Wimmer, Gejza

Linear model with variances depending on the mean value. (English) Zbl 0764.62055

Math. Slovaca 42, No. 2, 223-238 (1992).

Let $(Y, X\beta, \Sigma)$ be a linear regression model. The result of the observations is a realization of a random vector $Y_{n,1}$, whose mean value is $E_\beta Y = X\beta$, $X_{n,k}$ is a known design matrix, $\beta_{k,1} \in R^k$ the vector of unknown parameters, the covariance matrix of the vector Y depends on β,

$$\Sigma = \sigma^2\Sigma(\beta) = \operatorname{diag}(\sigma^2(a + b|e_i' X\beta|^2))_{1\le i\le n},$$

where σ^2, a and b are known positive constants, and e_i' is the transpose of the ith unity vector.

The β_0-locally best linear unbiased estimator of a linear function of the parameter β is obtained.

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62H12 Estimation in multivariate analysis

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References:

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