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MODERATE DEVIATION AND LARGE DEVIATION FOR WEGMAN–DAVIES RECURSIVE DENSITY ESTIMATORS

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Abstract. Let $\{X_k, k \geqslant 1\}$ be a sequence of independent identically distributed random variables with common probability density function f, and let $\hat{f}_n$ denote a Wegman–Davies recursive density estimator

$$\hat{f}_n(x) = \frac{1}{nh_n^{1/2}} \sum_{j=1}^{n} \frac{1}{h_j^{1/2}} K\left(\frac{x - X_j}{h_j}\right)$$

where K is a kernel function and h_n is a band sequence. In the present paper, the moderate deviation principle and the large deviation principle for the estimator $\hat{f}_n$ are established.

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