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Stochastic evolutionary game model of NIMBY events based on improved repetitive dynamic equations. (Chinese. English summary) Zbl 07448820  

Summary: Clarifying the behavior mechanism of stakeholders related to the NIMBY event is the key to grasp the evolution law of the NIMBY event and solve the NIMBY dilemma. Considering the inter-strategy dependence caused by the “demonstration effect” of the group, this paper introduces the excitation coefficient to improve the traditional replication dynamic equation, and introduces Gaussian white noise to describe the random disturbances in the evolution process of the NIMBY event. Finally, a stochastic evolutionary game model in an uncertain environment is constructed. The study found that strategies with stronger influence within the same group converge faster. When the influence exceeds a certain threshold, the equilibrium of the game evolution will change. Under the influence of random disturbances, the fluctuation of the public group’s evolution path is greater than that of the government. In addition, public group strategies evolved to equilibrium faster than the government.  

MSC:  
91A15  Stochastic games, stochastic differential games  
91A22  Evolutionary games  

Keywords:  
improved repetitive dynamic equations; strategic dependence; stochastic evolutionary game; disturbance