

Saddle Functions and Robust Sets of Equilibria*

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Abstract

This paper introduces games with a saddle function. A saddle function is a real valued function on the set of action profiles such that there is a single *minimizing* player for whom minimizing the function implies choosing her best response, and the other players are *maximizing* players, for whom maximizing the function implies choosing their best-responses. We provide a sufficient condition for robustness to incomplete information of sets of equilibria in the sense of Kajii and Morris (1997, *Econometrica*), Morris and Ui (2005, *J. of Econ. Theory*) for games with a saddle function. Our result generalizes sufficient conditions for zero-sum and best-response potential games.

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Key words: Incomplete information; robust equilibrium; potential games; zero-sum games; team-maximin equilibrium.

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