

Cournot Dynamics with Heterogeneous Duopolists

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ABSTRACT

This study investigates an economic implication of chaotic fluctuations. To this end, it constructs a nonlinear discrete time Cournot model in which duopolists are heterogeneous and have U-shaped reaction functions with different microeconomic foundations. Due to the U-shaped reaction functions, the adjustment process of output generates chaotic fluctuations. This study demonstrate the following two main results; (i) the sum of the long-run average profits taken along chaotic trajectory is higher than the sum of profits obtained at a Nash-equilibrium point if the reaction function is identical with the logistic map; (ii) numerical examples indicate that the long-run average profit of heterogeneous duopolist can be higher than the profit obtained at a Nash-equilibrium point. These results indicate a possibility that heterogeneous duopolists can be beneficial in chaotic market.