

Runs Test

Random sampling is a major assumption of nearly all statistical tests of hypotheses. The Runs test is one method available for testing whether or not an obtained sample is likely to have been drawn at random. It is based on the order of the values in the sample and the number of values increasing or decreasing in a sequence. For example, if a variable is composed of dichotomous values such as zeros (0) and ones (1) then a run of values such as 0,0,0,0,1,1,1,1 would not likely to have been selected at random. As another example, the values 0,1,0,1,0,1,0,1 show a definite cyclic pattern and also would not likely be found by random sampling. The test involves finding the mean of the values and examining values above and below the mean (excluding values at the mean.) The values falling above or below the mean should occur in a random fashion. A run consists of a series of values above the mean or below the mean. The expected value for the total number of runs is known and is a function of the sample size (N) and the numbers of values above (N1) and below (N2) the mean. This test may be applied to nominal through ratio variable types.

The file labeled runtest.LAZ will be used to demonstrate the use of this procedure.

Runs Test

This is a test for the randomness of a series of values in a variable. Select the variable to analyze and click the compute button.

Available Variables:

- VAR2
- VAR3
- VAR4

Test Randomness of: VAR1

Results:

Mean	0.357
Standard Dev.	1.638
N Values > Mean	5
N Values < Mean	9
Number of Runs	8
Test Statistic	0.349
Probability	0.3636

Conclude:

Little or no real evidences against randomne

Cancel Reset Print **Compute** Return

Figure 1. Test for Randomness Using the Runs Test