

Local Stability of Stationary Equilibria

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June 2013

This paper characterizes stable stationary equilibria in large population dynamic games. Each player has a type which changes over time. A player's flow payoff as well as the evolution of her type depends on the distribution of population types and population strategies. A stationary equilibrium is called stable if, after perturbing the equilibrium strategies slightly, revision dynamics converge back to the equilibrium. We derive simple sufficient (and almost necessary) conditions for stability. These conditions involve eigenvalues of a one-dimensional family of matrices. Moreover, in order to check whether an equilibrium is stable, it is enough to consider sine wave perturbations of the equilibrium.