NONSTATIONARY ARCH AND GARCH WITH t-DISTRIBUTED INNOVATIONS

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Abstract

Consistency and asymptotic normality are established for the maximum likelihood estimators in the nonstationary ARCH and GARCH models with general t-distributed innovations. The results hold for joint estimation of (G)ARCH effects and the degrees of freedom parameter parametrizing the t-distribution. With T denoting sample size, $\sqrt{T}$-convergence is shown to hold with closed form expressions for the multivariate covariances.

Keywords: ARCH, GARCH, asymptotic normality, asymptotic theory, consistency, t-distribution, maximum likelihood, nonstationarity.

JEL Classification: C32.

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