

## APPENDIX E

### Kendall's tau-c Test

Kendall's tau-c, also called Stuart's tau-c or Kendall-Stuart tau-c, is a variant of tau-b for larger tables. It equals the excess of concordant over discordant pairs times another term representing an adjustment for the size of the table.

$$\text{tau-c} = (P - Q) * [2m / (n^2(m-1))],$$

where m is the number of rows or columns, whichever is smaller, and n is sample size.

CITY SIZE BY RIOT INTENSITY	City Size 1	City Size 2	City Size 3	Row Totals
Riot Size 1	4	2	0	6
Riot Size 2	2	3	4	9
Column Totals	6	5	4	15

$$\text{tau-c} = (36 - 4) * [4 / (15^2(1))] = 128 / 225 = .57$$

Since tau-c has a known sampling distribution it is possible to compute its standard error and significance. SPSS and other major packages report the significance level of the computed tau-c value. The formula for the variance of tau-c is given in Liebetrau (1983).

Kendall's tau-c is a measure of association for a pair of ordinal data. The statistic value is between -1 and 1, so this measurement can be used to consider size and sign of the relationship of variable. For example, Kendall's tau-c 0.57, it means that riot size and city size have a positive relationship.

Tau-c is a symmetrical measure which will yield the same coefficient magnitude regardless of which of two variables is considered the independent (column) variable.

Source: David Garson in <http://www2.chass.ncsu.edu/garson/pa765/assocordinal.htm>