

# Coalition-proofness in aggregative games with strategic substitutes and externalities

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## Abstract

We examine the welfare properties, coalition-proofness and order-theoretical structure of the set of Nash equilibria in pure strategy games with  $\alpha$ -aggregative simple strategic substitutes and monotone  $\alpha$ -aggregative externalities. For these games, we prove the equivalence among the set of Nash equilibria, the set of coalition-proof Nash equilibria under strong Pareto dominance and the set of Nash equilibria that are strongly Pareto undominated by other Nash equilibria; besides, we prove that the fixed points of some “extremal” selections from the joint best reply correspondence are both coalition-proof Nash equilibria under weak Pareto dominance and weakly Pareto undominated by other Nash equilibria. We also point out some errors in the relevant literature. Finally, we show various applications of our results to classes of games of economic interest.

**Keywords:** coalition-proof Nash equilibrium, aggregative games, strategic substitutes, externalities, Pareto dominance

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