

McMASTER UNIVERSITY
GRADUATE PROGRAM IN STATISTICS

STATISTICS SEMINAR

Speaker: Xingqui Zhao
Department of Mathematics and Statistics
McMaster University

Title: Multi-sample Nonparametric Tests for Panel Count Data
Day: Tuesday, January 15, 2008

Time: 3:30 - 4:30 PM

Place: HH/217 - Deloitte Colloquium Room
(refreshments in HH/216 at 3:00 PM)

SUMMARY

In this talk, we discuss the problem of multi-sample nonparametric comparison of counting processes with panel count data, which arise naturally when recurrent events are considered. Such data frequently occur in medical follow-up studies and reliability experiments, for example. For the problem considered, we construct two classes of nonparametric test statistics. One is based on the integrated weighted differences between the estimated mean functions of the count processes, where the mean functions are estimated by the nonparametric maximum pseudo-likelihood approach (NPM-PLE). Another one is based on the accumulated weighted differences between the rates of increase of the estimated mean functions of the counting processes over observation times, wherein the nonparametric maximum likelihood approach (NPMLE) is used to estimate the mean functions instead of the nonparametric maximum pseudo-likelihood. The asymptotic distributions of the proposed statistics are derived and their finite-sample properties are examined through Monte Carlo simulations. The simulation results show that the proposed methods work quite well and the tests based on NPMLE are more powerful than those based on NPM-PLE. Two real data sets are analyzed and presented as illustrative examples.

REFERENCES

- N. Balakrishnan and X. Zhao (2007). A class of multi-sample nonparametric tests for panel count data.

A preprint of the paper is available online at

<http://www.math.mcmaster.ca/canty/seminars/Bala-Zhao-1.pdf>

N. Balakrishnan and X. Zhao (2007). New multi-sample nonparametric tests for panel count data.

A preprint of the paper is available online at

<http://www.math.mcmaster.ca/canty/seminars/Bala-Zhao-2.pdf>

ABOUT THE SPEAKER



Xingqiu Zhao is a PhD student in statistics in the Department of Mathematics and Statistics at McMaster University. She is soon to complete her studies on nonparametric methods for the analysis of panel count data under the supervision of Professor N. Balakrishnan. She obtained her M.Sc. and PhD in Mathematics from Wuhan University, China, and a M.Sc. in statistics from McMaster University. She worked at Hubei University and Zhongnan University of Finance and Economics as a Lecturer. Also she worked at Carnegie Mellon University, University of Missouri, and University of Alberta as a Research Associate.

MORE SEMINAR INFORMATION

Please contact Angelo Canty at 905-525-9140 ext. 27079, email: cantya@mcmaster.ca.