Two-Group Hypothesis Tests: Excel 2003 T-TEST Command

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> Slides and audio at: www.StatLit.org/ pdf/T-TEST-Command-Excel-2003-6up.pdf

Excel 2003 T-TEST Command

Purpose: Calculate likelihood (p-value) of getting the observed difference in two sample means (or more extreme) by chance in random samples – assuming there is no difference in the two population means (the Null Hypothesis).

Four Inputs:

- 1) Array or range of two samples. 2) Alpha cutoff.
- 3) Tails: 1 (Excel matches Alternate with sample means) or 2.
- 4) Type of T-TEST. 1 dependent, matched subjects.
 2: population variances unknown but equal. [Often true]
 3: population variances unknown & unequal. [Conservative]

www.StatLit.org/xls/2012Isaacson240Data.xls

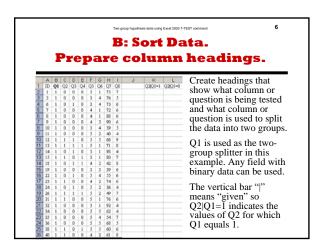
Approach

Excel's two-population T-Test command requires that the data be "stacked" (separated into two groups) by the value of the predictor. Predictor must be binary.

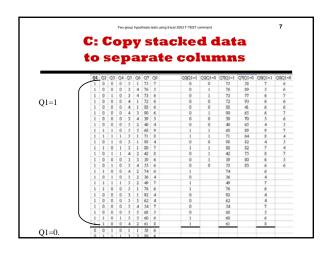
If the binary predictor is the answer to Q1, then *the entire data set* must be sorted by Q1.

The Excel "Sort" requires that the entire data set be selected **before** invoking the sort command. A common mistake is to sort just a single column rather than the entire dataset.

Unfortunately Excel does not have a "stacked" or conditional T-Test. The T-Test command will not automatically update p-values if data is changed.



OK Cancel



D: Enable Data Analysis Toolpak

If "Data Analysis" is not shown on Data tab, install it.

- Excel 2010: From File menu, select Options/Add-Ins.
- Excel 2008: From Microsoft button, select "Add Excel Options" in lower right corner.
- Excel 2003 If "Data Analysis Toolpak" is not shown under Tools menu, install it. From TOOLS menu, select ADD-INS.

Check the check box for "Data Analysis Toolpak". Press the OK command button. The Data Analysis command should be added to the appropriate menu. If not remove and reinstall.

T-TEST Command Procedure Given Separated Data

- 1: From Tool Menu, select "Data Analysis".
- 2: From Data Analysis window, select "t-test: Two-sample with unequal variances".
- 3: In T-Test window, enter input and output options.
- 4. Obtain results of t-test. Summarize the test results.

