

A goodness-of-fit test for the specification of semiparametric copula dependence models

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In this talk, I will present a new goodness-of-fit test for semiparametric copula models. I will begin with a new test constructed via the comparison between “in-sample” and “out-of-sample” pseudo-likelihoods, which avoids the use of probability integral transformations. Under the null hypothesis that the copula model is correctly specified, I will show that the proposed test statistic converges in probability to a constant equal to the dimension of the parameter space. I will also establish the asymptotic normality and evaluate the local power of the test. I will then extend the proposed test to a class of multivariate time series models. In addition, I will introduce a hybrid mechanism to combine several test statistics, so that the resulting test will make a desirable test power among the involved tests. This hybrid method is particularly appealing when there exists no single dominant optimal test. I will present the results of comprehensive simulation experiments to compare the proposed new test and hybrid approach with some of the existing competitors. For illustration, I will apply the proposed tests to analyze two real data sets.

This talk is based on joint work with Shulin Zhang, Southwestern University of Finance and Economics, China, Ostap Okhrin, Humboldt-Universität zu Berlin, and Qian M. Zhou, Simon Fraser University.

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