

RUTGERS UNIVERSITY
DEPARTMENT OF STATISTICS AND BIOSTATISTICS
501 HILL CENTER, BUSCH CAMPUS IN PISCATAWAY

www.stat.rutgers.edu

Seminar

Speaker: Colin Wu
National Heart, Lung and Blood Institute,
Bethesda, MD 20892

Title: Nonparametric Estimation for Conditional Distribution Functions and Time-Varying Transformation Models with Longitudinal Data

Date: Wednesday, April 30, 2008

Time: 3:20 PM

Place: 552 Hill Center

Abstract

Regression methods for longitudinal analyses have mostly focused on conditional-mean based models. In many situations, the relevant scientific questions could be better studied by modeling the conditional distributions of the outcome variables as a function of time and other covariates. In this paper, we propose a time-varying nonparametric approach for modeling the conditional cumulative distribution functions (CDF) and the time-varying covariates effects, and develop a two-step method for estimating the conditional CDF's and the time-varying parameters. Applications of our modeling and estimation procedures are demonstrated through a prospective cohort study of obesity and cardiovascular risk factors. Theoretical properties, including the large sample expressions of bias, variance and mean squared error, have been developed for the two-step local polynomial estimators. Our approach provides a useful addition to the statistical tools in longitudinal analysis when the conditional-mean based methods are inappropriate.