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# Reference-Dependent Preferences, Super-Dominance and Stochastic Stability

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## Abstract

This paper investigates stochastic stability of noisy best response dynamics with reference-dependent preferences. We define a strategy as *super-dominant* in a  $2 \times 2$  coordination game if it is risk-dominant and the maximin strategy in terms of monetary returns and all players playing it constitutes an equilibrium which Pareto-dominates all other equilibria. If such a strategy exists, the corresponding equilibrium, which we call the super-dominant equilibrium, is uniquely stochastically stable for the BRM choice rule (the best response choice rule with uniform random errors) given any model of reference-dependent preferences. However, for any  $2 \times 2$  coordination game with a super-dominant strategy, there exists a model of reference-dependent preferences with which the super-dominant equilibrium fails to be stochastically stable for the logit choice rule.

**Keywords:** Evolutionary game theory; Behavioral game theory; Equilibrium selection; Stochastic Stability; Reference-dependent preferences; Loss-aversion; Loss-avoidance; Maximin; Risk-dominance; Payoff-dominance.

**JEL Code:** C72, C73.

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