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**Editorial for the special issue on: SUNOVA &
SHAPE 2014**

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Editorial for the special issue on: **SUNOVA & SHAPE 2014**

Special Issue for papers inspired by the Workshop “Statistics with UNObservable Variables & Statistical models for HumAn Perception and Evaluation” (Sunova & Shape 2014), which was held at the Department of Economics and Business of the University of Brescia (Italy) in October 21, 2014

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Statistical methods, models and applications that assume the existence of not directly observable variables are today extensively used in every research area. This Special Issue, inspired by the Workshop “*Statistics with UNObservable Variables & Statistical models for HumAn Perception and Evaluation*” (Sunova & Shape 2014), which was held at the Department of Economics and Business of the University of Brescia (Italy) as part of the activities of the DMS StatLab Statistical Laboratory “Data Methods and Systems” in October 21, 2014, highlights the opportunities offered by some of the most advanced statistical approaches based on unobservable variables.

Editorial

Statistical methods, models and applications that assume the existence of not directly observable variables are today extensively used in every research area. This Special Issue, inspired by the Workshop “*Statistics with UNObservable Variables & Statistical models for HumAn Perception and Evaluation*” (Sunova & Shape 2014), which was held at the Department of Economics and Business of the University of Brescia (Italy) as part of the activities of the DMS StatLab Statistical Laboratory “Data Methods and Systems” in October 21, 2014, highlights the opportunities offered by some of the most advanced statistical approaches based on unobservable variables.

The papers submitted by the authors adopt different approaches to describe latent variables in various research fields. Bernini, Matteucci and Mignani develop a Bayesian multidimensional IRT (Item Response Theory) Model, assuming the presence of correlated general and specific latent traits, for the investigation of residents' perceptions toward the tourism industry. Boari and Nai Rusconi propose a discretization procedure that, starting from a continuous random variable describing all possible individual responses to a given stimulus, generates the corresponding categories chosen among a finite set of integer values. Capecchi uses the CUB (Combination of Uniform and shifted Binomial) Model with covariates to measure the experience of conflict between personal and organizational ethics in a large sample of respondents provided by the 5th European Working Condition Survey carried out by Eurofound in 2010. Golia shows that, when the data derive from a questionnaire designed to measure an overall latent trait, there are situations in which a high value of the "uncertainty" parameter of the CUB Model is connected to the distribution of the overall latent trait among the subjects in the population and to the facet of the latent trait that the item wants to represent, and not to an high level of fuzziness in the final response. Iannario presents empirical evidence and simulation results to support the usefulness of the approach introduced for the study of feeling and uncertainty components of the CUB Model in the process of responses which generate ordinal scores. Knaeble considers the uncertainty of the regression model to show that geometric analysis on vectors of centered data led to mathematical results that quantify the relationship between error probabilities associated with statistical adjustment and probabilities associated with sampling error. Manisera and Zuccolotto propose a new graphical representation, which works with R grid Viewports in order to summarize multiple results from Nonlinear CUB Model in a unique plot. Obersky and Vermunt show that the CUB Model and some of its specialized recent developments are restricted LLC (Loglinear Latent Class) Models, and that this result should prove useful for practitioners who wish to apply this model, as well as for methodologists who are seeking to extend it. Zanarotti and Pagani consider scoring methods, aggregating functions and weighting systems used to build composite indicators, and proposed in particular a scoring method for ordinal data based on the observed distribution together with the Kendall- association and a heterogeneity measure for weighting, using students' satisfaction data.

It was a pleasure for us to have the opportunity to read these interesting studies, and we wish to express our thanks to all the authors and reviewers that have made possible this special issue devoted to the Workshop SUNOVA & SHAPE 2014.

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