

Cuadras, Carles M.; Lahlou, Younes

Principal components of the Pareto distribution. (English) [Zbl 1137.62346](#)

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Summary: Let X be a random variable with distribution function F , the Pareto distribution. Eigendecomposition of the kernel $F(s) \wedge F(t) - F(s)F(t)$ allows us to expand X as a series of principal components. The expansion of X for the general Pareto distribution can be expressed using the cylinder function, but may not be straightforward. We find the complete solution for a particular Pareto distribution, which can be expressed in terms of Bessel and trigonometric functions. A comparison with the exponential distribution is performed.

For the entire collection see [\[Zbl 1054.62002\]](#).

MSC:

- [62H25](#) Factor analysis and principal components; correspondence analysis
- [33C90](#) Applications of hypergeometric functions
- [34A05](#) Explicit solutions, first integrals of ordinary differential equations

Cited in **2** Documents