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Importance sampling and stratification for copula models. (English) Zbl 1405.65005

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Summary: An importance sampling approach for sampling from copula models is introduced. The proposed algorithm improves Monte Carlo estimators when the functional of interest depends mainly on the behaviour of the underlying random vector when at least one of its components is large. Such problems often arise from dependence models in finance and insurance. The importance sampling framework we propose is particularly easy to implement for Archimedean copulas. We also show how the proposal distribution of our algorithm can be optimized by making a connection with stratified sampling. In a case study inspired by a typical insurance application, we obtain variance reduction factors sometimes larger than 1000 in comparison to standard Monte Carlo estimators when both importance sampling and quasi-Monte Carlo methods are used.

For the entire collection see [\[Zbl 1398.65010\]](#).

MSC:

[65C05](#) Monte Carlo methods

[62H20](#) Measures of association (correlation, canonical correlation, etc.)

Cited in **2** Documents

Software:

[copula](#); [copula](#) ; [nacopula](#); [QRM](#); [Rugarch](#); [spd](#)

Full Text: [DOI](#)

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