Robust Generalized Nash Equilibria

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Abstract

Robust optimization is an established technique for handling data uncertainty in optimization problems. However, most of the results refers to problems with a single decision maker, whereas less results are available for frameworks that include multiple decision makers. These settings are very common in several applied contexts, where different stakeholders may be involved in the decision making problem, with various roles and decision power. This is the case for example, for problems arising in healthcare, urban planning or shift scheduling problems. The present study aims at generalizing the results are are known for robust optimization problems with a single decision maker to game theory problems, where multiple decision makers (players) sharing the decision power, are present. In particular, we focus on the Generalized Nash Equilibrium Problem, where both the objective function and the feasible region of each player are affected by the actions of the other players, in a non-cooperative setting.

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