Methods and Applications of Statistics in

BUSINESS, FINANCE, and MANAGEMENT SCIENCE

N. Balakrishnan, Editor

WILEY

Methods and Applications of Statistics in Business, Finance, and Management Science

N. Balakrishnan
McMaster University
Department of Statistics
Hamilton, Ontario, Canada

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Advisory Editor

N. Balakrishnan
McMaster University, Canada

The ***Wiley Series in Methods and Applications of Statistics*** is a unique grouping of research that features classic contributions from Wiley's *Encyclopedia of Statistical Sciences, Second Edition (ESS, 2e)* alongside newly written articles that explore various problems of interest and their intrinsic connection to statistics. The goal of this collection is to encompass an encyclopedic scope of coverage within individual books that unify the most important and interesting applications of statistics within a specific field of study. Each book in the series successfully upholds the goals of *ESS, 2e* by combining established literature and newly developed contributions written by leading academics, researchers, and practitioners in a comprehensive and accessible format. The result is a succinct reference that unveils modern, cutting-edge approaches to acquiring, analyzing, and presenting data across diverse subject areas.

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Preface

In this day and age, when businesses and market have become truly global, the operation and management of business and finance (of individuals and/or firms) have become key factors for the success of the firms as well as for the economic stability. Without proper planning and execution with regard to these, it will be hard, if not impossible, for businesses to remain competitive in a global market.

This has necessitated the introduction of new techniques and strategies that are specifically oriented to tackle problems relating to the planning, operation, and management of business and finance. These developments provided the impetus for this volume to consolidate and present various statistical methods, techniques, strategies, and applications, old and new, that are useful in tackling a wide array of problems of interest in business, finance, and management sciences. It is my sincere hope that this would serve as a useful handbook for practitioners involved in business, finance, and management science and also serve as a reference guide for statistical researchers and students.

It is important to mention that the recently revised edition of *Encyclopedia of Statistical Sciences* served as a basis for this handbook. While many pertinent entries from the *Encyclopedia* have been included here, a number of them have also been updated to reflect recent developments on their topics. Several new articles detailing modern advances on statistical methods in business, finance, and management science have also been included.

A volume of this size and nature cannot be successfully completed without the cooperation and support of the contributing authors, and my sincere thanks and gratitude go to all of them. Thanks are also due to Mr. Steve Quigley and Ms. Jacqueline Palmieri (of John Wiley & Sons, Inc.) for their keen interest in this project from day one, as well as for their support and constant encouragement (and, of course, occasional nudges too) throughout the course of this project. Careful and diligent work of Mrs. Debbie Iscoe and Ms. Emily Iscoe in the typesetting of this volume and of Ms. Kellsee Chu at the production stage is gratefully acknowledged. Partial financial support of the Natural Sciences and Engineering Research Council of Canada also assisted the preparation of this handbook, and this support is much appreciated.

This is the second in a series of handbooks on *methods and applications of statistics*. While the first handbook has focused on life and health sciences and the present handbook has focused on business, finance, and management science, the forthcoming handbooks will cover such diverse disciplines as

Engineering, quality control, and physical sciences,

Behavioral and social sciences, and Environmental and earth sciences.

It is my sincere hope that this handbook and other in the series will become a basic reference resource for those involved in these fields of research!

PROF. N. BALAKRISHNAN
McMASTER UNIVERSITY

Hamilton, Canada
April 2010

Contributors

Rehez Ahlip, School of Computing and Mathematics, University of Western Sydney, Penrith South, NSW 1797, Australia, *R.Ahlip@uws.edu.au*

Bovas Abraham, Department of Statistics and Actuarial Science, University of Waterloo, Waterloo, Ontario, Canada, *babraham@uwaterloo.ca*

Torben Andersen, Kellogg School of Management, Evanston, IL, *t-andersen@kellogg.northwestern.edu*

O. D. Anderson

A. A. Assad, Decision, Operations, and Information Technologies, Robert H. Smith School of Business, University of Maryland, College Park, MD, *aassad@umd.edu*

N. Balakrishnan, Department of Mathematics & Statistics, McMaster University, Hamilton, ON Canada, *bala@mcmaster.ca*

D. J. Bartholomew, Department of Statistics, London School of Economics and Political Science, London, UK, *djbartholomew@btinternet.com*

William R. Bell, US Bureau of Census, Washington, DC, *William.R.Bell@census.gov*

Emre Berk Faculty of Business Administration, Bilkent University Ankara, Turkey, *eberk@bilkent.edu.tr*

Lawrence D. Bodin University of Maryland, College Park, MD, *lbodin@rhsmith.umd.edu*

Walter Böhm, Vienna University of Economics and Business, Wien, Vienna, *walter.boehm@wu-wien.ac.at*

Tim Bollerslev, Department of Economics, Duke University, Durham, NC, *boller@econ.duke.edu*

Jack Brimberg, Department of Mathematics and Computer Science, Royal Military College of Canada, Kingston, Ontario, Canada K7K 7B4, *Jack.Brimberg@rmc.ca*

Enrique Castillo, Universidad de Cantabria, Santander, Spain, *castie@unican.es*

H. C. Copeland, Robert H. Smith School of Business, University of Maryland, College Park, MD

Morris H. DeGroot, Carnegie Mellon University, Pittsburgh, PA

Ralph L. Disney, Department of Industrial and Systems Engineering, Texas A&M University, College Station, TX

T. S. Ferguson, Department of Mathematics, University of California, Los Angeles, CA, *tom@math.ucla.edu*

Peter C. Fishburn, AT & T Bell Laboratories, Murray Hill, NJ, *fish@research.att.com*

Natasha Zhang Foutz, McIntire School of Commerce, University of Virginia, Charlottesville, VA, *nfoutz@virginia.edu*

J. S. Gardenier, Washington, DC

T. K. Gardenier, Washington, DC

Paul R. Garvey, Ph.D., The MITRE Corporation, Bedford, MA, *pgarvey@mitre.org*

Warren Gilchrist, Sheffield City Polytechnic, Sheffield, England, *w.g.gilchrist@shu.ac.uk*

Bruce L. Golden, Department of Decision, Operations, and Information Technology, Robert H. Smith School of Business, University of Maryland, College Park, MD, *bgolden@rhsmith.umd.edu*

Paul E. Green, The Wharton School of Business, University of Pennsylvania, Philadelphia, PA, *greene@wharton.upenn.edu*

Ülkü Gürler, Bilkent University, Ankara, Turkey, *ulku@bilkent.edu.tr*

Ali S. Hadi, The American University in Cairo, Cairo, Egypt, *ahadi@aucegypt.edu*

David J. Hand, Department of Mathematics, Imperial College of Science, London, England, *d.j.hand@imperial.ac.uk*

Wolfgang Jank, Department of Decision, Operations, and Information Technology, Robert H. Smith School of Business, University of Maryland, College Park, MD, *wjank@rhsmith.umd.edu*

Nuri Jazairi, Department of Economics, Faculty of LA&PS, York University, Toronto, Ontario, Canada, *nuri@yorku.ca*

Brian L. Joiner, The W. Edwards Deming Institute, Palos Verdes Estates, CA, *brianjoiner@mindspring.com*

Eleanor W. Jordan, McCombs School of Business, The University of Texas at Austin, Austin, TX, *ejordan@mail.utexas.edu*

Andre Jungmittag, Chair for Macroeconomic Theory and Policy, University of Wuppertal, Germany, *jungmittag@wiwi.uni-wuppertal.de*

Morton Kamien, Kellogg School of Management, Evanston, IL, *m-kamien@kellogg.northwestern.edu*

Masaaki Kijima, Graduate School of Social Sciences, Tokyo Metropolitan University, Hachioji-shi Tokyo, Japan, *kijima@tmu.ac.jp*

R. Kolodny, Robert H. Smith School of Business, University of Maryland, College Park, MD, *rkolodny@rhsmith.umd.edu*

Steffen L. Lauritzen, Department of Statistics, University of Oxford, UK, *steffen@stats.ox.ac.uk*

Johannes Ledolter, Department of Management Sciences, The University of Iowa, Iowa City, IA, *johannes-ledolter@uiowa.edu*

Donald Lien, Richard S. Liu Distinguished Chair in Business, University of Texas at San Antonio, San Antonio, TX, *don.lien@utsa.edu*

W. F. Lucas, Cornell University, Ithaca, NY

D. Morgunov, Novosibirsk State Technical University, Russia, *dima_sw87@mail.ru*

Yukio Muromachi, Tokyo Metropolitan University, Graduate School of

Social Sciences, Hachiohji, Tokyo, Japan, *muromachi-yukio@tmu.ac.jp*

Steven Nahmias, Operations & Management Information Systems, Santa Clara University, Santa Clara, CA, *snahmias@scu.edu*

A. Naumov, Novosibirsk State Technical University, Russia, *a_a_naumov@mail.ru*

John Neter, University of Georgia, Athens, GA

Paul Newbold, School of Economics, The Sir Clive Granger Building, University of Nottingham, Nottingham, UK, *paul.newbold@nottingham.ac.uk*

Anthony Pakes, Faculty of Engineering, Computing, and Mathematics, The University of Western Australia, Perth, Australia, *tony.pakes@uwa.edu.au*

G. C. Reinsel, Department of Statistics, University of Wisconsin—Madison, Madison, WI, *reinsel@stat.wisc.edu*

Ralph P. Russo, Department of Statistics and Actuarial Science, The University of Iowa, Iowa City, Iowa, *rrusso@stat.uiowa.edu*

Hilary L. Seal, Department of Mathematics, Ecole Polytechnique Fédérale de Lausanne, Switzerland

Latha Shanker, Department of Finance, John Molson School of Business, Concordia University, Montreal, Quebec H3G 1M8, Canada, *lshanker@jmsb.concordia.ca*

Galit Shmueli, Professor of Statistics, Smith School of Business, University of Maryland, College Park, MD, *gshmueli@rhsmith.umd.edu*

Nariankadu D. Shyamalkumar, Department of Statistics and Actuarial Science, The University of Iowa, Iowa City, Iowa, *shyamal-kumar@uiowa.edu*

Robert A. Stine, University of Pennsylvania, Philadelphia, PA, *sinte@wharton.upenn.edu*

Donna F. Stroup, Coordinating Center for Health Promotion, CDC, Atlanta, GA, *donnafstroup@comcast.net*

William S. Sudderth, School of Statistics, University of Minnesota, Minneapolis, MN, *bill@stat.umn.edu*

R. Syski, Department of Mathematics, University of Maryland, College Park, MD

Keiichi Tanaka, Graduate School of Social Sciences, Tokyo Metropolitan University, Hachioji-shi Tokyo, Japan, *tanaka-keiichi@tmu.ac.jp*

Michael Titterington, Department of Statistics, University of Glasgow, Glasgow, UK, *m.titterington@stats.gla.ac.uk*

Ruey S. Tsay, The University of Chicago Booth School of Business, Chicago, IL, *ruey.tsay@ChicagoBooth.edu*

H. D. Vinod, Professor of Economics, Fordham University, Bronx, NY, *Vinod@fordham.edu*

John H. Walker, Faculty of Business, Brock University, St. Catharines, Ontario, Canada L2S 3A1, *jowalker@brocku.ca*

E. Wasil, Robert H. Smith School of Business, University of Maryland, College Park, MD

Mike West, Department of Statistical Sciences, Duke University, Durham, NC, *mike@stat.duke.edu*

Yoram Wind, The Wharton School of Business, University of Pennsylvania, Philadelphia, PA, *windj@wharton.upenn.edu*

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Contents

Preface v

Contributors vii

1 Alternatives to Black–Scholes Formulation in Finance 1
- 1.1 Introduction . . . 1
- 1.2 Motivation for Alternative Models . . . 2
- 1.3 Methods of Valuation . . . 3
- 1.4 Stochastic Interest-Rate Models . . . 7
- 1.5 Stochastic Volatility Models . . . 11
- 1.6 Models with Lévy Processes . . . 16
- References . . . 22

2 Analytical Methods for Risk Management: An Engineering Systems Perspective 25
- 2.1 Introduction . . . 25
- 2.2 Risk Management in Engineering Systems . . . 26
- 2.3 Risk Assessment and Analysis . . . 31
- 2.4 Allocating Resources . . . 51
- 2.5 Conclusion . . . 53
- References and Relevant Literature . . . 55

3 ARCH and GARCH Models 59
- 3.1 Introduction . . . 59
- 3.2 Volatility Clustering . . . 59
- 3.3 GARCH . . . 62
- 3.4 IGARCH . . . 65
- 3.5 EGARCH . . . 65
- 3.6 Alternative Parameterizations . . . 66
- 3.7 Time-Varying Parameter and Bilinear Models . . . 66
- 3.8 Estimation and Inference . . . 66
- 3.9 Testing . . . 67
- 3.10 Empirical Example . . . 67
- 3.11 Future Developments . . . 68

References 69

4 Bayesian Forecasting **72**
4.1 Introduction 72
4.2 Background 72
4.3 Dynamic Bayesian Models 73
4.4 Normal Dynamic Linear Models 74
4.5 Component Dynamic Linear Models 76
4.6 Discounting 77
4.7 Intervention 77
4.8 Monitoring and Adaptation 78
4.9 Mixtures of Dynamic Models 78
4.10 Non-normal Nonlinear Models 79
4.11 Multivariate Models 80
4.12 Computation and Simulation 80
4.13 Related Areas 81
References 81

5 Bayesian Networks **85**
5.1 Examples and Definitions 85
5.2 Constructing Bayesian-Network Models 90
5.3 Models Specified by Input Lists 90
5.4 Graphically Specified Models 91
5.5 Conditionally Specified Models 91
5.6 Learning Models from Data 91
5.7 Propagation in Bayesian Networks 92
5.8 Available Software 95
References 95

6 Box–Jenkins Model **98**
6.1 Introduction 98
References 103

7 Business Forecasting Methods **104**
7.1 Introduction 104
7.2 Trend Curves 105
7.3 Exponential Smoothing 106
7.4 Exponential Smoothing and Arima Model Building 108
7.5 Regression and Econometric Methods 109
7.6 Regression and Time-Series Principles 110
7.7 Combination of Forecasts 111
7.8 Evaluation of Forecasts 112
7.9 Summary 114
References 114

8 Combination of Forecasts **116**
8.1 Introduction . . . 116
8.2 The Theory of Combining . . . 116
8.3 Estimators of the Weights . . . 118
8.4 An Example . . . 120
8.5 Further Extensions . . . 120
References . . . 120

9 Decision Theory **122**
9.1 Introduction . . . 122
9.2 Parameters, Decisions, and Consequences . . . 122
9.3 Utility . . . 123
9.4 Components of a Decision Problem . . . 123
9.5 Subjective Probability . . . 124
9.6 Decision Analysis . . . 124
9.7 Statistical Decision Problems . . . 125
9.8 Conjugate Families of Prior Distributions . . . 126
9.9 Improper Prior Distributions . . . 127
9.10 Estimation and Tests of Hypothesis . . . 129
9.11 Sequential Decision Problems . . . 130
References . . . 131

10 Dynamic Programming **133**
10.1 Introduction . . . 133
10.2 Definitions and Examples . . . 133
10.3 Some Fundamental Principles . . . 135
10.4 The Optimality Equation and Backward Induction . . . 136
10.5 Stationary Plans . . . 137
References . . . 138

11 Estimation of Travel Distance **139**
11.1 Introduction . . . 139
11.2 Distance Functions . . . 141
11.3 Goodness-of-Fit Criteria . . . 145
11.4 Areas of Future Research . . . 152
References . . . 155

12 Financial Time Series **158**
12.1 Asset Price and Return . . . 158
12.2 Fundamental and Technical Analyses . . . 161
12.3 Volatility Model . . . 162
12.4 High-Frequency Data . . . 166
12.5 Continuous-Time Model . . . 167
References . . . 170

13 Forecasting **172**
13.1 Introduction . . . 172
13.2 Model Components . . . 173
13.3 Model Fitting for Forecasting . . . 175
13.4 Forecasting Methods . . . 176
13.5 Forecast Quality . . . 177
References . . . 178

14 Foundations of Risk Measurement **180**
14.1 Introduction . . . 180
References . . . 183

15 Functional Networks **185**
15.1 Introduction . . . 185
15.2 Elements of Functional Networks . . . 185
15.3 Differences Between Standard NNs and FNs . . . 187
15.4 Development and Implementation of FNs . . . 188
15.5 An Example of Application . . . 193
References . . . 196

16 Game Theory **199**
16.1 Introduction . . . 199
16.2 Strategies and Payoffs . . . 200
16.3 Applications to Statistics . . . 208
References . . . 209
Additional Reading . . . 209

17 Intervention Model Analysis **211**
17.1 Introduction . . . 211
17.2 Time-Series and Intervention Models . . . 211
17.3 Applications and Extensions . . . 215
References . . . 216

18 Inventory Theory **217**
18.1 Introduction . . . 217
18.2 Historical Background . . . 217
18.3 Models with Known Demand . . . 218
18.4 Models with Uncertain Demand . . . 219
18.5 Conclusion . . . 224
References . . . 224

19 Manpower Planning **226**
19.1 Introduction . . . 226
19.2 Statistical Analysis of Wastage . . . 226
19.3 Markov Models for Graded Systems . . . 227
19.4 Renewal Models for Graded Systems . . . 228
19.5 Literature . . . 228
References . . . 229

20 Markov Networks **230**
20.1 Statement of the Problem . . . 230
20.2 Some Basic Concepts of Graphs . . . 230
20.3 Constructing Markov Network Models . . . 238
20.4 Propagation in Markov Networks . . . 240
20.5 Available Software . . . 242
References . . . 242

21 Methods of Estimation of Risks and Analysis of Business Processes **245**
21.1 Introduction . . . 245
21.2 Mathematical Models of Economic Systems in the Form of the Business Processes Portfolio . . . 247
21.3 Risks of Economic Systems . . . 255
21.4 Economic Systems Factors Analysis . . . 263
References . . . 269

22 Mining Functional Data in Prediction Markets **273**
22.1 Introduction . . . 273
22.2 Prediction Markets . . . 274
22.3 Data . . . 276
22.4 Functional Data Analysis . . . 277
22.5 Discussion . . . 289
References . . . 291

23 Models for Bid Arrivals and Bidder Arrivals in Online Auctions **293**
23.1 Introduction . . . 293
23.2 Motivation . . . 293
23.3 Features of Bid Arrivals . . . 295
23.4 The BARISTA: A Three-Stage Nonhomogeneous Poisson Process . . . 297
23.5 Relating Bidder Arrivals and Bid Arrivals . . . 303
References . . . 308

24 Multiserver Queues **310**
24.1 Introduction . . . 310
24.2 Markovian Queues . . . 310
24.3 Non-Markovian Queues . . . 312
24.4 Other Methods . . . 313
References . . . 314

25 Multivariate Time-Series Analysis **317**
25.1 Introduction . . . 317
25.2 Stationary Multivariate Time Series and Their Covariance Properties . . . 317
25.3 Some Spectral Characteristics for Stationary Vector Processes . . . 319
25.4 Linear Filtering Relations for Stationary Vector Processes . . . 320
25.5 Linear Model Representations for Stationary Vector Processes . . . 321
25.6 Vector Autoregressive Moving Average (ARMA) Model Representations . . . 321
25.7 Nonstationary Vector Autoregressive Moving-Average Models . . . 325
25.8 Forecasting for Vector Autoregressive Moving-Average Processes . . . 326

25.9 Statistical Analysis of Vector Autoregressive Moving-Average Models . 327
References 329

26 Network Analysis **332**
26.1 Introduction 332

27 Network of Queues **338**
27.1 Introduction 338
27.2 Some Background 338
27.3 Some Results 339
27.4 More General Networks 341
27.5 Sojourn Times in Queueing Networks 341
27.6 Customer Flow in Networks 342
27.7 Other Approaches and Topics 342
References 345

28 Neural Networks **347**
28.1 Introduction 347
28.2 Feed-Forward Networks 347
28.3 Recurrent Networks 351
28.4 Associative-Memory Networks and Boltzmann Machines 351
28.5 Networks Trained by Unsupervised Learning 352
28.6 Use of the Bayesian Approach 353
28.7 Conclusion 355
References 355
Further Reading 357

29 Newsboy Inventory Problem **358**
29.1 Introduction 358
References 364

30 Nonlinear Time Series **365**
30.1 Introduction 365
30.2 Review of Linear Time Series 365
30.3 Nonparametric Methods 366
30.4 Parametric Models 367
30.5 Other Surveys and Comparisons 371
References 372

31 Nonstationary Time Series **375**
31.1 Introduction 375
31.2 Removing Nonstationary Means and Variances 375
31.3 Extensions 376
31.4 Homogeneous and Explosive Nonstationarity 381
31.5 Differencing 381
31.6 Starting Values and Nonstationarity 382
31.7 ARIMA Models 382
31.8 Sample Autocorrelations—Identifying the Degree of Differencing 382

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