

Chaotic R&D dynamics under capital accumulation and population growth*

Makoto Yano[†]
Kyoto University

Daishoku Kanehara[‡]
Kyoto University

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Abstract

Empirical studies about long run economic growth present both the existence of medium-term cycle and roughly stable long run growth rate. In addition to this, it is well analyzed that population size does not generally affect growth rate, and only in a very long run data, population size can affect growth rate. This study explains such contrasting empirical results in a simple R&D growth model with exogenously growing efficient labor. We show the existence of the cyclical behavior which (very) long run average growth rate is stable and determined by population. And we also show the dynamical system becomes ergodic chaos under certain conditions.

Keyword: Growth cycle, Semi-endogenous growth, R&D, Chaotic dynamics

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[†]Institute of Economic Research, Kyoto University.

[‡]Institute of Economic Research, Kyoto University. E-mail: kanehara@kier.kyoto-u.ac.jp