Abstract

      This research aims to compare the efficiency of six bandwidth selection methods, i.e., the Direct plug-in, the Rules of thumb, the Least squares cross-validation, the Silverman's rules of thumb, the Biased cross-validation and the Solve the equation plug-in for kernel density estimation which has boundary effect problem. For this work, we use method of Zhang et al. (1999). The research is designed to study two exponential probability density functions. Gaussian kernel function is applied. Based on the Monte Carlo simulation model for sample sizes of 30, 50, 100, 150 and 200 using 1,000 iterations, the results show that the Rules of thumb and the Biased cross-validation are most efficient with the lowest Mean Integrated Squared Error (MISE). On the contrary, the Least squares cross-validation is least efficient method. The graph of density estimation by the Rules of thumb and the Biased cross-validation is fitted effectively to the true structure of the random sample. On the other hand, the graph of density estimation by Least squares cross-validation displays the fluctuations which is called undersmoothing so that it cannot shows the true distribution of the random sample.