RLS - Modelo Linear: $Y_i = \beta_0 + \beta_1 x_i + \epsilon_i, i = 1, \cdots, n$ $\hat{Y}_i = \hat{\beta}_0 + \hat{\beta}_1 x_i = \bar{Y} + \hat{\beta}_1 (x_i - \bar{x})$

$\epsilon_i \cap \mathcal{N}(0, \sigma^2)$ para $\forall\, i = 1, \cdots, n$ e $\{\epsilon_i\}_{i=1}^{n}$ v.a. independentes

Parâmetro	**Estimador**	**Distribuição associada**	**Estimativa**
σ^2	$\widehat{\sigma^2} = QMRE = \frac{SQRE}{n-2} = \frac{\sum_{i=1}^{n}(Y_i - \hat{Y}_i)^2}{n-2}$	$\frac{SQRE}{\sigma^2} \cap \chi^2_{(n-2)}$	$QMRE = \frac{(n-1)s_e^2}{n-2}$
β_1	$\hat{\beta}_1 = \frac{Cov_{xY}}{s_x^2} = \sum_{i=1}^{n} c_i Y_i, \quad c_i = \frac{x_i - \bar{x}}{(n-1)s_x^2}$	$\frac{\hat{\beta}_1 - \beta_1}{\sigma_{\hat{\beta}_1}} \cap \mathcal{N}(0,1), \quad \sigma^2_{\hat{\beta}_1} = \frac{\sigma^2}{(n-1)s_x^2}$ $\frac{\hat{\beta}_1 - \beta_1}{\hat{\sigma}_{\hat{\beta}_1}} \cap t_{(n-2)}, \quad \hat{\sigma}^2_{\hat{\beta}_1} = \frac{QMRE}{(n-1)s_x^2}$	$b_1 = \frac{cov(x,y)}{s_x^2}$
β_0	$\hat{\beta}_0 = \bar{Y} - \hat{\beta}_1 \bar{x} = \sum_{i=1}^{n} d_i Y_i, \quad d_i = \frac{1}{n} - \frac{(x_i - \bar{x})\bar{x}}{(n-1)s_x^2}$	$\frac{\hat{\beta}_0 - \beta_0}{\sigma_{\hat{\beta}_0}} \cap \mathcal{N}(0,1), \quad \sigma^2_{\hat{\beta}_0} = \sigma^2 \left[\frac{1}{n} + \frac{\bar{x}}{(n-1)s_x^2}\right]$ $\frac{\hat{\beta}_0 - \beta_0}{\hat{\sigma}_{\hat{\beta}_0}} \cap t_{(n-2)}, \quad \hat{\sigma}^2_{\hat{\beta}_0} = QMRE \left[\frac{1}{n} + \frac{\bar{x}}{(n-1)s_x^2}\right]$	$b_0 = \bar{y} - b_1 \bar{x}$
$\mu_{Y\|x} =$ $= E[Y\|X = x]$ $= \beta_0 + \beta_1 x$	$\hat{\mu}_{Y\|x} = \hat{\beta}_0 + \hat{\beta}_1 x$	$\frac{\hat{\mu}_{Y\|x} - \mu_{Y\|x}}{\hat{\sigma}_{\hat{\mu}}} \cap t_{(n-2)}, \quad \hat{\sigma}^2_{\hat{\mu}} = QMRE \left[\frac{1}{n} + \frac{(x - \bar{x})^2}{(n-1)s_x^2}\right]$ Nota: IP para $Y = \beta_0 + \beta_1 x + \epsilon$ tem $\widehat{\sigma^2_{ind}} = QMRE \left[1 + \frac{1}{n} + \frac{(x-\bar{x})^2}{(n-1)s_x^2}\right]$	$\hat{y} = b_0 + b_1 x$
$\mathcal{R}^2$	$R^2 = \frac{SQR}{SQT} = \frac{\sum_{i=1}^{n}(\hat{Y}_i - \bar{Y})^2}{\sum_{i=1}^{n}(Y_i - \bar{Y})^2}$	$F = \frac{QMR}{QMRE} \cap F_{(1,n-2)}$ se $\beta_1 = 0$ $F = (n-2)\frac{R^2}{1 - R^2}$	$R^2 = \frac{SQR}{SQT}$ $= \frac{\sum_{i=1}^{n}(\hat{y}_i - \bar{y})^2}{\sum_{i=1}^{n}(y_i - \bar{y})^2}$