

Table 8 B

Table of Hypothesis Tests

(Nonparametric Tests)

Objective	Type of Test	Null Hypothesis	Assumptions	Remarks
Compare sample median with reference or historical median	Sign Test	$H_0 : \eta = \eta_0$		
Compare sample median with reference or historical median	One Sample Wilcoxon test	$H_0 : \eta = \eta_0$	Data is continuous and symmetrical	
Comparing two sample medians	Mann-Whitney Rank-Sum Test	$H_0 : \eta_1 = \eta_2$	–data are independent random samples from the populations that have the same shape and whose variances are equal and –a scale that is continuous or ordinal (possesses natural ordering) if data is discrete.	
Comparing two or more sample medians	Kruskal-Wallis Rank Sum Test	All population medians are equal	–The data from each population are independent random samples and –the population distributions have the same shape.	Alternative to One Way ANOVA when data is not normal
Comparing two or more sample medians	Moods Median Test	All population medians are equal		More robust against outliers More appropriate for initial data
Analyzing effects of 2 factors	Friedman Test	H_0 : all treatment effects are zero versus H_1 : not all treatment effects are zero		Similar to 2-way ANOVA
Comparing variances of 2 or more (k) samples	Levene's Test	$H_0 : \sigma_1 = \sigma_2 = \dots = \sigma_k$		Less sensitive than Bartlett's test for departures from normality
Comparing variances of 2 or more (k) samples	Bartlett's Test	$H_0 : \sigma_1 = \sigma_2 = \dots = \sigma_k$	Data is normally distributed	Sensitive to departures from normality.