Plug-in method for nonparametric regression

Jan Koláček[1]

Faculty of Science, Masaryk University, Brno

Summary

The problem of bandwidth selection for non-parametric kernel regression is considered. We will follow the Nadaraya – Watson and local linear estimator especially. The circular design is assumed in this work to avoid the difficulties caused by boundary effects. Most of bandwidth selectors are based on the residual sum of squares (RSS). It is often observed in simulation studies that these selectors are biased toward undersmoothing. This leads to consideration of a procedure which stabilizes the RSS by modifying the periodogram of the observations. As a result of this procedure, we obtain an estimation of unknown parameters of average mean square error function (AMSE). This process is known as a plug-in method. Simulation studies suggest that the plug-in method could have preferable properties to the classical one.

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

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