Nelineární regresní modely

model	exponenciální	mocninný
Y	$\beta_0 \beta_1^X$	$\beta_0 X^{\beta_1}$
Y^*	$\beta_0^* + \beta_1^* X^*$	
$\hat{y}$	$b_0 b_1^x$	$b_0 x^{b_1}$
$\hat{y}^*$	$b_0^* + b_1^* x^*$	
linearizující transformace	$\ln \hat{y} = \ln b_0 + x \ln b_1$	$\ln \hat{y} = \ln b_0 + b_1 \ln x$
substituce	$\ln \hat{y} = y^*, \quad x = x^*$ $\ln b_0 = b_0^*, \; \ln b_1 = b_1^*$	$\ln \hat{y} = y^*, \quad \ln x = x^*$ $\ln b_0 = b_0^*, \; b_1 = b_1^*$
soustava normálních rovnic	$n \cdot \ln b_0 + \ln b_1 \sum x_i = \sum \ln y_i$ $\ln b_0 \sum x_i + \ln b_1 \sum x_i^2 = \sum x_i \cdot \ln y_i$	$n \cdot \ln b_0 + b_1 \sum \ln x_i = \sum \ln y_i$ $\ln b_0 \sum \ln x_i + b_1 \sum (\ln x_i)^2 = \sum \ln x_i \cdot \ln y_i$
b_0	$\ln b_0 = \frac{\sum \ln y_i}{n} - \ln b_1 \frac{\sum x_i}{n}$	$\ln b_0 = \frac{\sum \ln y_i}{n} - \ln b_1 \frac{\sum x_i}{n}$
b_1	$\ln b_1 = \frac{n \sum x_i \cdot \ln y_i - \sum x_i \sum \ln y_i}{n \sum x_i^2 - \left(\sum x_i\right)^2}$	$\frac{n \sum \ln x_i \cdot \ln y_i - \sum \ln x_i \sum \ln y_i}{n \sum (\ln x_i)^2 - \left(\sum \ln x_i\right)^2}$
i^2	$\frac{S_T}{S_{\ln Y}}$	$\frac{S_T}{S_{\ln Y}}$
S_T	$\ln b_0 \sum \ln y_i + \ln b_1 \sum x_i \ln y_i - \frac{\left(\sum \ln y_i\right)^2}{n}$	$\ln b_0 \sum \ln y_i + b_1 \sum \ln x_i \cdot \ln y_i - \frac{\left(\sum \ln y_i\right)^2}{n}$
$S_{\ln Y}$	$\sum (\ln y_i)^2 - \frac{\left(\sum \ln y_i\right)^2}{n}$	$\sum (\ln y_i)^2 - \frac{\left(\sum \ln y_i\right)^2}{n}$
interval spolehlivosti pro regresní parametry	$\ln b_j \pm t_{1-\alpha/2}(n-2) \cdot s(\ln b_j)$ 1)	$\ln b_0 \pm t_{1-\alpha/2}(n-2) \cdot s(\ln b_0)$ 1) $b_1 \pm t_{1-\alpha/2}(n-2) \cdot s(b_1)$
$s(\ln b_0)$	$s_R \cdot \sqrt{\frac{\sum x_i^2}{n \sum x_i^2 - \left(\sum x_i\right)^2}}$	$s_R \cdot \sqrt{\frac{\sum (\ln x_i)^2}{n \sum (\ln x_i)^2 - \left(\sum \ln x_i\right)^2}}$

Nelineární regresní modely

$s(\ln b_1)$	$s_R \cdot \sqrt{\dfrac{n}{n\sum x_i^2 - \left(\sum x_i\right)^2}}$	—
$s(b_1)$	—	$s_R \cdot \sqrt{\dfrac{n}{n\sum (\ln x_i)^2 - \left(\sum \ln x_i\right)^2}}$
interval spolehlivosti pro regresní funkci	$\ln \hat{y}_i \pm t_{1-\alpha/2}(n-2) \cdot s(\ln \hat{y}_i)$ 1)	$\ln \hat{y}_i \pm t_{1-\alpha/2}(n-2) \cdot s(\ln \hat{y}_i)$ 1)
$s(\ln \hat{y}_i)$	$s_R \cdot \sqrt{\dfrac{1}{n} + \dfrac{\left(x_i - \dfrac{\sum x_i}{n}\right)^2}{\sum x_i^2 - \dfrac{\left(\sum x_i\right)^2}{n}}}$	$s_R \cdot \sqrt{\dfrac{1}{n} + \dfrac{\left(\ln x_i - \dfrac{\sum \ln x_i}{n}\right)^2}{\sum (\ln x_i)^2 - \dfrac{\left(\sum \ln x_i\right)^2}{n}}}$
interval spolehlivosti pro individuální předpověď	$\ln y_0 \pm t_{1-\alpha/2}(n-2) \cdot s(\ln y_0)$ 1)	$\ln y_0 \pm t_{1-\alpha/2}(n-2) \cdot s(\ln y_0)$ 1)
$s(\ln y_0)$	$s_R \cdot \sqrt{1 + \dfrac{1}{n} + \dfrac{\left(x_0 - \dfrac{\sum x_i}{n}\right)^2}{\sum x_i^2 - \dfrac{\left(\sum x_i\right)^2}{n}}}$	$s_R \cdot \sqrt{1 + \dfrac{1}{n} + \dfrac{\left(\ln x_0 - \dfrac{\sum \ln x_i}{n}\right)^2}{\sum (\ln x_i)^2 - \dfrac{\left(\sum \ln x_i\right)^2}{n}}}$

1) odlogaritmovat