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On the dynamic stability of a price dispersion model using gradient dynamics

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Abstract

This paper studies the evolutionary stability of a unique Nash equilibrium in a price dispersion model (Burdett and Judd, 1983) using gradient dynamics. The numerical solution to the partial differential equation that governs the evolution of prices shows that the stationary equilibrium is not a Nash Equilibrium and that it differs from the cyclical behavior predicted by another family of dynamics, such as replicator and logit, in a continuous action space.

Keywords: Population games, evolutionary dynamics, gradient dynamics, price dispersion
JEL codes: C72, C73, L11

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