A Global AMISE Bandwidth in a Functional Principal Component Analysis of Probability Density Functions

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Abstract

We focus in this work on the functional principal component analysis (FPCA) [1, 3] of T univariate probability density functions estimated by the kernel method. In particular, we suggest to estimate all densities using a single parameter and we propose a optimal choosing of this parameter by a global minimisation of all asymptotic mean integrated squared error (AMISE) [4]. Finally, we compare by simulation examples the quality of approximation of the real FPCA when the densities are estimated by using a local AMISE window (each density is estimated independently of others) and by using a global AMISE window.

Keywords: FPCA, non parametric density estimation, AMISE, kernel method.

References