Coalition-proof Nash Equilibria in a Normal-form Game and its Subgames

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Abstract

The relationship between coalition-proof equilibria in a normal-form game and those in its subgame is examined. A subgame of a normal-form game is a game in which the strategy sets of all players in the subgame are subsets of those in the normal-form game. Ray (2001) proved that a Nash equilibrium of a subgame is a Nash equilibrium of the original game under the condition of *no unilateral benefit*. Ray (2001) also established that a strong equilibrium (Aumann, 1959) of a subgame is a strong equilibrium of the original game under the condition of *no coalitional benefit*. However, under the condition of no coalitional benefit, the coalition-proof equilibria (Bernheim et al., 1987) of a subgame are not necessarily those of the original game. In this paper, we show that every coalition-proof equilibrium in a subgame is that in the original game if every strategy set is a subset of the real line, the condition of no unilateral benefit holds, and the original game satisfies *monotone externality*, *anonymity*, and *strategic substitutability*.