STAT assumptions

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Parametric Statistics

Parametric statistics is a branch of statistics which assumes that sample data comes from a population that can be adequately modeled by a probability distribution that has a fixed set of parameters.

Two-Samples T-test Assumptions

- We have two samples of independent observations from two distinct populations
- The samples are independent
- Both populations are normally distributed with unknown mean and standard deviation
- The standard deviations are equal

Simple Linear Regression Assumptions

- Independent observation
- Normally distribution
- Equal variances
- No influential outliers
- Linear association between (mean) y and x. That is, residual : ri = yi - yhat i.

Model	Equation	Interpretation
Level-Level Regression	$Y = \alpha + \beta X$	One unit change in X leads to β unit change in Y
Log-Linear Regression	$log(Y) = \alpha + \beta X$	One unit change in X leads to $100 * \beta$ percent change in Y
Linear-Log Regression	$Y = \alpha + \beta\, log(X)$	One percent change in X leads to $\beta/100$ unit change in Y
Log-Log Regression	$log(Y) = \alpha + \beta\, log(X)$	One percent change in X leads to β percent change in Y