Acta Mathematicae Applicatae Sinica,English Series 2002 18 (1): 85-102 ISSN: 1439-8516 CN: 11-2039/O1

Original Articles

Recursive Least Squares Estimator with Multiple Exponential Windows in Vector Autoregression

Hong Zhi AN(1),Zhi Guo LI(2)

(1)Institute of Applied Mathematics, Academy of Mathematics and System Sciences, Chinese Academy of Sciences;(2)Department of Biomathematics, Peking University Health Science Center

收稿日期 修回日期 网络版发布日期 接受日期

摘要 In the parameter tracking of time-varying systems, the ordinary method is weighted least squares with the rectangular window or the exponential window. In this paper we propose a new kind of sliding window called the multiple exponential window, and then use it to fit time-varying Gaussian vector autoregressive models. The asymptotic bias and covariance of the estimator of the parameter for time-invariant models are also derived. Simulation results show that the multiple exponential windows have better parameter tracking effect than rectangular windows and exponential ones.

关键词 exponential window rectangular window

分类号

Recursive Least Squares Estimator with Multiple Exponential Windows in Vector Autoregression

Hong Zhi AN(1),Zhi Guo LI(2)

(1)Institute of Applied Mathematics, Academy of Mathematics and System Sciences, Chinese Academy of Sciences;(2)Department of Biomathematics, Peking University Health Science Center

Abstract In the parameter tracking of time-varying systems, the ordinary method is weighted least squares with the rectangular window or the exponential window. In this paper we propose a new kind of sliding window called the multiple exponential window, and then use it to fit time-varying Gaussian vector autoregressive models. The asymptotic bias and covariance of the estimator of the parameter for time-invariant models are also derived. Simulation results show that the multiple exponential windows have better parameter tracking effect than rectangular windows and exponential ones.

Key words exponential window rectangular window

DOI:

通讯作者 Hong Zhi AN ahz@amath8.amt.ac.cn