

Checking the adequacy of partial linear models with missing covariates at random

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Received: 10 November 2011 / Revised: 14 May 2012 / Published online: 30 September 2012
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Abstract In this paper, we consider the goodness-of-fit for checking whether the nonparametric function in a partial linear regression model with missing covariate at random is a parametric one or not. We estimate the selection probability by using parametric and nonparametric approaches. Two score type tests are constructed with the estimated selection probability. The asymptotic distributions of the test statistics are investigated under the null and local alternative hypothesis. Simulation studies are carried out to examine the finite sample performance of the sizes and powers of the tests. We apply the proposed procedure to a data set on the AIDS clinical trial group (ACTG 315) study.

Keywords Partial linear model · Lack-of-fit test · Covariates missing at random · Inverse probability weights