

Nonparametric estimation of pair-copula constructions with the empirical pair-copula

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Abstract

A pair-copula construction is a decomposition of a multivariate copula into a structured system, called regular vine, of bivariate copulae or pair-copulae. The standard practice is to model these pair-copulae parametrically, inducing a model risk, with errors potentially propagating throughout the vine structure. The empirical pair-copula provides a nonparametric alternative, which is conjectured to still achieve the parametric convergence rate. Its main advantage for the user is that it does not require the choice of parametric models for each of the pair-copulae constituting the construction. It can be used as a basis for inference on dependence measures, for selecting an appropriate vine structure, and for testing for conditional independence.