Stochastic Replicator Dynamics

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Condition: New. Publisher/Verlag: VDM Verlag Dr. Müller | The Long-run Behavior of the Replicator Dynamics Systems under the Stratonovich-type Random Perturbations | Stochastic replicator dynamics pertains to a population of players (individuals, businesses, animals, bacteria, etc.), each programmed to use a single strategy (or type of behavior). The dynamics aspect is related to the change in proportions of players who are applying the given strategies. This work examines the stochastic replicator dynamics driven by white Gaussian noise (WGN) in the Stratonovich form. This approach provides more natural results concerning stochastic stability, instability and extinction of pure strategies of stochastic replicator dynamics models. It is demonstrated that the asymptotic behavior of the system with two pure strategies depends only on the pay-off matrix and does not depend on the intensity of the random perturbations. Sufficient conditions for asymptotic stability, as well as for strong instability, of the stochastic replicator dynamics with n pure strategies are derived. Further, the extinction of the strictly dominated pure strategies is proven. It is shown in particular that this extinction takes place independently of the intensity of the WGN. | Format: Paperback | Language/Sprache: german/deutsch | 85 gr | 56 pp.

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