

Parameter Estimation of Random Coefficient Models with Correlated Errors using Quadratic Estimating Function Approach

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This paper considers inference for random coefficient autoregressive (RCA) models, one of the classes of non-linear time series models, to accommodate non-linear characteristic in the data by introducing a random term in the model. Estimation for RCA models had been studied using estimating functions in Thavaneswaran and Abraham (1988) and Chandra and Tanuguchi (2001). However, joint estimation of the conditional mean and variance parameters for RCA models with correlated errors (random terms and the errors are correlated), using quadratic estimating has not been studied in the literature. First the quadratic estimating function approach is used to jointly estimate the conditional mean and variance parameters of the model and then closed form expressions for the information Gain are derived. The results are extended to the recently proposed RCA models with GARCH innovations. Recursive estimation based on quadratic estimation function is also discussed in some detail.

Keywords: RCA, estimating function, information, quadratic estimating function, correlated errors