

Computing Lipschitz and Calmness Moduli in Linear Optimization

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We provide operative point-based formulas (only involving the nominal data, and not data in a neighborhood) for computing or estimating the calmness modulus of the optimal set (argmin) mapping in linear optimization under uniqueness of nominal optimal solutions. Our analysis is developed in two different parametric settings. Firstly, in the framework of canonical perturbations (i.e., perturbations of the objective function and the right-hand-side of the constraints), we provide a computationally tractable formula for the calmness modulus, which goes beyond some preliminary results of the literature. A comparative analysis between Lipschitz and calmness moduli is developed. Secondly, in the framework of perturbations of all coefficients, we give a characterization of the calmness property for the optimal set mapping, as well as an operative upper bound for the corresponding calmness modulus. Illustrative examples are provided.

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