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Coalition-proof Nash Equilibrium of Aggregative Games

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Abstract

The purpose of this paper is to clarify the properties of a coalition-proof Nash equilibrium in an aggregative game with monotone externality and strategic substitution. In this aggregative game, every Nash equilibrium satisfies the fundamental property that no coalition can deviate from the Nash equilibrium in such a way that all members of the coalition are better off and the deviation is self-enforcing. The three different characteristics of coalition-proof Nash equilibria are derived from this fundamental property: In this aggregative game, (i) some coalition-proof Nash equilibrium survives the iterative elimination of weakly dominated strategies, (ii) the set of coalition-proof Nash equilibria does not depend on which coalitions are feasible, and (iii) a coalition-proof Nash equilibrium provides the same outcome as a weak coalition equilibrium, which is a non-cooperative equilibrium concept that is based on some sort of farsightedness of players.

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