229, 259
  - GME techniques, 221–222
  - ME formulation in, 222–223
  - optimal behavior, 211
- estimating strategies, airline case
  - case description, 12, 237–241
  - conjunctural variation in, 241–242
  - estimator comparisons, 241–243
  - game theoretic consistency, 246–247
  - GME model vs. ME-ML model, 240–241, 242, 246
  - GME-Nash model estimates, 237–241
  - hypothesis tests, 243–245
  - model assumptions and conditions, 236–237
  - sampling/sensitivity experiments, 245–246
- estimating strategies, cola case, 247–259
  - advertising effects, 249
  - bond rate effects, 258–259
  - case description, 12, 247, 259
  - cola demand equation, 248–249
  - exogenous variable effects, 257–259
  - GME-Nash model in, 249–257
  - income effects, 258
  - Lerner index in, 257, 260–261
  - model assumptions and conditions, 247–249
  - model estimates, 249–252
  - test statistics, 252–257
- estimation method
  - in Hall's reduced-form approach, 58
  - in industrial organization research, 287
- estimation objectives, advertising model (RS based), 163
- estimation results, in linear-quadratic models, 200–205
- estimation strategies
  - decision variables, 211–212
  - empirical study problems, 217
  - mixed strategies in, 217–219
  - ML multinomial logit/probit, 221
  - in oligopolies, 211
  - oligopoly game in, 219–221, 232–233
  - restrictions and information sources, 213
  - sample information, incorporation of, 223–227
  - studies and literature, 213–217
- estimation strategy studies
  - discrete games with stochastic payoffs, 214–215
  - dynamic oligopoly model, 216–217
  - empirical study problems, 217
  - entry and exit thresholds, 213–214
  - ML approach, 213, 217
  - payoff functions in discrete games, 216
  - players' strategies in dynamic games, 215
  - simultaneous move games, 215–216
  - strategic interactions, 216
- Euler equation
  - in advertising models (RS based), 165–166
  - and cartel solutions, 153–154
  - derivation approaches, 153–154, 179
  - estimation model, 154–155, 178–179
  - hybrid form, 168–170, 179
  - in MPE, 168
  - special case usage, 152–153
  - in sticky price models, 10
- excess profit, 19
- exogenous measures (of structures), defined, 22
- explanatory variables, bias elimination considerations, 32

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)

330

*Index*

export markets, 198–200. *See also* market structure estimation, coffee exports; market structure estimation, rice exports

Fackler, Paul L., 160

Favaro, Edgardo, 75

Fernandez-Cornejo, Jorge, 115

Fershtman, Chaim, 119

firm behavior, and cartel prices, 98

firm share estimation, with GME estimator, 23

Folk theorem, of supergames, 96

Fraumeni, Barbara M., 25

Freeman, Richard B., 30

Froeb, Luke M.

in dynamic programming equation, 159  
merger effects on price, 42

Fudenberg, Drew, 126

full marginal cost, defined, 113

fundamental effect, defined, 118

fundamental sources of dynamics

advertising effects, 116

consumer switching costs, 116–117

demand inputs, 116–117

investment level decisions, 115

market power estimation, 51

and market structure, 115–116

production inputs, 114–116

results in repeated game models, 104

variable input costs, 114

game-theoretic restrictions, in estimating strategies, 227–229, 259

game theory

in dynamic model approach, 8

and market growth, 34–37

Gasmi, Farid

approach to continuous  $\lambda$ , 51

cola demand equation, 248–249

ML estimates of Bertrand-Nash

equilibrium, 257

neoclassical demand system estimates, 82

Gatsios, Constantine, 120

Gelfand, Matthew D., 75

generalized entropy measures

Cressie-Read criterion, 280

probability distributions, 279–280

generalized-likelihood function, 226

generalized maximum entropy (GME)

estimator

in estimation strategies, 217, 221–222

firm share estimation with, 23

sample information, incorporation of, 223–227

generalized maximum entropy (GME) model, 266–279

as concentrated model, 268–269, 278–279

in discrete choice model analysis, 276–279

entropy ratio statistic in, 270–271

error terms in, 267

estimation method in, 268

extensions of, 269

goodness-of-fit measures in, 271

least square estimates in, 271–273

in linear models, 271–273

ML approach in, 273–276

multinomial choice method, 222

multinomial discrete choice problem in, 273–279

normalized entropy measures in, 270

parameter estimation, 266–267

test statistics and diagnostics, 270–271

utility of, 269

Wald test (WT), 271

generalized method of moments (GMM)

econometric methods (modern), 283–286

estimation rule in, 284–285

and information-theoretic measures, 280

linear example of, 285

moment restrictions in, 283–284

utility of, 283

weight matrix choice in, 285–286

Genesove, David, 60

geometric approximation, in LA/AIDS model, 78

Geroski, Paul A.

international concentration ratios, 30–31

SCP-based research, 34

Geweke, John F., 202–203

global concentration measures, 21

GME estimator. *See* generalized maximum entropy (GME) estimator

GME model. *See* generalized maximum entropy (GME) model

GME-Nash estimator. *See also* generalized maximum entropy (GME) model

consistency assumptions, 233

consistency proof, 233–234

in estimation strategies, 227–229

implementation of, 227–228

profit function parameters in, 228–229

proof, 234

properties of, 229

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)

## Index

331

- GME-Nash estimator, hypothesis testing  
 approximated variance computation, 232  
 direct vs. indirect restrictions on, 230–231  
 entropy ratio statistic in, 229–230  
 extraneous covariate tests in, 231–232  
 normalized entropy in, 229
- GME techniques. *See* generalized maximum entropy (GME) estimator
- GMM. *See* generalized method of moments (GMM)
- Golan, Amos  
 cumulative density functions, 224  
 generalized entropy measures, 280  
 generalized likelihood functions, 226  
 GME multinomial choice method, 222  
 GME-Nash estimator proof, 233–234  
 GME techniques, 23  
 GMM, 280  
 summary statistics and firm shares, 23–24
- Goldberg, Pinelopi Koujianou, 90
- Gollop, Frank M., 82
- goodwill, in advertising model (RS based), 163
- Gray, Richard S., 202–203
- Green, Edward J.  
 cooperation breakdown in repeated games, 102–104  
 estimation in repeated game models, 99  
 results in repeated games models, 103, 104
- Greene, William H., 273
- Hajivassiliou, Vassilis, A.  
 asymptotic distribution estimators, 88–89  
 repeated game model results, 104
- Hall, Alistair, 285–286
- Hall, Peter, 281
- Hall, Robert E.  
 adjustment cost estimation, 115  
 nonparametric model approach, 53  
 reduced-form approach, 55–58  
 reduced-form oligopsony model, 58, 59
- Hall's reduced-form approach  
 competitive market test, 65–69  
 described, 55–58  
 estimation method, 58  
 instrument test for competition, 56, 66–67, 69–70  
 in market power models, 71–72  
 and oligopsony market power, 58  
 oligopsony model, 59
- Haltiwanger, John, 101–102
- Hansen, Lars Peter  
 Euler equation estimation, 155
- nonrenewable resources in dynamic games, 123
- Harrington, Joseph E. Jr., 101–102
- Hausman, Jerry A.  
 differentiated product demand systems, 77  
 merger effects on price, 42  
 multi-level demand specifications, 77  
 neoclassical demand system instruments, 81–82
- Hayashi, Fumio, 115
- Heckman, James, 214–215
- Herfindahl-Hirschman Index (*HHI*)  
 described, 20  
 in industrial organization research, 24  
 in SPC models, 4
- Ho, Chun-Yu, 216–217
- Hong, Han, 215–216
- Hotelling model, 86
- Hubbard, Glenn R., 28
- hybrid form  
 advertising model (RS based), 168–170  
 Euler equation, 168–170, 179
- Hyde, Charles E., 79
- hypothesis tests. *See also* GME-Nash estimator, hypothesis testing; Stackelberg leader hypothesis  
 in differentiated-product structural models, 74  
 estimating strategies, airline case, 243–245  
 market power models, 50–51  
 in neoclassical demand systems, 82–83
- identification of parameter  $\lambda$ , 47, 48
- Imbens, Guido W.  
 GMM, 280  
 IT estimators, 286
- import/export bias, concentration measures in, 30–31
- incomplete transversality conditions, 131
- indirect effects, defined, 118
- industrial organization research  
 econometric methods (modern) in, 263  
 estimation methods in, 287  
*HHI* in, 24  
 SCP approach, 13
- industries (individual), structure-to-performance relationship in, 31
- industry concentration levels, cartel model, 39
- industry performance, and barriers to entry, 24–25
- inflation adjustment, and rate of return, 17
- information measurement, 264–265

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)

332

*Index*

- information-theoretic (IT) estimators
  - and GMM framework, 286
  - and oligopoly strategies, 11–12
- information-theoretic (IT) methods
  - econometric methods (modern), 279–280, 287
  - suitability of, 263
- Inoue, Tohru, 115
- instrument test for competition, in Hall's
  - reduced-form approach, 56
- International Coffee Agreements (ICAs), 198–199
- interpretation of  $\lambda$ . *See*  $\lambda$ , interpretation of
- investment decisions
  - and cartel profits, 120
  - in dynamic games, 120
  - as fundamental sources of dynamics, 115
- IT methods. *See* information-theoretic (IT) methods
- Jaynes, Edwin T.
  - ME formulation, 222
  - ME principle, 265
- Johnson, Phillip, 286
- Jorgenson, Dale W., 25
- Judd, Kenneth, 160
- Judge, George G., 226
  - cumulative density functions, 224
  - EL formulation, 282
  - GME multinomial choice method, 222
  - GME-Nash estimator, 233–234
  - GME techniques, 23
  - GMM, 280
  - IT estimators, 286
  - summary statistics and firm shares, 23–24
- Jun, Byoung, 133
- Just-Bresnahan-Lau approach, 50
- Just-Chern-Bresnahan-Lau model, 58–59
- Just, Richard E.
  - market power identification, 50
  - use of conduct parameters, 43
- Kalman filter, 106
- Kandori, Michihiro, 101–102
- Karp, Larry
  - dynamic oligopoly model, 249
  - investment decisions in dynamic games, 120
  - linear-quadratic models, 182
- Kim, Dae-Wook, 60
- Kim, Hanho, 115
- Kitamura, Yuichi
  - GMM, 280
  - IT estimators, 286
- Kloek, Tuen, 202
- Knittel, Christopher R., 60
- Kolmogorov-Smirnov test, 23
- Kooreman, Peter, 213
- Kwoka, John E. Jr.
  - AVC margins, 28, 30
  - competition and firm share, 23
  - market share and profits, 33
- $\lambda$ 
  - approach to continuous, 51
  - as conduct parameter, 43
  - as continuous variable, 51
- $\lambda$ , interpretation of
  - conjectural variation in, 45–47
  - in Lerner index, 45
- LA/AIDS model. *See* linear approximate version of the almost ideal demand system (LA/AIDS) model
- Laffont, Jean Jacques
  - cola demand equation, 248–249
  - ML estimates of Bertrand-Nash equilibrium, 257
- Lagrangian construction
  - in EL formulation, 281–282
  - in GME models, 268–269
  - in ME principle, 266
- Lamm, R. McFall Jr., 34
- Lapham, Beverly, 133
- Lau, Lawrence J.
  - identification of parameter  $\lambda$ , 47
  - market power identification, 50
  - use of conduct parameters, 43
- Lawless, Jerry, 281, 282
- Lee, Lung-Fei
  - asymptotic distribution estimators, 88–89
  - repeated game model variations, 103
- Leonard, Gregory K.
  - merger effects on price, 42
  - multi-level demand specifications, 77
- Lerner index. *See also* price–cost margins and cost margins, 28
  - defined, 2
  - and demand elasticity, 89–90
  - in dynamic games, 113
  - in estimating strategies, cola case, 257, 260–261
  - interpretation of  $\lambda$  in, 45
  - market power measurements and, 2, 4
  - private-information effects, 261
  - and rates of return, 18
- leverage, and rates of return, 16
- linear approximate version of the almost ideal demand system (LA/AIDS) model



Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)*Index*

333

- budget-share equation in, 78
- conditions in, 79
- constant returns to scale in, 79
- demand curve slopes in, 79–80
- elasticities of demand in, 79
- equilibrium in continuous strategies, 79
- geometric approximation in, 78
- incomplete demand system estimation, 78
- optimality equation in, 80
- linear-quadratic models
  - assumptions and definitions, 182–183
  - certainly equivalence principle, 187–188, 189
  - dynamic model, 184–185
  - equilibrium comparison with, 11
  - equilibrium properties, 189–192
  - estimation problems in, 188–189
  - and export markets, 198–200
  - Karp/Perloff approach, 182
  - market power estimation with, 11, 181
  - MPE condition requirements, 195–197
  - MPE restrictions in, 207–208
  - open-loop equilibrium condition requirements, 193–195
  - open-loop restrictions in, 206–207
  - open-loop vs. Markov equilibria, 181–182, 205
  - static analog in, 183–184
  - and stochastic variables, 188
  - structural implications of, 185–187
- linear-quadratic models, estimation results
  - Bayesian estimates, 202–204
  - classical estimates, 200–201
  - equilibrium conditions for, 192–198
  - simulations, 204–205
- linear-quadratic structure, implications
  - closed-form solution in, 186
  - control rules in, 185, 186
  - Markov equilibrium in, 185–186
  - recursive structure, 186–187
- linear random utility model
  - AdPT model, 83, 84–85
  - optimal pricing strategies, 85–86
  - PS model, 83–85
- long-run profits, 33
- loss function evaluation
  - dynamic programming equation, 161
  - in MPE estimation, 177
- lower bound, defined, 36–37
- Luh, Yir Hueih, 115
- Lustgarten, Steven H.
  - economic news effects, 27
  - price–cost margins, 30
- Mann, Michael, 26
- manufacturing sector
  - concentration ratio trends, 21
  - value added in, 21
- marginal cost measures, 29–30, 236–237. *See also* price–marginal cost margins
- marginal revenue function, 43
- market fundamental, advertising decisions as, 7
- market performance measures, 14. *See also* price–cost margins; rate of return; Tobin's  $q$
- market power
  - defined, 1
  - degree exercised by firms, 1–2
  - in dynamic games, 93–94, 113–114
  - in estimated demand systems, 89–90
  - estimation of, 2
  - identification of parameter  $\lambda$ , 80–81
  - measurement of, 3
  - and product differentiation, 74
  - research applications, 1
  - static model approaches, 2
  - variation across industries, 2
- market power estimation
  - in differentiated goods markets, 90
  - Lerner index in, 2
  - linear-quadratic models, 11, 181
  - and open-loop interpretations, 141
  - in open-loop vs. Markov equilibria, 181–182
  - ratio estimation problems, 51
- market power models
  - demand curve rotation in, 50
  - estimation and hypothesis tests, 50–51
  - function form choice, 49–50
  - identification of parameter  $\lambda$ , 47–50
  - non-parametric approach, 42
  - oligopsony, 58–59
- market power models, effectiveness of
  - cost evidence, 60
  - empirical comparisons, 69–70
  - Hall's reduced-form approach, 65–69, 71–72
  - oligopoly simulations, 60–62
  - structural models, 62–64, 71–72
- market power models, structural approach
  - estimation and hypothesis tests, 50–51
  - identification of parameter  $\lambda$ , 47–50
  - illustration of (typical), 43–45
  - interpretations of  $\lambda$  in, 45–47
  - and market power of firms, 42
  - tax incidence, 51–53
  - textile market example (U.S.), 44–45

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)

334

Index

- market share and profits, 33
- Market Share Reporter*, 23
- market size increases, and cartel model, 38–39
- market structure
  - airline industry study, 216
  - and fundamental sources of dynamics, 115–116
- market structure estimation, coffee exports
  - Bayesian estimates, 202–204, 205–206
  - classical estimates, 200–201
  - dynamic models, 198–199
  - estimation results, 200
  - simulations, 204–205
- market structure estimation, rice exports
  - Bayesian estimates, 202–204, 205–206
  - classical estimates, 200–201
  - estimation results, 200–205
  - model assumptions, 199–200
  - simulations, 204–205
- market structure measures. *See also*
  - structure-to-performance relationship
  - barriers to entry, 24–25
  - concentration measure problems, 22–23
  - concentration ratios, 20
  - concentration statistics, 20–21
  - firm size distribution, 20
  - summary statistic biases, 23–24
  - unionization, 25
- Markov Perfect equilibria estimation
  - dynamic duality in, 173
  - empirical limitations, 178
  - general function forms, 173
  - inequality equation example, 174–177
  - linearity assumption, 174, 177–178
  - loss functions under, 177
  - market structure evaluation, 172–173
  - and optimization problems, 171, 172
  - parameter estimation, 170–171, 179
  - profit function parameters in, 170
  - stage estimates, 178
- Markov Perfect equilibrium (MPE)
  - in advertising models (RS based), 166–168
  - and conjectural variation, 135–136
  - consistent conjectural equilibria, 141
  - in dynamic model approaches, 10
  - equilibrium condition requirements in, 195–197
  - equilibrium response, 135
  - Euler equation under, 168
  - incomplete transversality condition, 141
  - MPE continuum, 141–142
  - multiplicity of, 126–127
  - as Pareto superior MPE support, 126
- Markov Perfect restrictions, in linear-quadratic models, 207–208
- Markov strategies
  - defined, 9, 119
  - dynamic model approach, 9–10
  - investment and cooperative states, 126
  - renewable resources in dynamic games, 126–127
  - smooth strategies in, 127–128
  - subgame perfection in, 126
  - switching regressions, limitations of, 127
- Marvel, Howard, 34
- Mason, Edward S., 3, 13
- Matsushima, Hitoshi, 104
- Mátyás, Laszlo, L, 285–286
- maximum entropy-maximum likelihood (ME-ML) models, in estimating strategies (airlines), 240–241
- maximum entropy (ME) formulation
  - entropy criterion, 222
  - in multinomial problems, 222–223
- maximum entropy (ME) principle
  - distribution estimation, 265
  - Lagrangian construction in, 266
  - in modern econometric methods, 265–266
- maximum likelihood (ML) approach
  - in estimation strategies, 213, 217
  - Lerner index calculation, 257
  - multinomial logit/probit in, 221
- McCafferty, Stephen, 117
- McFadden, Daniel, 88
- McGuire, Paul, 173
- ME formulation. *See* maximum entropy (ME) formulation
- ME-ML model. *See* maximum entropy-maximum likelihood (ME-ML) models
- ME principle. *See* maximum entropy (ME) principle
- merger effects on price, 42
- Miller, Douglas, 226
  - cumulative density functions, 224
  - EL formulation, 282
  - GME multinomial choice method, 222
  - GME-Nash estimator proof, 234
  - GMM, 280
  - IT estimators, 286
- Mino, Kazuo
  - continuous time models, 128
  - incomplete transversality conditions, 131
- Mira, Pedro
  - dynamic programming equation, 158–159
  - MPE estimation, 178

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)*Index*

335

- Miranda, Mario J., 160
- Mishel, Lawrence R., 30
- Mittelhammer, Ronald
  - EL formulation, 282
  - GME-Nash estimator proof, 234
  - GMM, 280
  - IT estimators, 286
- mixed logit. *See* random parameter model
- mixed strategies
  - equilibria evaluation in, 218–219
  - in estimation strategies, 217–219
  - illustration of, 217–218
- ML approach. *See* maximum likelihood (ML) approach
- modern static studies, vs. SCP approach, 70–71
- monopoly profits, and rate of return, 17–18
- MPE. *See* Markov Perfect equilibrium (MPE)
- Muellbauer, John N., 78
- Mueller, Dennis C., 33
- Muller, Eitan, 119
- Mullin, Wallace, 60
- multi-level demand specifications, 77
- multinomial discrete choice problem
  - in GME model, 273–279
  - ML approach in, 273–276
- multiproduct elasticity, defined, 90
- Nash equilibrium, in repeated games, continuous strategies, 105–106
- Nash-in-advertising equilibrium
  - endogenous state variable changes, 179
  - vs. open-loop Nash equilibrium, 164
  - in RS model, 163
- neoclassical demand system
  - differentiated-product structural models, 91
  - estimates in, 80–81, 82
  - hypothesis tests, 82–83
  - instrument use in, 80–81
  - LA/AIDS model example, 78–80
  - market power determination with, 77
  - multi-level demand specifications, 77–78
  - parameter identification, 80–81
- neoclassical demand system estimates
  - continuous parameters in, 82
  - exogenous variables in, 81–82
- neoclassical demand system instruments, 81–82
- Nevo, Aviv
  - market power estimation, 90
  - merger effects on price, 42
  - neoclassical demand system estimates, 80–82
  - news effects, economic, 27
  - nominal rate of return, 17
  - nonparametric model approach
    - comparative statistics experiment, 53–55
    - as competitive behavior test, 53, 54
    - Hall's reduced-form approach, 55–58
  - nonrenewable resources, in dynamic games, 123
  - normalized entropy measures, in GME model, 270
  - oligopoly game (in estimating strategies)
    - assumptions/objectives, 219
    - econometric adjustments, 220–221
    - modeling framework, 232–233
    - strategic alternatives (formulas), 219–220
  - oligopoly models
    - advertising effects on, 148
    - strategy estimation in, 11–12
  - oligopoly simulations, 60–62
  - oligopsony market power models
    - Hall's reduced-form oligopsony model, 59
    - and reduced-form models, 58
    - structural model approach, 58–59
  - open-loop decision rules
    - defined, 122
    - in dynamic games, 121–125
    - dynamics in, 123
    - equilibria in, 122–125
    - optimization problem solutions in, 124
    - reduced-form profit function in, 121–122
    - and subgame perfection, 125
    - time consistency of, 122–123
  - open-loop equilibrium
    - advertising model (RS based), 164–166
    - condition requirements, 193–195
    - envelope theorem, 165
    - in game-theoretic contexts, 187–188
    - and stochastic variables, 188
  - open-loop interpretations
    - in deterministic settings, 140
    - in empirical dynamic oligopolies, 140
    - information availability, 140–141
    - and market power estimation, 141
    - open-loop vs. Markov equilibria, 141
    - in stochastic settings, 140
  - open-loop restrictions, in linear-quadratic models, 206–207
  - open-loop strategies, defined, 9

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)

336

*Index*

- open-loop vs. Markov equilibria
  - in commodity export models, 200–201
  - comparison of, 147
  - continuous time model example, 133–134
  - in dynamic games, 132–135, 137–138, 139–140
  - linear equilibrium, 133
  - in linear-quadratic models, 205
  - market power estimation in, 181–182
  - MPE selection, 132–133
  - rival behavior in, 132, 133
  - strategic complements/substitutes, 133, 134–135, 189–192
- optimal pricing strategies, multiproduct, 85–86
- optimization errors, in dynamic programming equation, 161
- optimization problems
  - and cartel profits, 123–124
  - and MPE estimation, 171, 172
- Ostrovsky, Michael, 215
- Oum, Tae Hoon, 236–237
- output decisions, and cartel model, 171
- Over, Mead A. Jr., 32
- Owen, Art B., 281, 282
- Pakes, Ariel
  - MPE estimation, 170, 173
  - players' strategies in dynamic games, 215
- parameter estimation
  - in Bayesian firms, 106
  - in dynamic model approach, 10–11
  - in generalized maximum entropy model, 266–267
  - in MPE, 170–171, 179
- payoff functions, in discrete games, 216
- payoff-relevant variables, 119
- Pepsi-Cola. *See* estimating strategies, cola case
- perceived marginal revenue function, 43
- Perloff, Jeffrey M.
  - brand diversity in spatial models, 86
  - cumulative density functions, 224
  - dynamic oligopoly model, 249
  - GME multinomial choice method, 222
  - GME-Nash estimator proof, 233–234
  - GME techniques, 23
  - LA/AIDS model, 79
  - linear-quadratic models, 182
  - linear random utility model, 83
  - market power estimation, 51
  - summary statistics and firm shares, 23–24
- Perloff/Salop (PS) model, in linear random utility models, 83–85
- Petersen, Bruce C., 28
- Pindyck, Robert
  - adjustment cost estimation, 115
  - market power in dynamic games, 113–114
- Pinske, Joris, 90
- players' strategies, in dynamic games, 215
- Porter, Robert H.
  - cooperation breakdown in repeated games, 102–104
  - estimation in repeated game models, 99
  - results in repeated game models, 104
  - variation in repeated game models, 103
- Preston, Lee E., 27
- price–average variable cost (AVC) margin
  - at firm level, 28
  - and industry concentration, 28
  - and industry growth, 30
  - industry structure proxy, 27
  - vs. price-marginal cost margin, 18–19
  - regression (typical), 27–28
- price–cost margins
  - and advertising–sales ratios, 30
  - defined, 14
  - described, 18–19
  - efficiency vs. competition, 28
  - explanatory variables in, 30
  - and increased buyer concentration, 30
  - and industry concentration, 4
  - and industry structure, 27–30
  - and Lerner index, 18
  - union effects on, 30
- price–marginal cost margins
  - in airline industry, 29–30
  - vs. AVC margin, 18–19
  - described, 28–30
- price-theory models vs. SCP approach, 13
- price-to-marginal cost relationship, and competition, 54–55
- prisoners' dilemma, in supergames, 97–98
- private-information effects, Lerner index in, 261
- product differentiation, and market power, 74
- production inputs, and fundamental sources of dynamics, 114–116
- profit function parameters, in GME-Nash estimator, 228–229
- profitability
  - and barriers to entry, 25, 34
  - concentration measure considerations, 22, 33
- PS model. *See* Perloff/Salop (PS) model
- punishment phase
  - and cooperation breakdown, 102–103

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)*Index*

337

- in repeated games, 106–107
  - in supergames, 97–98
- punishment strategies, in dynamic model approach, 8–9
- Qin, Jing, 281, 282
- quality, and endogenous sunk costs, 37–38
- quasi-fixed inputs in dynamic games
  - cooperative outcomes, 120
  - example, 117–121
  - output decisions, 120
  - technology decisions, 119
- railroad industry (U.S.), cartel model of, 103–104
- random demand shifters, in sticky price model estimations, 157–158
- random-parameter logit (RPL) model
  - and logit generalization, 87–88
  - substitution patterns in, 88
- random parameter model
  - differentiated-product structural models, 91
  - estimation of, 86–89
  - linear random utility model, 83–86
  - market power in, 89–90
- rate of return
  - and advertising spending, 16, 26
  - and barriers to entry, 26
  - calculation difficulties, 15–18
  - and capital valuation, 15
  - and concentration measures, 25–26
  - conceptual approach, 14–15
  - and debt ratios, 16–17
  - defined, 14
  - and depreciation measurement, 15–16
  - differences in firms, 25
  - and highly leveraged firms, 16
  - and industry structure, 25–26
  - and inflation adjustment, 17
  - and Lerner index, 18
  - and monopoly profits, 17–18
  - and price–cost margins, 18–19
  - and R&D spending, 16, 26
  - real rate of return, 17
  - and risk adjustment, 16
  - and structural variables, 26
  - and tax rate calculations, 18
  - and Tobin's  $q$ , 19
- Ravenscraft, David
  - AVC margins, 28, 30
  - market share and profits, 33
- Read, Timothy R.C., 280
- real rate of return, 17
- recursive structure, of linear-quadratic model, 186–187
- reduced-form models. *See* Hall's reduced-form approach; nonparametric model approach
- reduced-form oligopsony model, 59
- Reiss, Peter C.
  - discrete games with stochastic payoffs, 214–215
  - entry and exit thresholds, 213–214
  - payoff functions in discrete games, 216
  - simultaneous move games, 215–216
  - structural model derivation, 51
  - sunk costs in dynamic games, 216–217
- Renyi, Alfred, 279–280
- repeated game models
  - cheating, cost/benefit of, 99–102
  - estimates in, 99
  - research findings, 104
  - results, 104
- repeated games. *See also* dynamic estimation models
  - cartel model in, 98
  - cooperation breakdown in, 102–104
  - estimating models, 104
  - model results, 104
  - model variations, 103
  - Nash equilibrium in, 105–106
- repeated games, continuous strategies
  - cooperative behavior in, 104–105
  - Nash equilibrium in, 105–106
  - price-setting game model, 104
  - punishment phase, 106–107
  - tacit collusion estimation in, 106–108
- repeated games, trigger strategies
  - cheating, cost/benefit of, 100–102
  - cooperative behavior in, 99–104
  - estimation models in, 99
- residual demand approach, differentiated-product structural models, 75–77, 91
- Reynolds, Stanley
  - continuous time models, 192
  - production in dynamic games, 117
- rice export markets. *See* market structure estimation, rice exports
- risk adjustment, and rate of return, 16
- Roberts, Mark J.
  - dynamic oligopoly model, 249
  - neoclassical demand system estimates, 82
  - RS model, 147, 149, 163, 168–170, 182
- Romano, Joseph P., 281

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)

338

*Index*

- Rotemberg, Julio  
 adjustment cost estimation, 115  
 cooperation breakdown, 102–103  
 estimation in repeated game models, 99  
 repeated game model results, 104  
 repeated game models, 99–102  
 results in repeated game models, 104
- Rothschild, Michael, 86
- RPL model. *See* random-parameter logit (RPL) model
- RS model. *See also* advertising model (RS based)  
 data and assumptions in, 149  
 open-loop equilibrium in, 147
- RS model simplification, 168–170
- Ruback, Richard S., 30
- Rust, John, 158–159
- Ruud, Paul, 88–89
- Ryan, Stephen, 215–216
- Salinger, Michael A.  
 concentration–profit relationship, 30  
 structural variables and rates of return, 26
- Saloner, Garth  
 cooperation breakdown, 102–103  
 estimation in repeated game models, 99  
 repeated game models, 99–102  
 results in repeated game models, 104
- Salop, Steven C.  
 brand diversity in spatial models, 86  
 linear random utility model, 83
- Salvanes, Kjell G., 162
- Samuelson, Larry  
 dynamic oligopoly model, 249  
 RS model, 147, 149, 163, 168–170, 182
- Schmalensee, Richard  
 performance measures, 33  
 SCP-based research, 34
- Schwartz, Stephen, 33
- SCP approach. *See* structure–conduct–performance (SCP) approach
- SCP paradigm. *See* structure–conduct–performance (SCP) approach
- shadow values, defined, 151
- Shannon, Claude E., 264
- Shannon entropy function  
 and EL criterion, 280–281  
 IT methods, 279–280
- Sheldon, Ian M., 182
- Shen, Edward A., 51
- simultaneity bias problem, 33
- simultaneous move games, estimation  
 strategy studies, 215–216
- Singleton, Kenneth J., 155
- Slade, Margaret E.  
 equilibrium calculations in dynamic games, 123  
 merger effects on price, 42  
 repeated games, continuous strategies, 104, 106–108  
 residual demand approach, 75
- Solow residual, 56
- Solow, Robert, 56
- Spady, Richard H., 286
- spatial model, 86
- Spiller, Pablo T., 75
- Stackelberg equilibrium rules, and open-loop strategies, 141
- Stackelberg leader hypothesis  
 and profit maximization, 82–83  
 test difficulties, 91
- static analog, in linear-quadratic models, 183–184
- static decision, defined, 118
- static model approach  
 assumptions and estimates, 5–6  
 conjectural variation in, 5  
 Cournot models in, 5  
 demand system estimates, 7  
 firm-level studies, 6–7  
 industry-level data studies, 5–6  
 market power explanations in, 5  
 optimality estimation in, 5
- Steen, Frode, 162
- Stefanou, Spiro E., 115
- sticky price model  
 equilibrium conditions in, 130–132  
 equilibrium selection, 132  
 estimation of, 10  
 example of, 128–129  
 Markov assumption in, 129  
 MPE vs. differential games, 131–132  
 open-loop equilibria in, 129  
 static problem sequence in, 162
- sticky price model, estimation in  
 data and assumptions, 149  
 demand assumption, 156–157  
 demand function, 149–150  
 demand uncertainty, 150  
 dynamic oligopoly model example, 162  
 dynamic programming equation, 151–152, 158–162  
 Euler equation, 152–154  
 general model equation, 155–156  
 random demand shifters, 157–158

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)*Index*

339

- Stigler, George J.  
 long-run profits, 33  
 price-theory models vs. SCP approach, 13
- stochastic games. *See* dynamic games
- Stone, John R. N., 78
- straight-line depreciation, 15–16
- strategic complements, defined, 133
- strategic interactions, estimation strategy studies, 216
- strategic substitutes, defined, 133
- strategies (firm), defined, 1
- structural approach. *See* market power models, structural approach
- structural models  
 Cobb-Douglas model in, 71  
 derivation approaches, 51  
 reliability of, 60
- structure–conduct–performance (SCP) approach  
 background of, 3–5  
 and buyer/seller conduct, 3  
 conceptual problems with, 32–34  
 criticisms of, 3, 13  
 defined, 13  
 and differentiated-product structural models, 74  
 empirical research, 39–40  
 industrial organization research, 13  
 industry comparisons, 13  
 market power causes, 2, 4–5  
 microeconomic analysis in, 13  
 modern approach/theory, 34  
 vs. modern static studies, 70–71  
 Nash-Cournot equilibrium quantities in, 4  
 Nash equilibrium in, 3  
 Nash-in-quantities assumption in, 4  
 recent research, 34  
 study flaws, 31–32  
 study stages of, 13–14  
 theoretical model example, 3–5
- structure-to-performance relationship  
 and advertising spending, 26  
 and barriers to entry, 26, 34  
 and capital-output ratios, 26–27  
 conceptual problems with, 32–34  
 consumer satisfaction in, 33  
 demand elasticity effects, 31  
 and economic news, 27  
 in individual industries, 31  
 international studies, 30–31  
 measurement/statistical problems with, 31–32
- price–cost margins, 27–30  
 and R&D spending, 26  
 and rates of return, 25–26, 27
- Stutzer, Michael  
 GMM, 280  
 IT estimators, 286
- subgame perfection and Markov strategies  
 in dynamic games, 121–125  
 history dependent strategies and, 125  
 investment and cooperative states, 126  
 MPE in, 126  
 multiplicity of MPE, 126–127  
 open-loop equilibria in, 125
- subgame strategies, described, 8
- substitution patterns, complexity of, 88
- Sullivan, Daniel A., 53–54
- summary statistic biases  
 and data availability, 24  
 overview, 23–24
- summary statistics, and firm shares, 23–24
- Sumner, Daniel, 53–54
- sunk cost  
 endogenous, 37–39  
 exogenous, 35–37
- supergames  
 decision rules in, 94, 95–96  
 described, 8  
 equilibrium vs. subgame perfect equilibrium, 95–96, 108–109  
 Folk theorem of, 96  
 game history/past values in, 94  
 Nash equilibrium in, 94  
 outcomes/firm actions in, 94–95  
 prisoners' dilemma example, 97–98  
 punishment phase, 97–98  
 subgames in, 95
- supply substitutes, 22
- Suslow, Valerie  
 repeated game model results, 104  
 residual demand approach, 75
- Sutton, John  
 concentration and competition, 39–40  
 game-theory and market growth, 34–37  
 international concentration ratios, 30  
 SCP-based research, 34  
 vertical differentiation, 38–39
- symmetric equilibria, in static game models, 148
- Tamer, Elie  
 discrete games with stochastic payoffs, 214–215  
 payoff functions in discrete games, 216  
 strategic interactions, 216

Cambridge University Press

978-0-521-80440-0 - Estimating Market Power and Strategies

Jeffrey M. Perloff, Larry S. Karp and Amos Golan

Index

[More information](#)

340

*Index*

- tax incidence, and market structure, 51–53
- tax rate calculations, and rate of return, 18
- Thisse, Jacques-François, 83
- Thomadakis, Stavros B., 27
- Thomas, Joy A., 264–265
- time-consistency
  - in dynamic model approaches, 9–10
  - and equilibrium, 9–10
- Tirole, Jean, 126
- Tobin's  $q$ 
  - calculation considerations, 19
  - defined, 14, 19
  - described, 19
- Train, Kenneth E., 88
- trigger strategies. *See* repeated games, trigger strategies
- Troesken, Werner, 60
- Tsallis, Constantino, 280
- Tsallis measure, 280
- Tsutsui, Shunichi
  - continuous time models, 128
  - incomplete transversality conditions, 131
- unionization
  - effects of, 25
  - and profitability, 30
- United Airlines. *See* estimating strategies, airline case
- unrelated equations method, 200
- useful life (of assets), 15–16
- value added, in manufacturing sector, 21
- Van Dijk, Herman K., 202
- vertical differentiation
  - defined, 38
  - product quality ranking in, 38–39
- Vives, Xavier, 133
- Voos, Paula B., 30
- Vuong, Quang H.
  - approach to continuous  $\lambda$ , 51
  - cola demand equation, 248–249
  - ML approach, 213
  - ML estimates of Bertrand-Nash equilibrium, 257
- Wald test (WT), in generalized maximum entropy model, 271
- Ware, Roger, 133
- Waterson, Michael, 4
- Weiher, Jesse C., 29
- Weiss, Leonard W.
  - simultaneity bias problem, 33
  - structural variables and rates of return, 26
- Werden, Gregory J., 42
- White, Kenneth J., 202–203
- White, Lawrence J.
  - concentration measures, 32
  - global concentration measures, 21
- Wilson, Thomas A., 30
- Wolak, Frank A., 51
- Zellner, Arnold
  - Bayesian method of moments (BMOM) model, 286–287
  - market power estimation, 51
  - unrelated equations method, 200
- Zhang, Anming, 236–237
- Zhang, Yimin, 236–237
- Zimmerman, Martin B., 30