Rüschendorf, Ludger; **Uckelmann, Ludger**
Variance minimization and random variables with constant sum. (English) Zbl 1142.62316
Cuadras, Carles M. (ed.) et al., Distributions with given marginals and statistical modelling. Papers presented at the meeting, Barcelona, Spain, July 17–20, 2000. Dordrecht: Kluwer Academic Publishers (ISBN 1-4020-0914-3/hbk). 211-222 (2002).

Summary: Motivated by the problem of variance minimization and the method of antithetic variates we consider the problem of construction of random variables with given marginals and constant sum. In the case of one dimensional symmetric, unimodal distributions we give a simple general construction. An alternative more complicated construction had been given previously by *M. Knott* and *C. S. Smith* [On multivariate variance reduction. Preprint (1998)]. In the multivariate case we consider the corresponding problem for affine transforms of products, elliptically contoured distributions, α-symmetric distributions and α-Cauchy distributions.

For the entire collection see [Zbl 1054.62002].

MSC:

62E15 Exact distribution theory in statistics
62H05 Characterization and structure theory for multivariate probability distributions; copulas
65C05 Monte Carlo methods
62E10 Characterization and structure theory of statistical distributions