

On skewed $l_{n,p}$ -symmetric distributions

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Skewed elliptically contoured distributions were introduced first in [3]. Many authors extended these consideration under various aspects and in different ways. The book [4] gives an overlook on these efforts.

The authors of [1] bring a certain new structure into the field and unify many different approaches from a selectional point of view. The concept of fundamental skew distributions which unifies all at this time known approaches has been developed in [2].

Based upon a generalized method of indivisibles which makes use of the notion of non-Euclidean surface content, in [7] a geometric measure representation formula for $l_{n,p}$ -symmetric distributions is derived. This formula enables one to derive exact distributions of several types of functions of $l_{n,p}$ -symmetrically distributed random vectors. This has been demonstrated by generalizing the Fisher distribution in [7] and also for several special cases in [6] and [5].

Here we extend the class of skewed distributions for cases where the underlying distribution is an $l_{n,p}$ -symmetric one. To this end, we first exploit the geometric measure representation formula in [7] to derive marginal and conditional distributions from $l_{n,p}$ -symmetric distributions. Then, the general density formula for skewed distributions from [1] applies and finally we follow the general concept in [2].

References

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