Tools for sampling Multivariate Archimedean Copulas

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Abstract

A hurdle for practical implementation of any multivariate Archimedean copula was the absence of an efficient method for generating them. The most frequently used approach named conditional distribution one, involves differentiation step for each dimension of the problem. For this reason, it is not feasible in higher dimension. Marshall and Olkin proposed an alternative method, which is computationally more straightforward than the conditional distribution approach. We present the tools necessary for understand it and use it. We introduce the Laplace Transform and its role in the generation of multivariate Archimedean copulas. In order to cover the gap between the theory and its practical implementation VBA code and R one are provided.[‡]

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‡ The codes are available from the author on request.