Universität Basel

Publication

Multivariate distributions and the moment problem

For any multivariate distribution with finite moments we can ask, as in the univariate case, whether or not the distribution is uniquely determined by its moments. In this paper, we summarize, unify and extend some results that are widely scattered in the mathematical and statistical literature. We present some new results showing how to use univariate criteria together with other arguments to characterize the moment (in)determinacy of multivariate distributions. Among our examples are some classical multivariate distributions including the class of elliptically contoured distributions. Kotz-type distributions receive particular attention. We also describe some Stieltjes classes comprising distinct multivariate distributions that all possess the same set of moments. Some challenging open questions in this area are briefly outlined.