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Jean Paul Rabanal, Dongwook Lee

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

Jean Paul Rabanal^{*†} Dongwook Lee[‡]

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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

^{*}Department of Economics, Colby College.

[†]Corresponding Author. *Email:* jeanpaulrab@gmail.com *Address:* Diamond, 3rd floor 5230 Mayflower Hill Water-ville, Maine 04901 *Tel:* 1-207-859-5230

[‡]Department of Applied Mathematics and Statistics, University of California Santa Cruz.

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