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Violating the Normality Assumption

The assumption that the errors are normally distributed is not necessary for estimation of the model parameters and partitioning of the total sums of squares. The least squares estimates are still the best linear unbiased estimates (BLUE) if the other assumptions are met.

Normality is needed only for tests of significance and construction of confidence intervals of the parameters. The t test, F test, and chi-square test require the normality assumption of the residuals. Likewise, the confidence intervals also depend on the normality assumption (Rawlings, Pantula, and Dickey 1998).

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