Estimation in semiparametric models with missing data

Song Xi Chen · Ingrid Van Keilegom

Abstract   This paper considers the problem of parameter estimation in a general class of semiparametric models when observations are subject to missingness at random. The semiparametric models allow for estimating functions that are non-smooth with respect to the parameter. We propose a nonparametric imputation method for the missing values, which then leads to imputed estimating equations for the finite dimensional parameter of interest. The asymptotic normality of the parameter estimator is proved in a general setting, and is investigated in detail for a number of specific semiparametric models. Finally, we study the small sample performance of the proposed estimator via simulations.