

The  $z_{I_i}$ -score for the statistics are computed as:

$$z_{I_i} = \frac{I_i - \mathbf{E}[I_i]}{\sqrt{\mathbf{V}[I_i]}} \quad (3)$$

where:

$$\mathbf{E}[I_i] = \frac{\sum_{j=1, j \neq i}^n w_{ij}}{n - 1} \quad (4)$$

$$\mathbf{V}[I_i] = \mathbf{E}[I_i^2] - \mathbf{E}[I_i]^2 \quad (5)$$

Additional calculations are as follows:

$$\mathbf{E}[I^2] = A - B \quad (6)$$

$$A = \frac{(n - b_{2_i}) \sum_{j=1, j \neq i}^n w_{i,j}^2}{n - 1} \quad (7)$$

$$B = \frac{(2b_{2_i} - n) \sum_{k=1, k \neq i}^n \sum_{h=1, h \neq i}^n w_{i,k} w_{i,h}}{(n - 1)(n - 2)} \quad (8)$$

$$b_{2_i} = \frac{\sum_{i=1, i \neq j}^n (x_i - \bar{X})^4}{\left( \sum_{i=1, i \neq j}^n (x_i - \bar{X})^2 \right)^2} \quad (9)$$