

A Reformulation of Weighted Least Squares Estimators in Autocorrelated Regressions

Jaechoul Lee

Department of Mathematics
Boise State University

This paper studies weighted, generalized, least squares estimators in simple linear regression with serially correlated errors. Closed-form expressions for the weighted least squares estimation are presented for a given inverse variance-covariance matrix with general stationary covariance structure. With the linear trend plus autoregressive moving-average error regression model, the presented formulations produce further explicit expressions of the weighted least squares trend estimator and variance. As an application of these reformulated expressions, a new weighted least squares computation method that reduces the effort of inverting the covariance matrix but produces an equivalent estimate and variance is developed. A new sufficient and necessary condition that the weighted least squares estimators are the same as the ordinary least squares estimators is also provided in a closed form.

Friday, September 5th, 2008

2:40PM

MG 120

Refreshments in MG 226 at 2:20pm