Invertibility of Nonlinear ARMA Models

by

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Abstract

We review the concepts of local and global invertibility for a nonlinear auto-regressive moving-average (NLARMA) model. Under very general conditions, a local invertibility analysis of a NLARMA model admits the generic dichotomy that the innovation reconstruction errors either diminish geometrically fast or grow geometrically fast. We derive a simple sufficient condition for a NLARMA model to be locally invertible. The invertibility of the polynomial MA models is revisited. Moreover, we show that the Threshold MA models may be globally invertible even though some component MA models are non- invertible. One novelty of our approach is its cross-fertilization with dynamical systems.

This talk is based on joint work with Howell Tong.