

# Likelihood-based inference for power distributions

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## Abstract

This paper considers likelihood-based inference for the family of power distributions. Widely applicable results are presented which can be used to conduct inference for all three parameters of the general location-scale extension of the family. More specific results are given for the special case of the power normal model. The analysis of a large data set, formed from density measurements for a certain type of pollen, illustrates the application of the family and the results for likelihood-based inference. Throughout, comparisons are made with analogous results for the direct parametrisation of the skew-normal distribution.

**Key Words:** Generalised Gaussian distribution · Kurtosis · Lehmann alternatives · Power normal model · Skew-normal distribution · Skewness.

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