ABSTRACT

“Partial Linear Single Index Models For Repeated Measurements”

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In this article, we study the estimations of partial linear single index models (PLSiM) with repeated measurements. Specifically, we approximate the nonparametric function by the polynomial spline, and then employ the quadratic inference function (QIF) together with profile principle to derive the QIF-based estimators for the linear coefficients. The asymptotic normality of the resulting linear coefficient estimators and the optimal convergence rate of the nonparametric function estimate are established. In addition, we employ a penalized procedure to simultaneously select significant variables and estimate unknown parameters. The resulting penalized QIF estimators are shown to have the oracle property, and Monte Carlo studies support this finding. An empirical example is also presented to illustrate the usefulness of penalized estimators.