

ESTIMATION OF PARTIAL LINEAR ERROR-IN-RESPONSE MODELS WITH VALIDATION DATA*

QI-HUA WANG

*Institute of Applied Mathematics, Academy of Mathematics and System Science,
Chinese Academy of Science, No. A1, Nansijie, Zhongguancun, Beijing 100080, China
and School of Science, Heilongjiang University, Harbin 150000, China*

(Received May 23, 2000; revised September 3, 2001)

Abstract. In this paper, an estimation theory in partial linear model is developed when there is measurement error in the response and when validation data are available. A semiparametric method with the primary data is used to define two estimators for both the regression parameter and the nonparametric part using the least squares criterion with the help of validation data. The proposed estimators of the parameter are proved to be strongly consistent and asymptotically normal, and the estimators of the nonparametric part are also proved to be strongly consistent and weakly consistent with an optimal convergent rate. Then, the two estimators of the parameter are compared based on their empirical performances.

Key words and phrases: Partial linear model, validation data, strong consistency, asymptotic normality.

*Supported by NNSF of China (No. 10231030, No. 10241001) and a grant to the author for his excellent Ph.D. dissertation work in China.