Chaos in a class of maps on the interval: the case of a small open economy with credit constraint

Cristiana Mammana, Elisabetta Michetti

Abstract

In this work we prove chaotic properties for a class of unidimensional continuous family map presenting a unique turning point and having some properties when increasing the parameter value. This set (F–function) is not conjugate to the tent map, furthermore it is not stretchable so we cannot use the well-known results about complex dynamics for these functions. However, we prove that the F–function set is chaotic in the Li–Yorke sense for a given value of the parameter onwards. We also apply the results obtained to the study of the dynamics exhibited by the economic model describing a small open economy subject to credit constraint due to moral hazard problems presented in [3]. A key role is played by the degree of financial development achieved by the economy, in fact we prove that complex behaviour can be exhibited at high level of financial development.

Cristiana Mammana, Università degli Studi di Macerata.
E-mail: mammana@unimc.it.
Elisabetta Michetti, Università degli Studi di Macerata.
E-mail: michetti@unimc.it.