

Statistical estimation in partial linear models with covariate data missing at random

Qi-Hua Wang

Received: 22 March 2006 / Revised: 15 January 2007 / Published online: 7 July 2007
© The Institute of Statistical Mathematics, Tokyo 2007

Abstract In this paper, we consider the partial linear model with the covariables missing at random. A model calibration approach and a weighting approach are developed to define the estimators of the parametric and nonparametric parts in the partial linear model, respectively. It is shown that the estimators for the parametric part are asymptotically normal and the estimators of $g(\cdot)$ converge to $g(\cdot)$ with an optimal convergent rate. Also, a comparison between the proposed estimators and the complete case estimator is made. A simulation study is conducted to compare the finite sample behaviors of these estimators based on bias and standard error.

Keywords Model calibration · Weighted estimator · Asymptotic normality