$$\bar{x} = \frac{\sum_{1}^{N} x_i}{N} \qquad s^2 = \frac{\sum_{1}^{N}(x_i - \bar{x})^2}{N-1} \qquad s = \sqrt{\frac{\sum_{1}^{N}(x_i - \bar{x})^2}{N-1}} \qquad s_{\hat{x}} = \frac{s}{\sqrt{N}} \qquad \%CV = \frac{100\% s}{\bar{x}}$$

$$f(x) = \frac{1}{\sqrt{2\pi}\sigma} \cdot e^{-\frac{(x-\mu)^2}{2\sigma^2}} \qquad \mathrm{N}(\mu,\sigma^2) \qquad Z = \frac{\bar{Y} - \mu_0}{\sigma / \sqrt{n}}$$

$$P\left[\bar{X}_n - Z_{\alpha/2}\left(\frac{\sigma}{\sqrt{n}}\right) \le \mu \le \bar{X}_n + Z_{\alpha/2}\left(\frac{\sigma}{\sqrt{n}}\right)\right] = 1 - \alpha \qquad \mu = \bar{x} \pm t \cdot s_{\hat{x}}$$

$$Z = \frac{(\bar{X} - \bar{Y}) - (\mu_1 - \mu_2)}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \qquad \mu_1 - \mu_2 = \mathbf{X} - \bar{Y} \pm \mathrm{Z}_{a/2}\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$$

$$t = \frac{(\bar{X} - \bar{Y}) - (\mu_1 - \mu_2)}{s \cdot \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \qquad \mu_1 - \mu_2 = \bar{x} - \bar{y} \pm t \cdot s \cdot \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}$$

$$t = \frac{\bar{y} - \mu_0}{s / \sqrt{n}} \qquad z = \frac{(\bar{y}_1 - \bar{y}_2) - \delta}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \qquad \bar{X}_n - t_{n-1}\left(\frac{s}{\sqrt{n}}\right) \le \mu \le \bar{X}_n + t_{n-1}\left(\frac{s}{\sqrt{n}}\right)$$

$$s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}} \qquad t = \frac{(\bar{y}_1 - \bar{y}_2) - \delta_0}{s_d / \sqrt{n}} \qquad t = \frac{(\bar{y}_1 - \bar{y}_2) - \delta}{s \cdot \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$Z = \frac{\frac{x}{n} - p_0}{\sqrt{\frac{p_0(1 - p_0)}{n}}} \qquad X^2 = \frac{(n-1) \cdot s^2}{\sigma^2} \qquad F = \frac{s_1^2}{s_2^2} \qquad \mathrm{P} = 1 - \beta$$

$$s_\alpha^2 = \sum_{1}^{\kappa} n_i(\bar{x}_i - \bar{x})^2 \qquad s_\upsilon^2 = \sum_{1}^{\kappa}(n_i - 1)s_i^2$$

$$F = \frac{\overline{\text{τετράγωνα μεταξύ δειγμάτων}}}{\overline{\text{τετράγωνα εντός δειγμάτων}}} = \frac{s_\alpha^2 / (\kappa - 1)}{s_\upsilon^2 / (n - \kappa)}$$

$$z = \frac{p_1 - p_2}{\sqrt{p(1-p)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \qquad p = \frac{x_1 + x_2}{n_1 + n_2} \qquad z = \frac{(p_1 - p_2) - D_0}{\sqrt{\frac{p_1(1-p_1)}{n_1} + \frac{p_2(1-p_2)}{n_2}}}$$

Αναμενόμενες τιμές κατ. 1 ομάδας 1, 2
$\theta_{11} = (\pi_{11}+\pi_{12})\cdot(\pi_{11}+\pi_{21})/N$, $\theta_{21} = (\pi_{21}+\pi_{22})\cdot(\pi_{11}+\pi_{21})/N$
Αναμενόμενες τιμές κατ. 2 ομάδας 1, 2
$\theta_{12} = (\pi_{11}+\pi_{12})\cdot(\pi_{12}+\pi_{22})/N$, $\theta_{22} = (\pi_{21}+\pi_{22})\cdot(\pi_{12}+\pi_{22})/N$

$$X^2 = \frac{(\pi_{11}-\theta_{11})^2}{\theta_{11}} + \frac{(\pi_{12}-\theta_{12})^2}{\theta_{12}} + \frac{(\pi_{21}-\theta_{21})^2}{\theta_{21}} + \frac{(\pi_{22}-\theta_{22})^2}{\theta_{22}}$$

$$\theta_{ij} = \frac{(\sum_{i=1}^{s} n_{ij}) \cdot (\sum_{j=1}^{k} n_{ij})}{N} \qquad X^2 = \sum_{i=1}^{s}\sum_{j=1}^{k} \frac{(\pi_{ij}-\theta_{ij})^2}{\theta_{ij}}$$ β.ε. = (s-1)·(k-1)

D = max |F1(x) – F2(x)|

Για μεγάλα m,n (>15): α=0.05, $D_{a,m,n} = 1.36\sqrt{\frac{m+n}{m\cdot n}}$

Για n1, n2 ≥ 10 $\mu_u = \frac{2n_1 n_2}{n_1+n_2}+1$ $\sigma_u^2 = \frac{2n_1 n_2(2n_1 n_2 - n_1 - n_2)}{(n_1+n_2)^2(n_1+n_2-1)}$ $Z = \frac{U-\mu_u}{\sigma_u}$

Deming $b = U + \sqrt{U^2 + \frac{1}{\lambda}}$

$$r = \frac{\sum_{i=1}^{n}(x_i-\overline{x})(y_i-\overline{y})}{\sqrt{\sum_{i=1}^{n}(x_i-\overline{x})^2 \sum_{i=1}^{n}(y_i-\overline{y})^2}}$$

$$b = \frac{\sum_{i=1}^{n} x_i y_i - n\overline{x}\overline{y}}{\sum_{i=1}^{n} x_i^2 - n\overline{x}^2} \qquad a = \overline{y} - b\overline{x} \qquad \lambda = \frac{S_x^2}{S_y^2}$$

$$r_T = 1 - \frac{6\cdot(d_1^2+d_2^2+\cdots+d_n^2)}{n^3-n} \qquad U = \frac{\sum_{i=1}^{N}(y_i-\overline{y})^2 - \lambda^{-1}\cdot\sum_{i=1}^{N}(x_i-\overline{x})^2}{2\sum_{i=1}^{N}(y_i-\overline{y})(x_i-\overline{x})}$$

$$P \pm 1.96\sqrt{\frac{P(1-P)}{N}} \qquad CI \pm 1.96\sqrt{\frac{CI(1-CI)}{N}} \qquad I \pm 1.96\sqrt{\frac{I}{R}}$$