

Contents

1	Preface	17
2	Plenary Sessions	19
2.1	A new paradigm for rating data models. <i>Domenico Piccolo</i>	19
2.2	Statistical challenges and opportunities in modelling coupled behaviour-disease dynamics of vaccine refusal. <i>Plenary/Chris T. Bauch</i>	32
3	Specialized Sessions	45
3.1	3.1 - Bayesian Nonparametric Learning	45
3.1.1	Bayesian nonparametric covariate driven clustering. <i>Raffaele Argiento, Ilaria Bianchini, Alessandra Guglielmi and Ettore Lanzarone</i>	46
3.1.2	A Comparative overview of Bayesian nonparametric estimation of the size of a population. <i>Luca Tardella and Danilo Alunni Fegatelli</i>	56
3.1.3	Logit stick-breaking priors for partially exchangeable count data. <i>Tommaso Rigon</i>	64
3.2	BDsports - Statistics in Sports	72
3.2.1	A paired comparison model for the analysis of on-field variables in football matches. <i>Gunther Schaubberger and Andreas Groll</i>	72
3.2.2	Are the shots predictive for the football results?. <i>Leonardo Egidi, Francesco Paoli, Nicola Torelli</i>	81
3.2.3	Zero-inflated ordinal data models with application to sport (in)activity. <i>Maria Iannario and Rosaria Simone</i>	89
3.3	Being young and becoming adult in the Third Millennium: definition issues and processes analysis	97
3.3.1	Do Social Media Data predict changes in young adults' employment status? Evidence from Italy. <i>Andrea Bonanomi and Emiliano Sironi</i>	97

3.3.2	Parenthood: an advanced step in the transition to adulthood. <i>Cinzia Castagnaro, Antonella Guarneri and Eleonora Meli</i>	106
3.4	Economic Statistics and Big Data	114
3.4.1	Improvements in Italian CPI/HICP deriving from the use of scanner data. <i>Alessandro Brunetti, Stefania Fatello, Federico Polidoro, Antonella Simone</i>	114
3.4.2	Big data and spatial price comparisons of consumer prices. <i>Tiziana Laureti and Federico Polidoro</i>	123
3.5	Financial Time Series Analysis	131
3.5.1	Dynamic component models for forecasting trading volumes. <i>Antonio Naimoli and Giuseppe Storti</i>	131
3.5.2	Conditional Quantile-Located VaR. <i>Giovanni Bonaccolto, Massimiliano Caporin and Sandra Paterlini</i>	140
3.6	Forensic Statistics	146
3.6.1	Cause of effects: an important evaluation in Forensic Science. <i>Fabio Corradi and Monica Musio</i>	146
3.6.2	Evaluation and reporting of scientific evidence: the impact of partial probability assignments. <i>Silvia Bozza, Alex Biedermann, Franco Taroni</i>	155
3.7	Missing Data Handling in Complex Models	161
3.7.1	Dependence and sensitivity in regression models for longitudinal responses subject to dropout. <i>Marco Alfo' and Maria Francesca Marino</i>	161
3.7.2	Multilevel analysis of student ratings with missing level-two covariates: a comparison of imputation techniques. <i>Maria Francesca Marino e Carla Rampichini</i>	170
3.7.3	Multilevel Multiple Imputation in presence of interactions, non-linearities and random slopes. <i>Matteo Quartagno and James R. Carpenter</i>	175
3.8	Monitoring Education Systems. Insights from Large Scale Assessment Surveys	183
3.8.1	Educational Achievement of Immigrant Students. A Cross-National Comparison Over-Time Using OECD-PISA Data. <i>Mariano Porcu</i>	183
3.9	New Perspectives in Time Series Analysis	192
3.9.1	Generalized periodic autoregressive models for trend and seasonality varying time series. <i>Francesco Battaglia and Domenico Cucina and Manuel Rizzo</i>	192
3.10	Recent Advances in Model-based Clustering	201
3.10.1	Flexible clustering methods for high-dimensional data sets. <i>Cristina Tortora and Paul D. McNicholas</i>	201
3.10.2	A Comparison of Model-Based and Fuzzy Clustering Methods. <i>Marco Alfo', Maria Brigida Ferraro, Paolo Giordani, Luca Scrucca, and Alessio Serafini</i>	208
3.10.3	Covariate measurement error in generalized linear models for longitudinal data: a latent Markov approach. <i>Roberto Di Mari, Antonio Punzo, and Antonello Maruotti</i>	216
3.11	Statistical Modelling	224
3.11.1	A regularized estimation approach for the three-parameter logistic model. <i>Michela Battauz and Ruggero Bellio</i>	224
3.11.2	Statistical modelling and GAMLSS. <i>Mikis D. Stasinopoulos and Robert A. Rigby and Fernanda De Bastiani</i>	233
3.12	Young Contributions to Statistical Learning	239
3.12.1	Introducing spatio-temporal dependence in clustering: from a parametric to a nonparametric approach . <i>Clara Grazian, Gianluca Mastrantonio and Enrico Bibbona</i>	239

3.12.2	Bayesian inference for hidden Markov models via duality and approximate filtering distributions. <i>Guillaume Kon Kam King, Omiros Papaspiliopoulos and Matteo Ruggiero</i>	248
3.12.3	K-means seeding via MUS algorithm. <i>Leonardo Egidi, Roberta Pappada`, Francesco Pauli, Nicola Torelli</i>	256
4	Sollicited Sessions	263
4.1	Advances in Discrete Latent Variable Modelling	263
4.1.1	A joint model for longitudinal and survival data based on a continuous-time latent Markov model. <i>Alessio Farcomeni and Francesco Bartolucci</i>	264
4.1.2	Modelling the latent class structure of multiple Likert items: a paired comparison approach. <i>Brian Francis</i>	273
4.1.3	Dealing with reciprocity in dynamic stochastic block models. <i>Francesco Bartolucci, Maria Francesca Marino, Silvia Pandolfi</i>	281
4.1.4	Causality patterns of a marketing campaign conducted over time: evidence from the latent Markov model. <i>Fulvia Pennoni, Leo Paas and Francesco Bartolucci</i>	289
4.2	Complex Spatio-temporal Processes and Functional Data	297
4.2.1	Clustering of spatio-temporal data based on marked variograms. <i>Antonio Balzanella and Rosanna Verde</i>	297
4.2.2	Space-time earthquake clustering: nearest-neighbor and stochastic declustering methods in comparison. <i>Elisa Varini, Antonella Peresan, Renata Rotondi, and Stefania Gentili</i>	304
4.2.3	Advanced spatio-temporal point processes for the Sicily seismicity analysis. <i>Marianna Siino and Giada Adelfio</i>	312
4.2.4	Spatial analysis of the Italian seismic network and seismicity. <i>Antonino D’Alessandro, Marianna Siino, Luca Greco and Giada Adelfio</i>	320
4.3	Dimensional Reduction Techniques for Big Data Analysis	328
4.3.1	Clustering Data Streams via Functional Data Analysis: a Comparison between Hierarchical Clustering and K-means Approaches. <i>Fabrizio Maturo, Francesca Fortuna, and Tonio Di Battista</i>	328
4.3.2	Co-clustering algorithms for histogram data. <i>Francisco de A.T. De Carvalho and Antonio Balzanella and Antonio Irpino and Rosanna Verde</i>	338
4.3.3	A network approach to dimensionality reduction in Text Mining. <i>Michelangelo Misuraca, Germana Scepi and Maria Spano</i>	344
4.3.4	Self Organizing Maps for distributional data. <i>Rosanna Verde and Antonio Irpino</i>	352
4.4	Enviromental Processes, Human Activities and their Interactions	353
4.4.1	Estimation of coral growth parameters via Bayesian hierarchical non-linear models. <i>Crescenza Calculli, Barbara Cafarelli and Daniela Cocchi</i>	353
4.4.2	A Hierarchical Bayesian Spatio-Temporal Model to Estimate the Short-term Effects of Air Pollution on Human Health. <i>Fontanella Lara, Ippoliti Luigi and Valentini Pasquale</i>	361
4.4.3	A multilevel hidden Markov model for space-time cylindrical data. <i>Francesco Lagona and Monia Ranalli</i>	367
4.4.4	Estimation of entropy measures for categorical variables with spatial correlation. <i>Linda Altieri, Giulia Roli</i>	373
4.5	Innovations in Census and in Social Surveys	381
4.5.1	A micro-based approach to ensure consistency among administrative sources and to improve population statistics. <i>Gianni Corsetti, Sabrina Prati, Valeria Tomeo, Enrico Tucci</i>	381
4.5.2	Demographic changes, research questions and data needs: issues about migrations. <i>Salvatore Strozza and Giuseppe Gabrielli</i>	392

4.5.3	Towards more timely census statistics: the new Italian multiannual dissemination programme. <i>Simona Mastroluca and Mariangela Verrascina</i>	400
4.6	Living Conditions and Consumption Expenditure in Time of Crises	409
4.6.1	Household consumption expenditure and material deprivation in Italy during last economic crises. <i>Ilaria Arigoni and Isabella Sicilliani</i>	409
4.7	Network Data Analysis and Mining	418
4.7.1	Support provided by elderly Italian people: a multilevel analysis. <i>Elvira Pelle, Giulia Rivellini and Susanna Zaccarini</i>	418
4.7.2	Data mining and analysis of comorbidity networks from practitioner prescriptions. <i>Giancarlo Ragozini, Giuseppe Giordano, Sergio Pagano, Mario De Santis, Pierpaolo Cavallo</i>	426
4.7.3	Overlapping mixture models for network data (manet) with covariates adjustment. <i>Saverio Ranciati and Giuliano Galimberti and Ernst C. Wit and Veronica Vinciotti</i>	434
4.8	New Challenges in the Measurement of Economic Insecurity, Inequality and Poverty	440
4.8.1	Social protection in mitigating economic insecurity. <i>Alessandra Coli</i>	440
4.8.2	Changes in poverty concentration in U.S. urban areas. <i>Francesco Andreoli and Mauro Mussini</i>	450
4.8.3	Evaluating sustainability through an input-stateoutput framework: the case of the Italian provinces. <i>Achille Lemmi, Laura Neri, Federico M. Pulselli</i>	458
4.9	New Methods and Models for Ordinal Data	466
4.9.1	Weighted and unweighted distances based decision tree for ranking data. <i>Antonella Plaia, Simona Buscemi, Mariangela Sciandra</i>	466
4.9.2	A dissimilarity-based splitting criterion for CUBREMOT. <i>Carmela Cappelli, Rosaria Simone and Francesca Di Iorio</i>	474
4.9.3	Constrained Extended Plackett-Luce model for the analysis of preference rankings. <i>Cristina Mollica and Luca Tardella</i>	480
4.9.4	A prototype for the analysis of time use in Italy. <i>Stefania Capecchi and Manuela Michellini</i>	487
4.10	New Perspectives in Supervised and Unsupervised Classification	493
4.10.1	Robust Updating Classification Rule with applications in Food Authenticity Studies. <i>Andrea Cappozzo, Francesca Greselin and Thomas Brendan Murphy</i>	493
4.10.2	A robust clustering procedure with unknown number of clusters. <i>Francesco Dotto and Alessio Farcomeni</i>	500
4.10.3	Issues in joint dimension reduction and clustering methods. <i>Michel van de Velden, Alfonso Iodice D'Enza and Angelos Markos</i>	508
4.11	New Sources, Data Integration and Measurement Challenges for Estimates on Labour Market Dynamics	514
4.11.1	The development of the Italian Labour register: principles, issues and perspectives . <i>C. Baldi, C. Ceccarelli, S. Gigante, S. Pacini</i>	514
4.11.2	Digging into labour market dynamics: toward a reconciliation of stock and flows short term indicators. <i>F. Rapiti, C. Baldi, D. Ichim, F. Pintaldi, M. E. Pontecorvo, R. Rizzi</i>	523
4.11.3	How effective are the regional policies in Europe? The role of European Funds. <i>Gennaro Punzo, Mariateresa Ciommi, and Gaetano Musella</i>	531
4.11.4	Labour market condition in Italy during and after the financial crises: a segmented regression analysis approach of interrupted time series. <i>Lucio Masserini and Matilde Bini</i>	539

4.12	Quantile and Generalized Quantile Methods	547
4.12.1	Multiple quantile regression for risk assessment. <i>Lea Petrella and Valentina Raponi</i>	547
4.12.2	Parametric Modeling of Quantile Regression Coefficient Functions. <i>Paolo Frumento and Matteo Bottai</i>	550
4.12.3	Modelling the effect of Traffic and Meteorology on Air Pollution with Finite Mixtures of M-quantile Regression Models. <i>Simone Del Sarto, Maria Francesca Marino, Maria Giovanna Ranalli and Nicola Salvati</i>	552
4.12.4	Three-level M-quantile model for small area poverty mapping. <i>Stefano Marchetti and Nicola Salvati</i>	560
4.13	Recent Advances on Extreme Value Theory	560
4.13.1	Extremes of high-order IGARCH processes. <i>Fabrizio Laurini</i>	560
4.14	Spatial Economic Data Analysis	569
4.14.1	Spatial heterogeneity in principal component analysis: a study of deprivation index on Italian provinces. <i>Paolo Postiglione, M. Simona Andreano, Roberto Benedetti, Alfredo Cartone</i>	569
4.15	Spatial Functional Data Analysis	578
4.15.1	Object oriented spatial statistics for georeferenced tensor data. <i>Alessandra Menafoglio and Davide Pigoli and Piercesare Secchi</i>	578
4.15.2	A Spatio-Temporal Mixture Model for Urban Crimes. <i>Ferretti Angela, Ippoliti Luigi and Valentini Pasquale</i>	585
4.16	Statistical Methods for Service Quality	591
4.16.1	Cumulative chi-squared statistics for the service quality improvement: new properties and tools for the evaluation. <i>Antonello D'Ambra, Antonio Lucadamo, Pietro Amenta, Luigi D'Ambra</i>	591
4.16.2	A robust multinomial logit model for evaluating judges' performances. <i>Ida Camminatiello and Antonio Lucadamo</i>	600
4.16.3	Complex Contingency Tables and Partitioning of Three-way Association Indices for Assessing Justice CourtWorkload. <i>Rosaria Lombardo, Yoshio Takane and Eric J Beh</i>	607
4.16.4	Finding the best paths in university curricula of graduates to improve academic guidance services. <i>Silvia Bacci and Bruno Bertaccini</i>	615
4.17	Statistical Modelling for Business Intelligence Problems	623
4.17.1	A nonlinear state-space model for the forecasting of field failures. <i>Antonio Pivatolo</i>	623
4.17.2	Does Airbnb affect the real estate market? A spatial dependence analysis. <i>Mariangela Guidolin and Mauro Bernardi</i>	632
4.17.3	Bayesian Quantile Trees for Sales Management. <i>Mauro Bernardi and Paola Stolfi</i>	640
4.17.4	Discrimination in machine learning algorithms. <i>Roberta Pappadá and Francesco Pauli</i>	648
4.18	Statistical models for sports data	656
4.18.1	The study of relationship between financial performance and points achieved by Italian football championship clubs via GEE and diagnostic measures. <i>Anna Crisci, Sarnacchiaro Pasquale e Luigi D'Ambra</i>	656
4.18.2	Exploring the Kaggle European Soccer database with Bayesian Networks: the case of the Italian League Serie A. <i>Maurizio Carpita and Silvia Golia</i>	665
4.18.3	A data-mining approach to the Parkour discipline. <i>Paola Pasca, Enrico Ciavolino and Ryan L. Boyd</i>	673
4.18.4	Players Movements and Team Shooting Performance: a Data Mining approach for Basketball. <i>Rodolfo Metulini</i>	681

4.19	Supporting Regional Policies through Small Area Statistical Methods	689
4.19.1	Survey-weighted Unit-Level Small Area Estimation. <i>Jan Pablo Burgard and Patricia Dörr</i>	689
4.20	The Second Generation at School	689
4.20.1	Resilient students with migratory background. <i>Anna Di Bartolomeo and Giuseppe Gabrielli</i>	689
4.20.2	Residential Proximity to Attended Schools among Immigrant-Origin Youths in Bologna. <i>Federica Santangelo, Debora Mantovani and Giancarlo Gasperoni</i>	698
4.20.3	From school to ... future: strategies, paths and perspectives of immigrant immediate descendants in Naples . <i>Giustina Orientale Caputo and Giuseppe Gargiulo</i>	706
4.21	Tourism Destinations, Household, Firms	714
4.21.1	The Pricing Behaviour of Firms in the On-line Accommodation Market: Evidence from a Metropolitan City. <i>Andrea Guizzardi and Flavio Maria Emanuele Pons</i>	714
4.21.2	The Migration-Led-Tourism Hypothesis for Italy: A Survey. <i>Carla Massidda, Romano Piras and Ivan Etzo</i>	724
4.21.3	Tourism Statistics: development and potential uses. <i>Fabrizio Antolini</i>	732
4.21.4	Tourism attractiveness in Italy. Some empirical evidence comparing origin-destination domestic tourism flows. <i>Francesca Giambona, Emanuela Dreassi, and Alessandro Magrini</i>	740
4.22	What's Happening in Africa	748
4.22.1	Environmental shocks and internal migration in Tanzania. <i>Maria Francesca Marino, Alessandra Petrucci, and Elena Pirani</i>	748
4.22.2	Determinants and geographical disparities of BMI in African Countries: a measurement error small area approach. <i>Serena Arima and Silvia Polettini</i>	756
5	Contributed Sessions	765
5.1	Advanced Algorithms and Computation	765
5.1.1	Brexit in Italy. <i>Francesca Greco, Livia Celardo, Leonardo Salvatore Alaimo</i>	766
5.1.2	Distance based Depth-Depth classifier for directional data. <i>Giuseppe Pandolfo and Giovanni C. Porzio</i>	773
5.1.3	Approximate Bayesian Computation for Forecasting in Hydrological models. <i>Jonathan Romero-Cuéllar, Antonino Abbruzzo, Giada Adelfio and Félix Francés</i>	777
5.1.4	Customer Churn prediction based on eXtreme Gradient Boosting classifier. <i>Mohammed Hassan Elbedawi Omar and Matteo Borrotti</i>	783
5.1.5	HPC-accelerated Approximate Bayesian Computation for Biological Science. <i>Ritabrata Dutta</i>	789
5.1.6	PC Algorithm for Gaussian Copula Data. <i>Vincenzina Vitale and Paola Vicard</i>	797
5.2	Advances in Clustering Techniques	803
5.2.1	On the choice of an appropriate bandwidth for modal clustering. <i>Alessandro Casa, José E. Chacón and Giovanna Menardi</i>	803
5.2.2	Unsupervised clustering of Italian schools via non-parametric multilevel models. <i>Chiara Masci, Francesca Ieva and Anna Maria Paganoni</i>	810
5.2.3	Chiara Masci, Francesca Ieva and Anna Maria Paganoni. <i>Laura Bocci and Donatella Vicari</i>	816
5.2.4	Robust Reduced k-Means and Factorial k-Means by trimming. <i>Luca Greco and Antonio Lucadamo and Pietro Amenta</i>	821
5.2.5	Dirichlet processes, posterior similarity and graph clustering. <i>Stefano Tonellato</i>	827
5.2.6	Bootstrap ClustGeo with spatial constraints. <i>Veronica Distefano, Valentina Mameli, Fabio Della Marra</i>	833

5.3	Advances in Statistical Models	839
5.3.1	Regression modeling via latent predictors. <i>Francesca Martella and Donatella Vicari</i>	839
5.3.2	Analysis of dropout in engineering BSc using logistic mixed-effect models. <i>Luca Fontana and Anna Maria Paganoni</i>	846
5.3.3	dgLARS method for relative risk regression models. <i>Luigi Augugliaro and Angelo M. Mineo</i>	852
5.3.4	A Latent Class Conjoint Analysis for analysing graduates profiles. <i>Paolo Mariani, Andrea Marletta, Lucio Masserini and Mariangela Zenga</i>	858
5.3.5	A longitudinal analysis of the degree of accomplishment of anti-corruption measures by Italian municipalities: a latent Markov approach. <i>Simone Del Sarto, Michela Gnaldi, Francesco Bartolucci</i>	864
5.3.6	Modelling the effect of covariates for unbiased estimates in ecological inference methods. <i>Venera Tomaselli, Antonio Forcina and Michela Gnaldi</i>	870
5.4	Advances in Time Series	876
5.4.1	Filtering outliers in time series of electricity prices. <i>Ilaria Lucrezia Amerise</i> . . .	876
5.4.2	Time-varying long-memory processes. <i>Luisa Bisaglia and Matteo Grigoletto</i>	883
5.4.3	Statistical Analysis of Markov Switching DSGE Models. <i>Maddalena Cavicchioli</i>	889
5.4.4	Forecasting energy price volatilities and comovements with fractionally integrated MGARCH models. <i>Malvina Marchese and Francesca Di Iorio</i>	894
5.4.5	Improved bootstrap simultaneous prediction limits. <i>Paolo Vidoni</i>	900
5.5	Data Management	906
5.5.1	Using web scraping techniques to derive co-authorship data: insights from a case study. <i>Domenico De Stefano, Vittorio Fuccella, Maria Prosperina Vitale, Susanna Zaccarin</i>	906
5.5.2	Dealing with Data Evolution and Data Integration: An approach using Rarefaction. <i>Luca Del Core, Eugenio Montini, Clelia Di Serio, Andrea Calabria</i>	913
5.5.3	Monitoring event attendance using a combination of traditional and advanced surveying tools. <i>Mauro Ferrante, Amit Birenboim, Anna Maria Millito, Stefano De Cantis</i>	919
5.5.4	Indefinite Topological Kernels. <i>Tullia Padellini and Pierpaolo Brutti</i>	925
5.5.5	Data Integration in Social Sciences: the earnings intergenerational mobility problem. <i>Veronica Ballerini, Francesco Bloise, Dario Briscolini and Michele Raitano</i>	931
5.5.6	An innovative approach for the GDPR compliance in Big Data era. <i>M. Giacalone, C. Cusatelli, F. Fanari, V. Santarcangelo, D.C. Sinitó</i>	937
5.6	Developments in Graphical Models	943
5.6.1	An extension of the glasso estimator to multivariate censored data. <i>Antonino Abbruzzo and Luigi Augugliaro and Angelo M. Mineo</i>	943
5.6.2	Bayesian Estimation of Graphical Log-Linear Marginal Models. <i>Claudia Tarantola, Ioannis Ntzoufras and Monia Lupporelli</i>	950
5.6.3	Statistical matching by Bayesian Networks. <i>Daniela Marella and Paola Vicard and Vincenzina Vitale</i>	956
5.6.4	Sparse Nonparametric Dynamic Graphical Models. <i>Fabrizio Poggioni, Mauro Bernardi, Lea Petrella</i>	962
5.6.5	Non-communicable diseases, socio-economic status, lifestyle and well-being in Italy: An additive Bayesian network model. <i>Laura Maniscalco and Domenica Matranga</i>	968
5.6.6	Using Almost-Dynamic Bayesian Networks to Represent Uncertainty in Complex Epidemiological Models: a Proposal. <i>Sabina Marchetti</i>	974

5.7	Educational World	980
5.7.1	How to improve the Quality Assurance System of the Universities: a study based on compositional analysis . <i>Bertaccini B., Gallo M., Simonacci V., and Menini T.</i> .	980
5.7.2	Evaluation of students' performance at lower secondary education. An empirical analysis using TIMSS and PISA data.. <i>G. Graziosi, T. Agasisti, K. De Witte and F. Pauli</i>	985
5.7.3	Testing for the Presence of Scale Drift: An Example. <i>Michela Battauz</i>	991
5.7.4	The evaluation of Formative Tutoring at the University of Padova. <i>Renata Clerici, Lorenza Da Re, Anna Giraldo, Silvia Meggiolaro</i>	996
5.7.5	Benefits of the Erasmus mobility experience: a discrete latent variable analysis. <i>Silvia Bacci, Valeria Caviezel and Anna Maria Falzoni</i>	1001
5.7.6	University choice and the attractiveness of the study area. Insights from an analysis based on generalized mixed-effect models. <i>Silvia Columbu, Mariano Porcu and Isabella Sulis</i>	1007
5.8	Environment	1013
5.8.1	The climate funds for energy sustainability: a counterfactual analysis. <i>Alfonso Carfora and Giuseppe Scandurra</i>	1013
5.8.2	Exploratory GIS Analysis via Spatially Weighted Regression Trees. <i>Carmela Iorio, Giuseppe Pandolfo, Michele Staiano, and Roberta Siciliano</i>	1020
5.8.3	A functional regression control chart for profile monitoring. <i>Fabio Centofanti, Antonio Lepore, Alessandra Menafoglio, Biagio Palumbo and Simone Vantini</i>	1026
5.8.4	Understanding pro-environmental travel behaviours in Western Europe. <i>Gennaro Punzo, Rosalia Castellano, and Demetrio Panarello</i>	1031
5.9	Family & Economic issues	1037
5.9.1	Measuring Economic Uncertainty: Longitudinal Evidence Using a Latent Transition Model. <i>Francesca Giambona, Laura Grassini and Daniele Vignoli</i>	1037
5.9.2	Intentions to leave Italy or to stay among foreigners: some determinants of migration projects. <i>Ginevra Di Giorgio, Francesca Dota, Paola Muccitelli and Daniele Spizzichino</i>	1044
5.9.3	Wages differentials in association with individuals, enterprises and territorial characteristics. <i>S. De Santis, C. Freguja, A. Masi, N. Pannuzi, F. G. Truglia</i>	1050
5.9.4	The Transition to Motherhood among British Young Women: Does housing tenure play a role?. <i>Valentina Tocchioni, Ann Berrington, Daniele Vignoli and Agnese Vitali</i>	1056
5.10	Finance & Insurance	1062
5.10.1	Robust statistical methods for credit risk. <i>A. Corbellini, A. Ghiretti, G. Morelli and A. Talignani</i>	1062
5.10.2	Depth-based portfolio selection. <i>Giuseppe Pandolfo, Carmela Iorio and Antonio D'Ambrosio</i>	1069
5.10.3	Estimating large-scale multivariate local level models with application to stochastic volatility. <i>Matteo Pelagatti and Giacomo Sbrana</i>	1075
5.11	Health and Clinical Data	1081
5.11.1	Is retirement bad for health? A matching approach. <i>Elena Pirani, Marina Ballerini, Alessandra Mattei, Gustavo De Santis</i>	1081
5.11.2	The emergency department utilisation among the immigrant population resident in Rome from 2005 to 2015. <i>Eleonora Trappolini, Laura Cacciani, Claudia Marino, Cristina Giudici, Nera Agabiti, Marina Davoli</i>	1088
5.11.3	Multi-State model with nonparametric discrete frailty. <i>Francesca Gasperoni, Francesca Ieva, Anna Maria Paganoni, Chris Jackson and Linda Sharples</i>	1095
5.11.4	A Functional Urn Model for CARA Designs. <i>Giacomo Aleffi, Andrea Ghiglietti, and William F. Rosenberger</i>	1101

5.11.5	Assessment of the INLA approach on gerarchic bayesian models for the spatial disease distribution: a real data application. <i>Paolo Girardi, Emanuela Bovo, Carmen Stocco, Susanna Baracco, Alberto Rosano, Daniele Monetti, Silvia Rizzato, Sara Zamberlan, Enrico Chinellato, Ugo Fedeli, Massimo Rugge</i>	1107
5.12	Medicine	1113
5.12.1	Hidden Markov Models for disease progression. <i>Andrea Martino, Andrea Ghiglietti, Giuseppina Guatteri, Anna Maria Paganoni</i>	1113
5.12.2	A simulation study on the use of response-adaptive randomized designs. <i>Anna Maria Paganoni, Andrea Ghiglietti, Maria Giovanna Scarale, Rosalba Miceli, Francesca Ieva, Luigi Mariani, Cecilia Gavazzi and Valeria Edefonti</i>	1120
5.12.3	The relationship between health care expenditures and time to death: focus on myocardial infarction patients. <i>Luca Grasseti and Laura Rizzi</i>	1126
5.12.4	A multivariate extension of the joint models. <i>Marcella Mazzoleni and Mariangela Zenga</i>	1132
5.12.5	Multipurpose optimal designs for hypothesis testing in normal response trials. <i>Marco Novelli and Maroussa Zagoraiou</i>	1138
5.12.6	Additive Bayesian networks for an epidemiological analysis of swine diseases. <i>Marta Pittavino and Reinhard Furrer</i>	1144
5.13	Population Dynamics	1150
5.13.1	Employment Uncertainty and Fertility: a Meta-Analysis of European Research Findings. <i>Giammarco Alderotti, Daniele Vignoli and Michela Baccini</i>	1150
5.13.2	What Shapes Population Age Structures in the Long Run. <i>Gustavo De Santis and Giambattista Salinari</i>	1156
5.13.3	The impact of economic development on fertility: a complexity approach in a cross-country analysis. <i>NiccolóInnocenti, Daniele Vignoli and Luciana Lazzeretti</i>	1162
5.13.4	A Probabilistic Cohort-Component Model for Population Fore-casting - The Case of Germany. <i>Patrizio Vanella and Philipp Deschermeier</i>	1167
5.13.5	Mortality trends in Sardinia 1992-2015: an ecological study. <i>Vanessa Santos Sanchez, Gabriele Ruiu Marco Breschi, Lucia Pozzi</i>	1171
5.14	Recent Developments in Bayesian Inference	1177
5.14.1	Posterior distributions with non explicit objective priors. <i>Erlis Ruli, Nicola Sartori and Laura Ventura</i>	1177
5.14.2	A predictive measure of the additional loss of a non-optimal action under multiple priors. <i>Fulvio De Santis and Stefania Gubbiotti</i>	1184
5.14.3	Bayesian estimation of number and position of knots in regression splines. <i>Gioia Di Credico, Francesco Pauli and Nicola Torelli</i>	1190
5.14.4	The importance of historical linkages in shaping population density across space. <i>Ilenia Epifani and Rosella Nicolini</i>	1196
5.15	Recent Developments in Sampling	1202
5.15.1	Species richness estimation exploiting purposive lists: A proposal. <i>A. Chiarucci, R.M. Di Biase, L. Fattorini, M. Marcheselli and C. Pisani</i>	1202
5.15.2	Design-based exploitation of big data by a doubly calibrated estimator. <i>Maria Michela Dickson, Giuseppe Espa and Lorenzo Fattorini</i>	1209
5.15.3	Design-based mapping in environmental surveys. <i>L. Fattorini, M. Marcheselli and C. Pisani</i>	1215
5.15.4	Testing for independence in analytic inference. <i>Pier Luigi Conti and Alberto Di Iorio</i>	1221
5.15.5	On the aberrations of two-level Orthogonal Arrays with removed runs. <i>Roberto Fontana and Fabio Rapallo</i>	1227

5.16	Recent Developments in Statistical Modelling	1233
5.16.1	Quantile Regression Coefficients Modeling: a Penalized Approach. <i>Gianluca Sottile, Paolo Frumento and Matteo Bottai</i>	1233
5.16.2	Simultaneous calibrated prediction intervals for time series. <i>Giovanni Fonseca, Federica Giummolé and Paolo Vidoni</i>	1240
5.16.3	Reversibility and (non)linearity in time series. <i>Luisa Bisaglia and Margherita Gerolimetto</i>	1246
5.16.4	Heterogeneous effects of subsidies on farms' performance: a spatial quantile regression analysis. <i>Marusca De Castris and Daniele Di Gennaro</i>	1252
5.16.5	On the estimation of high-dimensional regression models with binary covariates. <i>Valentina Mameli, Debora Slanzi and Irene Poli</i>	1259
5.17	Social Indicators	1265
5.17.1	Can a neighbour region influence poverty? A fuzzy and longitudinal approach. <i>Gianni Betti, Federico Crescenzi and Francesca Gagliardi</i>	1265
5.17.2	Weight-based discrimination in the Italian Labor Market: how do ethnicity and gender interact? <i>Giovanni Busetta, Maria Gabriella Campolo, and Demetrio Panarello</i>	1272
5.17.3	The Total Factor Productivity Index as a Ratio of Price Indexes. <i>Lisa Crosato and Biancamaria Zavanella</i>	1278
5.17.4	Monetary poverty indicators at local level: evaluating the impact of different poverty thresholds. <i>Luigi Biggeri, Caterina Giusti and Stefano Marchetti</i>	1284
5.17.5	A gender inequality assessment by means of the Gini index decomposition. <i>Michele Costa</i>	1290
5.18	Socio-Economic Statistics	1296
5.18.1	The NEETs during the economic crisis in Italy, Young NEETs in Italy, Spain and Greece during the economic crisis. <i>Giovanni De Luca, Paolo Mazzocchi, Claudio Quintano, Antonella Rocca</i>	1296
5.18.2	Camel or dromedary? A study of the equilibrium distribution of income in the EU countries. <i>Crosato L., Ferretti C., Ganugi P.</i>	1303
5.18.3	Small Area Estimation of Inequality Measures. <i>Maria Rosaria Ferrante and Silvia Pacei</i>	1309
5.18.4	Testing the Learning-by-Exporting at Micro-Level in light of influence of "Statistical Issues" and Macroeconomic Factors. <i>Maria Rosaria Ferrante and Marzia Freo</i>	1314
5.18.5	The mobility and the job success of the Sicilian graduates <i>Ornella Giambalvo and Antonella Plaia and Sara Binassi</i>	1320
5.19	Statistical Analysis of Energy Markets	1326
5.19.1	Forecasting Value-at-Risk for Model Risk Analysis in Energy Markets. <i>Angelica Gianfreda and Giacomo Scandolo</i>	1326
5.19.2	Prediction interval of electricity prices by robust nonlinear models. <i>Lisa Crosato, Luigi Grossi and Fany Nan</i>	1333
5.19.3	Bias Reduction in a Matching Estimation of Treatment Effect. <i>Maria Gabriella Campolo, Antonino Di Pino and Edoardo Otranto</i>	1338
5.20	Statistical Inference and Testing Procedures	1344
5.20.1	Comparison of exact and approximate simultaneous confidence regions in nonlinear regression models. <i>Claudia Furlan and Cinzia Mortarino</i>	1344
5.20.2	Tail analysis of a distribution by means of an inequality curve. <i>E. Taufer, F. Santi, G. Espa and M. M. Dickson</i>	1351
5.20.3	Nonparametric penalized likelihood for density estimation. <i>Federico Ferraccioli, Laura M. Sangalli and Livio Finos</i>	1357
5.20.4	Rethinking the Kolmogorov-Smirnov Test of Goodness of Fit in a Compositional Way. <i>G.S. Monti, G. Mateu-Figueras, M. I. Ortego, V. Pawlowsky-Glahn and J. J. Egozcue</i>	1363

5.20.5	Stochastic Dominance for Generalized Parametric Families. <i>Tommaso Lando and Lucio Bertoli-Barsotti</i>	1369
5.21	Statistical Models for Ordinal Data	1374
5.21.1	A comparative study of benchmarking procedures for interrater and intrarater agreement studies. <i>Amalia Vanacore and Maria Sole Pellegrino</i>	1374
5.21.2	Measuring the multiple facets of tolerance using survey data. <i>Caterina Liberati and Riccarda Longaretti and Alessandra Michelangeli</i>	1381
5.21.3	Modified profile likelihood in models for clustered data with missing values. <i>Claudia Di Caterina and Nicola Sartori</i>	1385
5.21.4	Worthiness Based Social Scaling. <i>Giulio D'Epifanio</i>	1391
5.21.5	Direct Individual Differences Scaling for Evaluation of Research Quality. <i>Gallo M., Trendafilov N., and Simonacci V.</i>	1396
5.21.6	A test for variable importance. <i>Rosaria Simone</i>	1400
5.22	Statistical Models New Proposals	1406
5.22.1	Decomposing Large Networks: An Approach Based on the MCA based Community Detection. <i>Carlo Drago</i>	1406
5.22.2	On Bayesian high-dimensional regression with binary predictors: a simulation study. <i>Debora Slanzi, Valentina Mameli and Irene Poli</i>	1413
5.22.3	On the estimation of epidemiological parameters from serological survey data using Bayesian mixture modelling. <i>Emanuele Del Fava, Piero Manfredi, and Ziv Shkedy</i>	1419
5.22.4	An evaluation of KL-optimum designs to discriminate between rival copula models. <i>Laura Deldossi, Silvia Angela Osmetti, Chiara Tommasi</i>	1425
5.22.5	Variational Approximations for Frequentist and Bayesian Inference. <i>Luca Maestrini and Matt P. Wand</i>	1431
5.22.6	Node-specific effects in latent space modelling of multidimensional networks. <i>Silvia D'Angelo and Marco Alfó and Thomas Brendan Murphy</i>	1437
5.23	Statistics for Consumer Research	1443
5.23.1	A panel data analysis of Italian hotels. <i>Antonio Giusti, Laura Grassini, Alessandro Viviani</i>	1443
5.23.2	A Bayesian Mixed Multinomial Logit Model for Partially Microsimulated Data on Labor Supply. <i>Cinzia Carota and Consuelo R. Nava</i>	1450
5.23.3	Comparison between Experience-based Food Insecurity scales. <i>Federica Onori, Sara Viviani and Pierpaolo Brutti</i>	1456
5.23.4	Sovereign co-risk measures in the Euro Area. <i>Giuseppe Arbia, Riccardo Bramante, Silvia Facchinetti, Diego Zappa</i>	1462
5.23.5	Simultaneous unsupervised and supervised classification modeling for clustering, model selection and dimensionality reduction. <i>Mario Fordellone and Maurizio Vichi</i>	1468
5.23.6	Consumers' preference for coffee consumption: a choice experiment including organoleptic characteristics and chemical analysis <i>Rossella Berni, Nedka D. Nikiforova and Patrizia Pinelli</i>	1475
5.24	Statistics for Earthquakes	1482
5.24.1	How robust is the skill score of probabilistic earthquake forecasts? <i>Alessia Caponera and Maximilian J. Werner</i>	1482
5.24.2	Functional linear models for the analysis of similarity of waveforms. <i>Francesca Di Salvo, Renata Rotondi and Giovanni Lanzano</i>	1489
5.24.3	Detection of damage in civil engineering structure by PCA on environmental vibration data. <i>G. Agró, V. Carlisi, R. Mantione</i>	1495

5.25	Statistics for Financial Risks	1501
5.25.1	Conditional Value-at-Risk: a comparison between quantile regression and copula functions. <i>Giovanni De Luca and Giorgia Riveccio</i>	1501
5.25.2	Systemic events and diffusion of jumps. <i>Giovanni Bonaccolto, Nancy Zambon and Massimiliano Caporin</i>	1507
5.25.3	Traffic Lights for Systemic Risk Detectio. <i>Massimiliano Caporin, Laura Garcia-Jorcano, Juan-Angel Jiménez-Martin</i>	1513
5.25.4	Bayesian Quantile Regression Treed. <i>Mauro Bernardi and Paola Stolfi</i>	1520
5.25.5	Model Selection in Weighted Stochastic Block models. <i>Roberto Casarin, Michele Costola, Erdem Yenerdag</i>	1525
5.26	Tourism & Cultural Participation	1529
5.26.1	The determinants of tourism destination competitiveness in 2006-2016: a partial least square path modelling approach. <i>Alessandro Magrini, Laura Grassini</i>	1529
5.26.2	Participation in tourism of Italian residents in the years of the economic recession. <i>Chiara Bocci, Laura Grassini, Emilia Rocco</i>	1536
5.26.3	Cultural Participation in the digital Age in Europe: a multilevel cross-national analysis. <i>Laura Bocci and Isabella Mingo</i>	1542
5.26.4	Tourist flows and museum admissions in Italy: an integrated analysis. <i>Lorenzo Cavallo, Francesca Petrei, Maria Teresa Santoro</i>	1549
5.26.5	Posterior Predictive Assessment for Item Response Theory Models: A Proposal Based on the Hellinger Distance. <i>Mariagiulia Matteucci and Stefania Mignani</i>	1555
5.27	Well-being & Quality of Life	1561
5.27.1	Is Structural Equation Modelling Able to Predict Well-being? <i>Daniele Toninelli and Michela Cameletti</i>	1561
5.27.2	The well-being in the Italian urban areas: a local geographic variation analysis. <i>Eugenia Nissi and Annalina Sarra</i>	1568
5.27.3	Comparing Composite Indicators to measure Quality of Life: the Italian "Sole 24 Ore" case. <i>Gianna Agró, Marian Antonietta Ruggieri and Erasmo Vassallo</i>	1574
5.27.4	Quality of working life in Italy: findings from Inapp survey. <i>Paolo Emilio Cardone</i>	1580
5.27.5	Well-being indices: what about Italian scenario? <i>Silvia Facchinetti and Elena Siletti</i>	1587
5.27.6	How can we compare rankings that are expected to be similar? An example based on composite well being indicators. <i>Silvia Terzi e Luca Moroni</i>	1593
6	Poster Sessions	1601
6.0.1	A distribution curves comparison approach to analyze the university moving students performance. <i>Giovanni Boscaino, Giada Adelfio, Gianluca Sottile</i>	1601
6.0.2	A Partial Ordering Application in Aggregating Dimensions of Subjective Well-being. <i>Paola Conigliaro</i>	1608
6.0.3	A note on objective Bayes analysis for graphical vector autoregressive models. <i>Lucia Paci and Guido Consonni</i>	1614
6.0.4	Bayesian Population Size Estimation with A Single Sample. <i>Pierfrancesco Alaimo Di Loro and Luca Tardella</i>	1620
6.0.5	Classification of the Aneurisk65 dataset using PCA for partially observed functional data. <i>Marco Stefanucci, Laura Sangalli and Pierpaolo Brutti</i>	1626
6.0.6	Deep Learning to the Test: an Application to Traffic Data Streams. <i>Nina Deliu and Pierpaolo Brutti</i>	1631
6.0.7	Estimating the number of unseen species under heavy tails. <i>Marco Battiston, Federico Camerlenghi, Emanuele Dolera and Stefano Favaro</i>	1637
6.0.8	How to measure cybersecurity risk. <i>Silvia Facchinetti, Paolo Giudici and Silvia Angela Osmetti</i>	1643

6.0.9	Implementation of an innovative technique to improve Sauvignon Blanc wine quality. <i>Filippa Bono, Pietro Catanaia and Mariangela Vallone</i>	1647
6.0.10	Investigating the effect of drugs consumption on survival outcome of Heart Failure patients using joint models: a case study based on regional administrative data. <i>Marta Spreafico, Francesca Gasperoni, Francesca Ieva</i>	1653
6.0.11	Mapping the relation between University access test and student's university performance. <i>Vincenzo Giuseppe Genova, Antonella Plaia</i>	1659
6.0.12	Multivariate analysis of marine litter abundance through Bayesian space-time models. <i>C. Calculli, A. Pollice, L. Sion, and P. Maiorano</i>	1665
6.0.13	Power Priors for Bayesian Analysis of Graphical Models of Conditional Independence in Three Way Contingency Tables. <i>Katerina Mantzouni, Claudia Tarantola and Ioannis Ntzoufras</i>	1669
6.0.14	Random Garden: a Supervised Learning Algorithm. <i>Ivan Luciano Danesi, Valeria Danese, Nicolo' Russo and Enrico Tonini</i>	1675
6.0.15	Spatiotemporal Prevision for Emergency Medical System Events in Milan. <i>Andrea Gilardi, Riccardo Borgoni, Andrea Pagliosa, Rodolfo Bonora</i>	1681
6.0.16	Spatial segregation immigrant households in Messina. <i>Angelo Mazza and Massimo Mucciardi</i>	1687
6.0.17	Supervised Learning for Link Prediction in Social Networks. <i>Riccardo Giubilei, Pierpaolo Brutti</i>	1691
6.0.18	Women's empowerment and child mortality: the case of Bangladesh. <i>Chiara Puglisi, Annalisa Busetta</i>	1697