

Technical Paper 28

Pearson Correlation

- A. Test for examines the covariance of two variables.
- B. Pearson correlation is applicable to interval and ratio scale data.
- C. Assumptions
 - 1. Random sample
 - 2. Independent sample
 - 3. Bivariate Normal Distribution
 - a. Y-values are normally distributed with respect to X, and X-values are normally distributed with respect to Y.
 - b. Increasing sample size does correct for non-normality. (Central limit theorem)
 - 4. The relationship between the two variables is linear.

$$r = \frac{\sum((X_i - \bar{X})(Y_i - Y))}{\sqrt{\sum(X_i - \bar{X})^2 \sum(Y_i - Y)^2}}$$