Public Goods Game with Ambiguous Threshold

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Abstract

There exist many social issues which can be approximated by a public goods game with threshold. For example, environmental problems such as international cooperation for climate change are typical applications of this game. In this game, players may be reluctant to contribute the provision of public goods when the value of threshold is uncertain. We explore the case where players face ambiguity (Knightian uncertainty) about threshold. Then, we show that in the case of full ambiguity, only no contribution constitutes a Nash equilibrium and in the case of partial ambiguity, the maximal amount of contribution in equilibria decreases with the degree of ambiguity. This is completely different from what McBride (2006) shows in the case that threshold is uncertain but its probabilistic distribution is known. Also, this result is consistent with an experimental result (Dannenberg et al. 2014).

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