

**ON ESTIMATING THE COMMON PARAMETER IN TWO
LINEAR MODELS**

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Summary

This paper considers two seemingly unrelated regression (SUR) models with partly common parameter vectors. For each model, an unbiased two-stage covariance-adjusted estimator for the common parameter is obtained, which is shown to achieve the same simpler version whether it may be the conditions of Zellner (1963) or of Revankar (1974); and, further, this simpler version is unique. Based on these two unique simpler version estimators, a weighted covariance-adjusted estimator is proposed for the common parameter, which, under the assumption of Zellner (1963), exactly equals to the BLUE of the common parameter with the variance-covariance replaced by its estimate. It is further shown that the covariance of this weighted estimator converges to that of BLUE and, in the case of homogeneity of variance, it is uniformly better than each simpler estimator in terms of MSEM criterion even for finite sample size. It is noted that if the two error vectors are uncorrelated, then the models degenerate to what is considered by Liu (1996) and, interestingly, in that case, our conclusions too turn out to be consistent with those of Liu.

Keywords: Common parameter; Seemingly unrelated regressions; Covariance-adjusted method; Two-stage estimator; Mean square error matrix(MSEM)

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