Riesz probability distribution on symmetric matrices and extensions of the Olkin-Rubin characterization

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We introduce the Riesz probability distribution on the cone of positive symmetric matrices as a generalization of the Wishart distribution. We then define some related distributions and established some properties. Versions of the Olkin-Rubin theorem without invariance of the "quotient" are given.

References

[1] K. Bobecka, J. Wesolowski, *The Lukacs-Olkin-Rubin theorem without invariance of the "quotient"*, Studia Math. 152 (2002), 147–160.

[2] A. Hassairi, S. Lajmi, R. Zine, *A characterization of the Riesz distribution*, Journal of Theoretical Probability, 21 (2008), 773–790.

[3] A. Hassairi, S. Lajmi, *Riesz exponential families on symmetric cones*, J. Theoret. Probab 14 (2001), 927–948.

[4] A. Hassairi, S. Lajmi, R. Zine, *Beta-Riesz distributions on symmetric cones*, J. Stat. Plann. Inf (133) (2005), 387–404.

[5] E. Lukacs, *A characterization of the gamma distribution*, Ann. Math. Statist. 26 (1955), 319–324.

[6] I. Olkin, H. Rubin, *A characterization of the Wishart distribution*, Ann. Math. Statist. 33 (1962), 1272–1280.