

The Research Centre of the School of Economics and Business,
in cooperation with **the Bank of Slovenia,**
cordially invites you to a research seminar
on **Wednesday, 12th May 2021, at 11:00 CEST**
via platform **Zoom**

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will present the article

Combinatorial regression model in abstract simplicial complexes

In regression analysis of the market share data four main parametric type models are prevalent: multinomial logistic regression, attraction models of various types, Dirichlet covariance models, and compositional regression. Nonparametric regressions in simplex spaces include local polynomial (Di Marzio et al, 2015), simplicial spline (Machalová, Hron and Talská, 2019) and simplicial wavelet (Srakar and Fry, 2019) approaches. We extend this arsenal of possibilities with a new type, a completely novel regression perspective, labelled combinatorial regression, based on combining n -tuplets of sampling units into groups and treating them in abstract simplicial complex spaces (Lee, 2011; Korte, Lovász and Schrader, 1991). The novel perspective, estimated in combination with Multivariate Distance Matrix Regression approach (Anderson, 2001; McArdle and Anderson, 2001), allows extensive number of perspectives in the analysis of, for example, triplets, quadruplets or quintuplets (or any n -tuple) and using as measure of disparity between the units (to construct regressors) different divergence measures. It also allows applications to very small

datasets as the number of units in the new model can be expressed in terms of factorial products of units of original sample. We provide the analysis of new approach for different n-tuple combinations using Jensen-Shannon and generalized Jensen-Shannon divergence measures and provide the Gaussian asymptotic limits of the approach with exploring its properties also in a Monte Carlo simulation study. Applications of the new approach seem immediate in the analysis of diversity and (income, wealth, wages, health) inequality and we present analysis of sessile hard-substrate marine organisms image data from Italian coast areas which allows to explore the new approach in relative abundance data setting, and application to health care inequalities in times of Covid-19 in Slovenia.

Joint work with prof. Miroslav Verbič, University of Ljubljana, Slovenia.

Please register for the free seminar at <http://raziskave.ef.uni-lj.si/a/1073>
by Tuesday, 11th May 2021.

Access details will be sent prior to the event to signed up users.

We look forward to seeing you!