REGRESNÁ A KORELAČNÁ ANALÝZA

I. $$\sum_{i=1}^{n} y_i = nb_0 + b_1 \sum_{i=1}^{n} x_i$$

$$\sum_{i=1}^{n} y_i x_i = b_0 \sum_{i=1}^{n} x_i + b_1 \sum_{i=1}^{n} x_i^2$$

II. $$b_1 = \frac{\operatorname{cov} xy}{s_x^2}$$

$$b_0 = \overline{y} - b_1 \overline{x}$$

$$F = \frac{MSM}{MSR} = \frac{\frac{SSM}{1}}{\frac{SSR}{n-2}} = \frac{(n-2)\sum_{i=1}^{n}(\hat{y}_i - \overline{y})^2}{\sum_{i=1}^{n}(y_i - \hat{y}_i)^2} \qquad F > F_{1-\alpha}(1, n-2)$$

Rozptyl	Interval spoľahlivosti
$s_{rez}^2 = MSR = \frac{\sum_{i=1}^{n}(y_i - \hat{y}_i)^2}{n-2}$	______________________________
$s_{b_1}^2 = \frac{s_{rez}^2}{\sum_{i=1}^{n}(x_i - \overline{x})^2}$	$P(b_1 - t_{1-\frac{\alpha}{2}} s_{b_1} < \beta_1 < b_1 + t_{1-\frac{\alpha}{2}} s_{b_1}) = 1-\alpha$
$s_{\hat{y}_0}^2 = s_{rez}^2 \left[\frac{1}{n} + \frac{(x_0 - \overline{x})^2}{\sum_{i=1}^{n}(x_i - \overline{x})^2} \right]$	$P(\hat{y}_0 - t_{1-\frac{\alpha}{2}} \cdot s_{\hat{y}_0} < \mu_{Y/x_0} < \hat{y}_0 + t_{1-\frac{\alpha}{2}} \cdot s_{\hat{y}_0}) = 1-\alpha$
$s_{y_0}^2 = s_{\hat{y}_0}^2 + s_{rez}^2$	$P(\hat{y}_0 - t_{1-\frac{\alpha}{2}} \cdot s_{y_0} < Y_{x_0} < \hat{y}_0 + t_{1-\frac{\alpha}{2}} \cdot s_{y_0}) = 1-\alpha$

Nulová hypotéza	**Alternatívna hypotéza**	**Testovacia charakteristika**	**Kritická oblasť**
$H_0 : \beta_1 = \beta_{10}$	$H_1 : \beta_1 \neq \beta_{10}$	$t = \frac{b_1 - \beta_{10}}{s_{b_1}}$	$\lvert t \rvert > t_{1-\frac{\alpha}{2}}(n-2)$
$H_0 : \beta_1 = 0$	$H_1 : \beta_1 \neq 0$	$t = \frac{b_1}{s_{b_1}}$	$\lvert t \rvert > t_{1-\frac{\alpha}{2}}(n-2)$
$H_0 : \beta_{11} = \beta_{12}$	$H_1 : \beta_{11} \neq \beta_{12}$	$t = \frac{b_{11} - b_{12}}{s_{b_{11}-b_{12}}}$	$\lvert t \rvert > t_{1-\frac{\alpha}{2}}(n_1 + n_2 - 4)$
$H_0 : \rho = \rho_0$	$H_1 : \rho \neq \rho_0$	$z = (z_F - z_{F_0})\sqrt{n-3}$	$\lvert z \rvert > z_{1-\frac{\alpha}{2}}$
$H_0 : \rho = 0$	$H_1 : \rho \neq 0$	$z = z_F \sqrt{n-3}$	$\lvert z \rvert > z_{1-\frac{\alpha}{2}}$
		$t = \frac{r}{\sqrt{1-r^2}} \sqrt{n-2}$	$\lvert t \rvert > t_{1-\frac{\alpha}{2}(n-2)}$
		$F = \frac{(n-2)r^2}{1-r^2}$	$F > F_{1-\alpha(1,n-2)}$
$H_0 : \rho_1 = \rho_2$	$H_1 : \rho_1 \neq \rho_2$	$z = \frac{(z_{F_1} - z_{F_2})}{\sqrt{\frac{1}{n_1-3} + \frac{1}{n_2-3}}}$	$\lvert z \rvert > z_{1-\frac{\alpha}{2}}$

$$s_{b_{11}-b_{12}}^2 = s^2 . \left[\frac{1}{\sum_{i=1}^{n_1}(x_{i1} - \overline{x}_1)^2} + \frac{1}{\sum_{i=1}^{n_2}(x_{i2} - \overline{x}_2)^2} \right] \qquad s^2 = \frac{(n_1 - 2).s_{rez1}^2 + (n_2 - 2).s_{rez2}^2}{n_1 + n_2 - 4}$$

$$r_{xy} = \frac{\operatorname{cov} xy}{s_x s_y}, \quad r_{xy} = b_1 \frac{s_x}{s_y}, \quad |r_{xy}| = \sqrt{a_1 b_1}, \quad r_{xy}^2 = \frac{SSM}{SST} = 1 - \frac{SSR}{SST}, \quad r_{adj}^2 = 1 - (1 - r_{xy}^2)\frac{n-1}{n-2}$$

$$P(z_F - z_{1-\frac{\alpha}{2}} \frac{1}{\sqrt{n-3}} < Z_F < z_F + z_{1-\frac{\alpha}{2}} \frac{1}{\sqrt{n-3}}) = 1 - \alpha$$

$$\chi^2 = \sum_{j=1}^{s} \sum_{i=1}^{r} \frac{(O_{ij} - E_{ij})^2}{E_{ij}} \qquad \chi^2 > \chi_{1-\alpha}^2 \left[(r-1).(s-1)\right]$$

$$Q_{AB} = \frac{(ab).(\alpha.\beta) - (a\beta).(\alpha b)}{(ab).(\alpha.\beta) + (a\beta).(\alpha b)}, \; R_{AB} = \frac{n(ab) - (a).(b)}{\sqrt{(a).(b).(\alpha).(\beta)}}, \; C = \sqrt{\frac{\chi^2}{n + \chi^2}}, \; \tau^2 = \frac{\phi^2}{\sqrt{(r-1).(s-1)}}, \; V = \sqrt{\frac{\chi^2}{n.h}}$$

ČASOVÉ RADY

$$\bar{y}_{ch} = \frac{\frac{y_1}{2} + y_2 + \ldots + y_{T-1} + \frac{y_T}{2}}{T - 1}$$

$$\bar{y}_{ch} = \frac{\frac{y_1 + y_2}{2} v_2 + \frac{y_2 + y_3}{2} v_3 + \ldots. + \frac{y_{T-1} + y_T}{2} v_T}{v_2 + v_3 + \ldots + v_T}$$

$$\begin{array}{|l|}\hline \sum_{t=1}^{T} y_t = T\, b_0 + b_1 \sum_{t=1}^{T} t \\ \sum_{t=1}^{T} t\, y_t = b_0 \sum_{t=1}^{T} t + b_1 \sum_{t=1}^{T} t^2 \\ \hline \end{array}$$

$$\begin{array}{|l|}\hline \sum_{t=1}^{T} y_t = Tb_0 + b_1 \sum_{t=1}^{T} t + b_2 \sum_{t=1}^{T} t^2 \\ \sum_{t=1}^{T} t\, y_t = b_0 \sum_{t=1}^{T} t + b_1 \sum_{t=1}^{T} t^2 + b_2 \sum_{t=1}^{T} t^3 \\ \sum_{t=1}^{T} t^2 y_t = b_0 \sum_{t=1}^{T} t^2 + b_1 \sum_{t=1}^{T} t^3 + b_2 \sum_{t=1}^{T} t^4 \\ \hline \end{array}$$

INDEXY

$$i_{pz} = \frac{\frac{\sum p_1 \cdot q_1}{\sum q_1}}{\frac{\sum p_0 \cdot q_0}{\sum q_0}} \qquad i_{sz(0)} = \frac{\frac{\sum p_1 \cdot q_0}{\sum q_0}}{\frac{\sum p_0 \cdot q_0}{\sum q_0}} \qquad i_{š(1)} = \frac{\frac{\sum p_1 \cdot q_1}{\sum q_1}}{\frac{\sum p_1 \cdot q_0}{\sum q_0}}$$

$$i_{pz} = i_{sz(0)} \cdot i_{š(1)} = i_{sz(1)} \cdot i_{š(0)}$$

$$\Delta_{pz} = \Delta_{sz(0)} + \Delta_{š(1)} = \Delta_{sz(1)} + \Delta_{š(0)}$$

$$I_Q = \frac{\sum p_1 \cdot q_1}{\sum p_0 \cdot q_0} = \frac{\sum Q_1}{\sum Q_0} \qquad I_{p(0)} = \frac{\sum p_1 \cdot q_0}{\sum p_0 \cdot q_0} = \frac{\sum \frac{p_1}{p_0} \cdot Q_0}{\sum Q_0} \qquad I_{q(1)} = \frac{\sum p_1 \cdot q_1}{\sum p_1 \cdot q_0} = \frac{\sum Q_1}{\sum \frac{Q_1}{\frac{q_1}{q_0}}}$$

$$I_Q = I_{p(0)} \cdot I_{q(1)} = I_{p(1)} \cdot I_{q(0)}$$

$$\Delta_Q = \Delta_{p(0)} + \Delta_{q(1)} = \Delta_{p(1)} + \Delta_{q(0)}$$