

# New Estimators for Copula-Based Models

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**Abstract:** Copulas offer a convenient way of modeling multivariate observations and capturing the intrinsic dependence between the components of a multivariate random variable. In this paper we consider a new class of semiparametric estimators, based on  $L_2$  distances, and on the specification of a parametric class of copulas. The proposed method of inference can be viewed as a generalization of marginal likelihood estimation, in which inference for a parameter of interest is based on a summary statistic whose sampling distribution is not a function of any nuisance parameters. We show that the proposed estimation procedure allows for considerable gains in terms of accuracy in the case of miss-specification of the underlying copula model. We present an extensive simulation study comparing the performances of the proposed class of estimators with those of celebrated estimators proposed in early literature.

**Keywords:** Archimedean copula models; Dependence; Empirical copula; Minimum distance method; Misspecified copulas; Rank; Simulation.