

Tests Based on Empirical Likelihood for an AR(1) Process with ARCH(1) Errors*

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Abstract

For an AR(1) process with ARCH(1) errors, we propose empirical likelihood tests for testing whether the sequence is strictly stationary but has infinite variance, or the sequence is an ARCH(1) sequence or the sequence is an iid sequence. Moreover, an empirical likelihood based confidence interval for the parameter in the AR part is proposed. All of these results do not require more than a finite second moment of the innovations. This includes the case of t -innovations for any degree of freedom larger than 2, which serves as a prominent model for real data.

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