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Quantitative stability of convex stochastic programs with probabilistic constraints

We consider the stability of solutions of convex chance constrained stochastic programs with respect to (nonconvex) perturbations of the underlying probability measure. The motivation comes from the fact that in most practical applications of the stochastic programming methodology only incomplete information on the probability distribution is available, so that approximations of general kind come into play. Variations of probability measures may be fixed in terms of the Kolmogorov distance (uniform distance between the corresponding distribution functions). For the broad class of r-concave probability measures, verifiable sufficient conditions for Hölder continuity properties of solution sets are derived. Examples illustrate the potential, sharpness and limitations of the results.