

Cooperation in Repeated Prisoner's Dilemma with Outside Options

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Abstract

We examine a repeated Prisoner's Dilemma in which a player can exit from the game by taking an outside option. We show that introducing outside options makes it difficult to sustain cooperation by characterizing the parameters under which no cooperative equilibrium exists in our setting, whereas cooperation is sustainable if there were no outside option. When outside options take different values across time, it makes a difference whether the time when an attractive option becomes available is certain or not. If it is certain, mutual cooperation falls apart by backward induction, while if it is stochastic, cooperation can be enhanced when the possibility of receiving an attractive option tomorrow makes players patient today. This logic applies to both one-sided and two-sided outside option models, but the effects of stochasticity are weaker in the latter.

Keywords: outside option, repeated prisoner's dilemma, cooperation.

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