Statistical tests based on Tsallis and Kaniadakis entropies

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ABSTRACT

This presentation is concerned with statistical methodology based on divergence measures. More precisely, we focus on Goodness-of-fit (gof) tests based on some important measures of entropy.

Goodness-of-fit tests measure the degree of agreement between the distribution of an observed random sample and a theoretical statistical distribution. Over the years, numerous nonparametric gof methods including the chi-squared test and various empirical distribution function tests have been developed. At the same time, measures of entropy and divergence are quite popular in goodness of fit tests.

To be more specific, on this work we propose tests of fit based on Tsallis and Kaniadakis entropies. After a short review on entropies, we present the Tsallis and Kaniadakis entropies. Then we provide the test statistics based on new information measures together with the asymptotic distribution under the null hypothesis. Finally, we perform a simulation study in order to explore the capabilities of the proposed test statistics.

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