

Dpto. Estadística e Investigación Operativa

On generalized derivatives of solution maps in a class of parameterized equilibrium problems with conic constraints

Abstract. The talk deals with solution maps to generalized equations in which the single-valued part depends on a parameter and the set-valued part amounts to the normal cone to a pre-image of a closed and convex cone in a C^2 map. Under reducibility and non-degeneracy we compute the regular and the limiting coderivative of the normal-cone operator and of the solution map in terms of the respective coderivative of the projection map onto the considered cone. These results can thus be directly applied to problems with either the second-order (Lorentz) cone or with the SDP cone. In the application part of the talk we have taken up the former one and obtained workable formulas in terms of the problem data. They enable us, in particular, to derive new conditions for strong stationarity of a mathematical program with equilibrium constraints, where the equilibrium is described by the considered generalized equation. Furthermore, we derive a criterion for the Aubin property of the respective solution map and a characterization of the tilt stability of a program with the considered constraint structure. The results are illustrated by means of simple academic examples.

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Lugar: Seminario de Matemáticas y Estadística