GRADUATE SEMINAR

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Generalized Autoregressive Moving Average Models: An Efficient Estimation Approach

PhD Student supervised by Prof. Shakhawat Hossain and Prof. Andrei Volodin

Date: September 12, 2022
Time: 3:30 – 4:30 pm
Location: Math Lounge
And
https://uregina-ca.zoom.us/j/94125367372

Abstract: In this talk, we propose an efficient estimation approach, so-called the pretest and shrinkage approaches in estimating the regression parameters of the generalized autoregressive moving average (GARMA) model, which are pervasive for modeling binary and count time series data. This model accommodates a set of covariates in addition to the ARMA parameters. We want to estimate regression and ARMA parameters when some of the regression parameters may belong to a subspace. We apply the maximum partial likelihood method to obtain the unrestricted maximum partial likelihood estimator (UMPLE) and also the restricted maximum partial likelihood estimator (RMPLE) for the model with parameter restriction and then present the improved pretest and shrinkage estimators. We establish the asymptotic distributional biases and risks of the proposed estimators and evaluate their relative performance with respect to the UMPLE. The performance of the proposed estimators is investigated using simulation studies. A real data example is provided to illustrate the practical usefulness of the estimators.

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