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Some statistical properties of a family of continuous univariate distributions. (English)

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Summary: A new two-parameter family of continuous univariate distributions on the interval $(-1,1)$ is introduced, and some properties are given. It is shown that parameters θ and ν are globally orthogonal in the Fisher information sense and that, to some extent, they have the properties of a location parameter and a precision parameter, respectively. A pivotal statistic is constructed whose distribution is independent of the location parameter. Finally, the connection with ultraspherical functions and Brownian motion is described.

MSC:

62E15 Exact distribution theory in statistics

62E10 Characterization and structure theory of statistical distributions

Cited in 11 Documents

Keywords:

beta density; cumulants; hypergeometric density; orthogonal parameters; ultraspherical polynomial; new two-parameter family of continuous univariate distributions; Fisher information; location parameter; precision parameter; pivotal statistic; ultraspherical functions; Brownian motion

Full Text: DOI