# Contents

## Part I  Data Modeling for Evaluation

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluating the Effects of Subsidies to Firms with Nonignorably Missing Outcomes</td>
<td>3</td>
</tr>
<tr>
<td>Fabrizia Mealli, Barbara Pacini, and Giulia Roli</td>
<td></td>
</tr>
<tr>
<td>Evaluating Lecturer’s Capability Over Time. Some Evidence from Surveys on University Course Quality</td>
<td>13</td>
</tr>
<tr>
<td>Isabella Sulis, Mariano Porcu, and Nicola Tedesco</td>
<td></td>
</tr>
<tr>
<td>Evaluating the External Effectiveness of the University Education in Italy</td>
<td>21</td>
</tr>
<tr>
<td>Matilde Bini</td>
<td></td>
</tr>
<tr>
<td>Analyzing Research Potential through Redundancy Analysis: the case of the Italian University System</td>
<td>29</td>
</tr>
<tr>
<td>Cristina Davino, Francesco Palumbo, and Domenico Vistocco</td>
<td></td>
</tr>
<tr>
<td>A Participative Process for the Definition of a Human Capital Indicator</td>
<td>39</td>
</tr>
<tr>
<td>Luigi Fabbris, Giovanna Boccuzzo, Maria Cristiana Martini, and Manuela Scioni</td>
<td></td>
</tr>
<tr>
<td>Using Poset Theory to Compare Fuzzy Multidimensional Material Deprivation Across Regions</td>
<td>49</td>
</tr>
<tr>
<td>Marco Fattore, Rainer Brüggemann, and Jan Owsiński</td>
<td></td>
</tr>
<tr>
<td>Some Notes on the Applicability of Cluster-Weighted Modeling in Effectiveness Studies</td>
<td>57</td>
</tr>
<tr>
<td>Simona C. Minotti</td>
<td></td>
</tr>
<tr>
<td>Impact Evaluation of Job Training Programs by a Latent Variable Model</td>
<td>65</td>
</tr>
<tr>
<td>Francesco Bartolucci and Fulvia Pennoni</td>
<td></td>
</tr>
</tbody>
</table>
Part II  Data Analysis in Economics

Analysis of Collaborative Patterns in Innovative Networks ............................. 77
Alfredo Del Monte, Maria Rosaria D’Esposito, Giuseppe Giordano, and Maria Prosperina Vitale

The Measure of Economic Re-Evaluation: a Coefficient Based on Conjoint Analysis ................................................................. 85
Paolo Mariani, Mauro Mussini, and Emma Zavarrone

Do Governments Effectively Stabilize Fuel Prices by Reducing Specific Taxes? Evidence from Italy ............................................. 93
Marina Di Giacomo, Massimiliano Piacenza, and Gilberto Turati

An Analysis of Industry Sector Via Model Based Clustering .........................101
Carmen Cutugno

Impact of Exogenous Shocks on Oil Product Market Prices .......................109
Antonio Angelo Romano and Giuseppe Scandurra

Part III  Nonparametric Kernel Estimation

Probabilistic Forecast for Northern New Zealand Seismic Process Based on a Forward Predictive Kernel Estimator .......................119
Giada Adelfio and Marcello Chiodi

Discrete Beta Kernel Graduation of Age-Specific Demographic Indicators ..........................................................127
Angelo Mazza and Antonio Punzo

Kernel-Type Smoothing Methods of Adjusting for Unit Nonresponse in Presence of Multiple and Different Type Covariates ................................................ ..........135
Emilia Rocco

Part IV  Data Analysis in Industry and Services

Measurement Errors and Uncertainty: A Statistical Perspective ..........145
Laura Deldossi and Diego Zappa

Measurement Uncertainty in Quantitative Chimerism Monitoring after Stem Cell Transplantation ........................................155
Ron S. Kenett, Deborah Kolta, and Don Kristt

Satisfaction, Loyalty and WOM in Dental Care Sector ..........................165
Paolo Mariani and Emma Zavarrone
Controlled Calibration in Presence of Clustered Measures .................173
Silvia Salini and Nadia Solaro

Part V Visualization of Relationships

Latent Ties Identification in Inter-Firms Social Networks .................185
Patrizia Ameli, Federico Niccolini, and Francesco Palumbo

A Universal Procedure for Biplot Calibration ..........................195
Jan Graffelman

Analysis of Skew-Symmetry in Proximity Data .............................203
Giuseppe Bove

Social Stratification and Consumption Patterns: Cultural Practices and Lifestyles in Japan .........................................................211
Miki Nakai

Centrality of Asymmetric Social Network: Singular Value Decomposition, Conjoint Measurement, and Asymmetric Multidimensional Scaling .........................................................219
Akinori Okada

Part VI Classification

Some Perspectives on Multivariate Outlier Detection ..................231
Andrea Cerioli, Anthony C. Atkinson, and Marco Riani

Spatial Clustering of Multivariate Data Using Weighted MAX-SAT .................................239
Silvia Liverani and Alessandra Petrucci

Clustering Multiple Data Streams ..........................................247
Antonio Balzanella, Yves Lechevallier, and Rosanna Verde

Notes on the Robustness of Regression Trees Against Skewed and Contaminated Errors .........................................................255
Giuliano Galimberti, Marilena Pillati, and Gabriele Soffritti

A Note on Model Selection in STIMA ....................................265
Claudio Conversano

Conditional Classification Trees by Weighting the Gini Impurity Measure ...............................................................273
Antonio D’Ambrosio and Valerio A. Tutore
Part VII  Analysis of Financial Data

Visualizing and Exploring High Frequency Financial Data:
Beanplot Time Series .......................................................... 283
Carlo Drago and Germana Scepi

Using Partial Least Squares Regression in Lifetime Analysis ................. 291
Intissar Mdimagh and Salwa Benammou

Robust Portfolio Asset Allocation ............................................ 301
Luigi Grossi and Fabrizio Laurini

A Dynamic Analysis of Stock Markets through Multivariate
Latent Markov Models .......................................................... 311
Michele Costa and Luca De Angelis

A MEM Analysis of African Financial Markets .................................. 319
Giorgia Giovannetti and Margherita Velucchi

Group Structured Volatility ....................................................... 329
Pietro Coretto, Michele La Rocca, and Giuseppe Storti

Part VIII  Functional Data Analysis

Clustering Spatial Functional Data: A Method Based on a Nonparametric Variogram Estimation ..................................... 339
Elvira Romano, Rosanna Verde, and Valentina Cozza

Prediction of an Industrial Kneading Process via the Adjustment Curve ......................................................... 347
Giuseppina D. Costanzo, Francesco Dell’Accio, and Giulio Trombetta

Dealing with FDA Estimation Methods ........................................ 357
Tonio Di Battista, Stefano A. Gattone, and Angela De Sanctis

Part IX  Computer Intensive Methods

Testing for Dependence in Mixed Effect Models for Multivariate Mixed Responses ........................................... 369
Marco Alfó, Luciano Nieddu, and Donatella Vicari

Size and Power of Tests for Regression Outliers in the Forward Search ........................................................... 377
Francesca Torti and Domenico Perrotta
Contents

Using the Bootstrap in the Analysis of Fractionated Screening Designs .................................................................385
Anthony Cossari

CRAGGING Measures of Variable Importance for Data with Hierarchical Structure .........................................................393
Marika Vezzoli and Paola Zuccolotto

Regression Trees with Moderating Effects .........................................401
Gianfranco Giordano and Massimo Aria

Data Mining for Longitudinal Data with Different Treatments ..............409
Mouna Akacha, Thaís C.O. Fonseca, and Silvia Liverani

Part X Data Analysis in Environmental and Medical Sciences

Supervised Classification of Thermal High-Resolution IR Images for the Diagnosis of Raynaud’s Phenomenon ...............419
Graziano Aretusi, Lara Fontanella, Luigi Ippoliti, and Arcangelo Merla

A Mixture Regression Model for Resistin Levels Data ......................429
Gargano Romana and Alibrandi Angela

Interpreting Air Quality Indices as Random Quantities ......................437
Francesca Bruno and Daniela Cocchi

Comparing Air Quality Indices Aggregated by Pollutant ....................447
Mariantonietta Ruggieri and Antonella Plaia

Identifying Partitions of Genes and Tissue Samples in Microarray Data ........................................................................455
Francesca Martella and Marco Alfò

Part XI Analysis of Categorical Data

Assessing Balance of Categorical Covariates and Measuring Local Effects in Observational Studies ..............................465
Furio Camillo and Ida D’Attoma

Handling Missing Data in Presence of Categorical Variables: a New Imputation Procedure ...........................................473
Pier Alda Ferrari, Alessandro Barbiero, and Giancarlo Manzi

The Brown and Payne Model of Voter Transition Revisited ..............481
Antonio Forcina and Giovanni M. Marchetti
On the Nonlinearity of Homogeneous Ordinal Variables .........................489
Maurizio Carpita and Marica Manisera

New Developments in Ordinal Non Symmetrical Correspondence Analysis ........................................................................497
Biagio Simonetti, Luigi D’Ambra, and Pietro Amenta

Correspondence Analysis of Surveys with Multiple Response Questions ................................................................................505
Amaya Zárraga and Beatriz Goitisolo

Part XII Multivariate Analysis

Control Sample, Association and Causality ......................................517
Riccardo Borgoni, Donata Marasini, and Piero Quatto

A Semantic Based Dirichlet Compound Multinomial Model ..................525
Paola Cerchiello and Elvio Concetto Bonafede

Distance-Based Approach in Multivariate Association ..........................535
Carles M. Cuadras

New Weighed Similarity Indexes for Market Segmentation Using Categorical Variables ........................................................543
Isabella Morlini and Sergio Zani

Causal Inference with Multivariate Outcomes: a Simulation Study .................................................................553
Paolo Frumento, Fabrizia Mealli, and Barbara Pacini

Using Multilevel Models to Analyse the Context of Electoral Data .................................................................561
Rosario D’Agata and Venera Tomaselli

A Geometric Approach to Subset Selection and Sparse Sufficient Dimension Reduction ..............................................569
Luca Scrucca

Local Statistical Models for Variables Selection .................................577
Silvia Figini

Index ..................................................................................................585
New Perspectives in Statistical Modeling and Data Analysis
Proceedings of the 7th Conference of the Classification and Data Analysis Group of the Italian Statistical Society, Catania, September 9 - 11, 2009
Ingrassia, S.; Rocci, R.; Vichi, M. (Eds.)
2011, XXII, 587 p. 64 illus., Softcover
ISBN: 978-3-642-11362-8