

Accepted Manuscript

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PII: S0165-1889(17)30180-X
DOI: [10.1016/j.jedc.2017.08.007](https://doi.org/10.1016/j.jedc.2017.08.007)
Reference: DYNCON 3469

To appear in: *Journal of Economic Dynamics & Control*

Received date: 27 April 2017
Revised date: 27 August 2017
Accepted date: 29 August 2017

Please cite this article as: Jean Paul Rabanal, Dongwook Lee, On the dynamic stability of a price dispersion model using gradient dynamics, *Journal of Economic Dynamics & Control* (2017), doi: [10.1016/j.jedc.2017.08.007](https://doi.org/10.1016/j.jedc.2017.08.007)

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

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

September 1, 2017

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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