SOME STABILIZED BANDWIDTH SELECTORS FOR NONPARAMETRIC REGRESSION

JAN KOLÁČEK

Abstract

The problem of bandwidth selection for nonparametric kernel regression is considered. It is well recognized that the classical bandwidth selectors are subject to large sample variation. Due to the large variation, these selectors might not be very useful in practice. Most of bandwidth selectors are based on the residual sum of squares (RSS), the source of the variation is pointed out. The observation leads to consideration of a procedure which stabilizes the RSS by modifying the periodogram of the observations. We will follow the Nadaraya - Watson estimators especially. In a simulation study, it is confirmed that the stabilized bandwidth selectors perform much better than the classical selectors.

Keywords: bandwidth selection, Fourier transform, kernel estimation, nonparametric regression

Jan Koláček, Department of Applied Mathematics, Faculty of Science, Masaryk University, Janáčkovo nám. 2a, 662 95 Brno, Czech Republic

E-mail address: `kolacek@math.muni.cz`