

Variance estimation for the instrumental variables approach to measurement error in generalized linear models

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Abstract. This paper derives and gives explicit formulas for a derived sandwich variance estimate. This variance estimate is appropriate for generalized linear additive measurement error models fitted using instrumental variables. We also generalize the known results for linear regression. As such, this article explains the theoretical justification for the sandwich estimate of variance utilized in the software for measurement error developed under the Small Business Innovation Research Grant (SBIR) by StataCorp. The results admit estimation of variance matrices for measurement error models where there is an instrument for the unknown covariate.

Keywords: st0048, sandwich estimate of variance, measurement error, White's estimator, robust variance, generalized linear models, instrumental variables

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