On The Echelon Canonical Form For Nonstationary Dynamic Simultaneous Equations Systems

by

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Abstract

This paper examines the structure of dynamic simultaneous equations or ARMAX systems that start from a given set of initial conditions and evolve over a fixed finite time horizon. Results are derived by amalgamating ideas from the theory of stochastic difference equations with adaptations of the Kronecker index theory of dynamic systems. The analysis extends the current theory on the identification of vector ARMAX models to nonstationary processes. Examples illustrating the theory are given and the application of the theory to the analysis of unit-root, cointegrated nonstationary time series models is also considered.