

A new characterization of the multivariate geometric distribution

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Recently, the authors of this report obtained a characterization of the Marshall-Olkin distribution, which is a multivariate analogue of the univariate exponential distribution. This result is a generalization of the characterization of the univariate exponential distribution obtained earlier by L.B. Klebanov. This characterization exploits the property of identical distribution of a monomial and a certain linear form with random coefficients.

The discrete analogue of the exponential distribution is the geometric distribution. In our report we consider a variant of definition of the multivariate geometric distribution and propose two characterizations of this distribution, similar to what we previously obtained for the Marshall-Olkin distribution.

The resulting characterization may be useful in various applied problems.

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