Semiparametric transformation models under biased sampling schemes

Zhiliang Ying

Department of Statistics
Columbia University, New York, NY 10027, USA

Abstract

We propose a unified estimation method for semiparametric linear transformation models under general biased sampling schemes. The new estimator is obtained from a set of counting process-based unbiased estimating equations, developed through a general weighting scheme that offsets the sampling bias. It is asymptotically normal with a closed-form formula for the limiting variance whose plug-in estimator is consistent. We demonstrate the unified approach through the special cases of truncation, length-bias, case-cohort design among others. Simulation studies and applications to real data sets are presented.

This is joint work with Jane Paik Kim, Wenbin Lu and Tony Sit.