

# Accepted Manuscript

Linear double autoregression

Qianqian Zhu, Yao Zheng, Guodong Li

PII: S0304-4076(18)30131-3

DOI: <https://doi.org/10.1016/j.jeconom.2018.05.006>

Reference: ECONOM 4537

To appear in: *Journal of Econometrics*

Received date: 6 March 2017

Revised date: 17 May 2018

Accepted date: 20 May 2018

Please cite this article as: Zhu Q., Zheng Y., Li G., Linear double autoregression. *Journal of Econometrics* (2018), <https://doi.org/10.1016/j.jeconom.2018.05.006>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



# Linear double autoregression

Qianqian Zhu<sup>a</sup>, Yao Zheng<sup>b,\*</sup> and Guodong Li<sup>b</sup>

<sup>a</sup>*School of Statistics and Management, Shanghai University of Finance and Economics, Shanghai, China*

<sup>b</sup>*Department of Statistics and Actuarial Science, University of Hong Kong, Pokfulam Road, Hong Kong, China*

## Abstract

This paper proposes the linear double autoregression, a conditional heteroscedastic model with a conditional mean structure but compatible with the quantile regression. The existence of a strictly stationary solution is discussed, for which a necessary and sufficient condition is established. A doubly weighted quantile regression estimation procedure is introduced, where the first set of weights ensures the asymptotic normality of the estimator and the second set improves its efficiency through balancing individual quantile regression estimators across multiple quantile levels. Bayesian information criteria are proposed for model selection, and two goodness-of-fit tests are constructed to check the adequacy of the fitted conditional mean and conditional scale structures. Simulation studies indicate that the proposed inference tools perform well in finite samples, and an empirical example illustrates the usefulness of the new model.

*JEL classifications:* C15; C22.

*Key words:* Conditional quantile estimation; Goodness-of-fit test; Heavy tail; Nonlinear time series model; Stationary solution.

---

\*Correspondence to: Department of Statistics and Actuarial Science, University of Hong Kong, Pokfulam Road, Hong Kong. Email address: yaozheng@connect.hku.hk (Y. Zheng).

Download English Version:

<https://daneshyari.com/en/article/11020492>

Download Persian Version:

<https://daneshyari.com/article/11020492>

[Daneshyari.com](https://daneshyari.com)