

Strong Convexity for Mean-Risk Models with Complete Linear Recourse

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Optimal solutions to strongly convex stochastic programs enjoy privileged stability properties under perturbations, for instance, of the underlying probability measure. This justifies approximation of a given probability distribution by possibly simpler ones. Amongst others, this fact motivates the search for verifiable conditions for strong convexity in terms of model data.

In this talk we shall present such conditions for two-stage mean-risk models with complete linear recourse, extending results for risk-neutral models. Our analysis features well-known deviation measures such as semideviation and CV@R.

References

- [1] Schutz, R., Strong convexity in stochastic programs with complete recourse, *Journal of Computational and Applied Mathematics*, 3-22, 1994.
- [2] Rockafellar, R. Tyrrell and Uryasev, Stanislav P. and Zabarankin, Michael, Deviation Measures in Risk Analysis and Optimization (December 22, 2002). University of Florida, Department of Industrial & Systems Engineering Working Paper No. 2002-7. Available at SSRN: <https://ssrn.com/abstract=365640> or <http://dx.doi.org/10.2139/ssrn.365640>