

Nonparametric kernel density estimators with asymmetric kernels such as gamma kernels have been introduced to improve upon the performance of fixed kernels at the boundary. If the support of the density is bounded and no correction factor is introduced, the latter produce inconsistent results by assigning weight outside the support at points close to the boundary. But depending on the underlying shape of the true density, standard and modified gamma kernel estimators as introduced in Chen 2000, still suffer significantly from missing boundary accuracy leaving room for improvement. We suggest an adaptive gamma kernel, which introduces a modification parameter according to the shape of the unknown density close to the boundary. In particular, we provide a data-driven method for the appropriate choice of modified gamma kernel estimator. In an extensive simulation study we compare the performance of this adaptive estimator to standard gamma kernel estimates and standard boundary corrected and adjusted fixed kernels. We find that the finite sample performance of the proposed new estimator is superior in all settings