

**Robinson, P. M.**

**Log-periodogram regression of time series with long range dependence.** (English)

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Summary: This paper discusses the estimation of multiple time series models which allow elements of the spectral density matrix to tend to infinity or zero at zero frequency and be unrestricted elsewhere. A form of log-periodogram regression estimate of differencing and scale parameters is proposed, which can provide modest efficiency improvements over a previously proposed method (for which no satisfactory theoretical justification seems previously available) and further improvements in a multivariate context when differencing parameters are a priori equal. Assuming Gaussianity and additional conditions which seem mild, asymptotic normality of the parameter estimates is established.

**MSC:**

- 62M10 Time series, auto-correlation, regression, etc. in statistics (GARCH)
- 62E20 Asymptotic distribution theory in statistics
- 62G05 Nonparametric estimation
- 62G20 Asymptotic properties of nonparametric inference

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**Keywords:**

long range dependence; least squares; generalized least squares; multiple time series models; spectral density matrix; log-periodogram regression estimate; differencing parameters; asymptotic normality

**Full Text:** [DOI](#)