Backfitting and smooth backfitting for additive quantile models

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Abstract

In this paper, we study the ordinary backfitting and smooth backfitting as methods of fitting additive quantile models. We show that these backfitting quantile estimators are asymptotically equivalent to the corresponding backfitting estimators of the additive components in a specially-designed additive mean regression model. This implies that the theoretical properties of the backfitting quantile estimators are not unlike those of backfitting mean regression estimators. We also assess the finite sample properties of the two backfitting quantile estimators.