Generalized Method of Moments Estimator Based On Semiparametric Quantile Regression Imputation

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In this article, we consider an imputation method to handle missing response values based on semiparametric quantile regression estimation. In the proposed method, the missing response values are generated using the estimated conditional quantile regression function at given values of covariates. We adopt the generalized method of moments for estimation of parameters defined through a general estimation equation. We demonstrate that the proposed estimator, combining both semiparametric quantile regression imputation and generalized method of moments, is an effective alternative to parameter estimation when missing data is present. The consistency and the asymptotic normality of our estimators are established and variance estimation is provided. Results from limited simulation studies and an empirical study are presented to show the adequacy of the proposed method.

Keywords: generalized method of moments, imputation, semiparametric quantile regression.