

OLS linear regression assumptions

Assumption	If broken ...
Linear relationship between inputs and targets	Inappropriate application/unreliable results ; use a nonlinear modeling technique
$N > p$	Underspecified/unreliable results ; use LASSO(L1)/elastic net penalized regression
No strong multicollinearity	Ill-conditioned/unreliable results ; Use ridge(L2/Tikhonov)/elastic net penalized regression
Normally distributed residuals	Biased predictions, parameters, and statistical tests ; investigate problems with data, consider nonlinear approaches
No influential outliers	Biased predictions, parameters, and statistical tests ; use robust methods, i.e. IRLS, Huber loss, investigate/remove outliers
No strong Heteroskedasticity	Lessened predictive accuracy, invalidates statistical tests
Limited correlation between input rows (no autocorrelation)	Invalidates statistical tests; use time-series methods