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The Berry–Esseen bounds of the weighted estimator in a nonparametric regression model

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Abstract

Consider the following nonparametric model: $Y_{ni} = g(x_{ni}) + \varepsilon_{ni}$, $1 \leq i \leq n$, where $x_{ni} \in \mathbb{A}$ are the nonrandom design points and $\mathbb{A}$ is a compact set of $\mathbb{R}^m$ for some $m \geq 1$, $g(\cdot)$ is a real valued function defined on $\mathbb{A}$, and $\varepsilon_{n1}, \ldots, \varepsilon_{nn}$ are ρ^--mixing random errors with zero mean and finite variance. We obtain the Berry–Esseen bounds of the weighted estimator of $g(\cdot)$. The rate can achieve nearly $O(n^{-1/4})$ when the moment condition is appropriate. Moreover, we carry out some simulations to verify the validity of our results.

Keywords Berry–Esseen bound · ρ^--mixing random errors · Nonparametric regression model · Weighted estimator

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