



The Chinese University of Hong Kong
Department of Statistics

Seminar

High Quantile Regression for Tail Dependent Time Series

By

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Abstract

Quantile regression serves as a popular and powerful approach for studying the effect of regressors on quantiles of a response distribution. However, existing results on quantile regression were mainly developed when the quantile level is fixed, and the data are often assumed to be independent. Motivated by recent applications, we consider the situation where (i) the quantile level is not fixed and can grow with the sample size to capture the tail phenomena; and (ii) the data are no longer independent but collected as a time series that can exhibit serial dependence in both tail and non-tail regions. To study the asymptotic theory for high quantile regression estimators in the time series setting, we introduce a previously undescribed tail adversarial stability condition, and show that it leads to an interpretable and convenient framework for obtaining limit theorems for time series that exhibit serial dependence in the tail region but are not necessarily strong mixing. Numerical experiments are provided to illustrate the effect of tail dependence on high quantile regression estimators, where simply ignoring the tail dependence may lead to misleading p-values.

Date: July 13, 2021 (Tuesday)

Time: 9:00 a.m. - 10:00 a.m.

Venue: via Zoom

Meeting ID: 966 9370 0564

Passcode: 404096

Join Zoom Meeting:

<https://cuhk.zoom.us/j/96693700564?pwd=d1FBZnFtVk1rYTdmNExnZ21NZWQwdz09>

ALL INTERESTED ARE WELCOME !!