

Asymptotic Properties of the Maximum Likelihood Estimator in Regime Switching Econometric Models

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Abstract

Markov regime switching models have been widely used in numerous empirical applications in economics and finance. However, the asymptotic normality of the maximum likelihood estimator (MLE) has not been rigorously proven in the existing literature for some empirically popular Markov regime switching models where the density depends on previous regimes. This class of models includes the seminal model of Hamilton (1989) and the Switching ARCH (SWARCH) model of Hamilton and Susmel (1994). This paper shows the asymptotic normality of the MLE of these models.

Key words: asymptotic distribution; Markov regime switching; autoregressive conditional heteroscedasticity