

# A weighted bootstrap approximation for comparing the error distributions in nonparametric regression

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## Abstract

Several procedures have been proposed for testing the equality of error distributions in two or more nonparametric regression models. Here we deal with methods based on comparing estimators of the cumulative distribution function (CDF) of the errors in each population to an estimator of the common CDF under the null hypothesis. The null distribution of the associated test statistics has been approximated by means of a smooth bootstrap (SB) estimator. This paper proposes to approximate their null distribution through a weighted bootstrap. It is shown that it produces a consistent estimator. The finite sample performance of this approximation is assessed by means of a simulation study, where it is also compared to the SB. This study reveals that, from a computational point of view, the proposed approximation is more efficient than the one provided by the SB.