

Technical Paper 19

T-test (two sample)

- A. Test to compare sample means.
- B. T-test is applicable to interval and ratio scale data.
- C. Assumptions
 - 1. Random samples
 - 2. Independent samples
 - 3. Normally distributed populations.
 - 4. Equal variances.
- D. Violation of assumptions and minimization
 - 1. The t-test is fairly robust to violations of assumptions
 - 2. Always better to have equal sample sizes
 - 3. Better if the test is run as a two-tailed test.
 - 4. Larger sample sizes reduce the problems associated with violations

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S_{\bar{X}_1 - \bar{X}_2}}$$

$$S_{\bar{X}_1 - \bar{X}_2} = \sqrt{\frac{S_p^2}{n_1} + \frac{S_p^2}{n_2}}$$

$$S_p^2 = \frac{SS_1 + SS_2}{v_1 + v_2}$$