
Copula Models

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Applications of Exchangeable Copula Models

Exchangeable multivariate copulas, especially those in the Archimedean family, are used to model a within cluster correlation. New copula based estimators of the intra-cluster correlation for both discrete and continuous data are discussed. Copulas provide alternatives to the inclusion of a random cluster effect in a model to account for a within cluster dependency; some properties of copula based predictions of the cluster mean value will be given. This will allow the construction of unit level small area predictions using copulas.

JOHANNA NEŠLEHOVÁ, McGill University

On the Multi-linear Empirical Copula Process

A critical review of copula-based modelling approaches for discrete variables will be presented. Conceived for the analysis of continuous data, copula inference techniques are based on relations that may no longer hold when the marginal distributions have atoms. An indiscriminating transposition of these techniques for the treatment of discrete data may thus affect the analyses and lead to misleading or invalid conclusions. The multi-linear empirical copula provides a promising alternative avenue. The limiting behaviour of the process associated with this copula will be described along with its use for the construction of new copula inference tools for discrete data.

BRUNO RÉMILLARD, HEC Montréal

Testing Hypotheses for the Copula of Dynamic Models

The asymptotic behaviour of the empirical copula constructed from residuals of stochastic volatility models is studied. It is shown that if the stochastic volatility matrix is diagonal, then the empirical copula process behaves like if the parameters were known, a remarkable property. However, this is not true in general. Applications for goodness-of-fit and detection of structural change in the copula of the innovations are discussed.