

Statistics Seminar
Department of Mathematics and Statistics

DATE:	Thursday, October 26, 2023
TIME:	1:15pm - 2:15pm
LOCATION:	WH 100E
SPEAKER:	Anton Schick, Binghamton University
TITLE:	Efficient Density Estimation in an AR(1) Model

Abstract

A class of plug-in estimators of the stationary density of an autoregressive model with autoregression parameter $0 < \rho < 1$ is presented. These use two types of estimator of the innovation density, a standard kernel estimator and a weighted kernel estimator with weights chosen to mimic the condition that the innovation density has mean zero. Bahadur expansions are obtained for this class of estimators in L_1 , the space of integrable functions. These stochastic expansions establish root- n consistency in the L_1 norm. It is shown that the density estimators based on the weighted kernel estimators are asymptotically efficient if an asymptotically efficient estimator of the autoregression parameter is used. Here asymptotic efficiency is understood in the sense of the Hájek-Le Cam convolution theorem.

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