IBM SPSS Exact Tests

- The IBM SPSS Exact Tests module provides additional methods for calculating the significance levels for the statistical tests available through the Crosstabs and the Nonparametric Tests menus.

- Using the standard tests in IBM SPSS Base (known as asymptotic tests) can lead to misleading or inaccurate results when working with small datasets or sparse groups in the sample data. IBM SPSS Exact Tests enables users to obtain an accurate significance level without relying on assumptions that might not be met by the data.

- Exact Tests however are not necessary when working with reasonably large data files and in fact may use too much computational resource or take too long to calculate the result.

- Exact Tests offers two extra methods of calculating probabilities on top of the normal asymptotic methods in SPSS Base.

  – Asymptotic: The asymptotic significance is based on the assumption that the data set is large. If the data set is small or poorly distributed, this may not be a good indication of significance.

  – Monte Carlo Estimate: An unbiased estimate of the exact significance level. This method is most useful when the data set is too large to compute exact significance but the data do not meet the assumptions of the asymptotic method.

- Exact: The probability of the observed outcome or an outcome more extreme is calculated exactly.

Employment Category * Minority Classification Crosstabulation

Count

		Minority Classification		Total
		No	Yes	
Employment Category	Clerical	17	12	29
	Custodial	7	6	13
	Manager	8	2	10
Total		32	20	52

Relatively small group sizes

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1.869[a]	2	.393	.440		
Likelihood Ratio	2.004	2	.367	.411		
Fisher's Exact Test	1.819			.440		
Linear-by-Linear Association	.937[b]	1	.333	.374	.217	.092
N of Valid Cases	52					

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.85.

b. The standardized statistic is -.968.

Chi Square showing <u>exact</u> probabilities highlighted in red