מכון ויצמן למדע

THE WEIZMANN INSTITUTE OF SCIENCE

FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Machine Learning and Statistics Seminar

Room 1 ,Ziskind Building
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at 11:15

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Semiparametric Wavelet-based JPEG IV Estimator for Endogenously Truncated Data

Abstract:

We show that when data are endogenously truncated the widely-used IV fails to render the relationship causal as well as introduces bias into the exogenous covariates. We offer a newly-introduced semiparametric biorthogonal wavelet-based JPEG IV estimator and its associated symmetry preserving kernel, which is closely related to object recognition methods in Artificial Intelligence. The newly-introduced enriched JPEG algorithm is a denoising tool amenable for identifying redundancies in a sequence of irregular noisy data points which also accommodates a reference-free criterion function for optimal denoising. This is suitable for situations where the original data distribution is unobservable such as in the case of endogenous truncation. This estimator corrects both biases, the one generated by endogenous truncation and the one generated by endogenous covariates, by means of denoising. We introduce a multifocal variant of the local GMM (MFGMM) estimator to establish jointly the entire parameter set asymptotic properties. Using Monte Carlo simulations attest to very high accuracy of our offered semiparametric JPEG IV estimator as well as high efficiency as reflected by root n consistency. These results have emerged from utilizing 2,000,000 different distribution functions, generating 100 million realizations to construct the various data sets.