REGRESION LINEAL SIMPLE

Ecuación de la recta

$$b_1 = \frac{\sum x.y - n.\bar{x}.\bar{y}}{\sum x^2 - n.\bar{x}^2}$$

$$b_0 = \bar{y} - b_1.\bar{x}$$

$$\hat{y} = b_o + b_1.x$$

Coeficiente de correlación (r)

$$r = \frac{\sum x.y - n.\bar{x}.\bar{y}}{\sqrt{\left(\sum x^2 - n.\bar{x}^2\right)\left(\sum y^2 - n.\bar{y}^2\right)}}$$

Coeficiente de determinación o Bondad de Ajuste $\rightarrow$ r^2

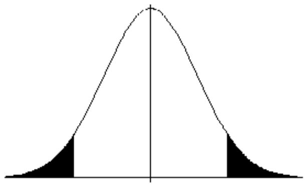
Intervalo de confianza para el coeficiente de regresión poblacional (β_1)

$$P\left(b_1 - t_{\binom{1-\alpha/2}{n-2}}.S_b \leq \beta_1 \leq b_1 + t_{\binom{1-\alpha/2}{n-2}}.S_b \right) = 1 - \alpha$$

$$S_{xy} = \sqrt{\frac{\sum y^2 - n.b_0.\bar{y} - b_1.\sum xy}{n-2}} \qquad S_b = \frac{S_{xy}}{\sqrt{\sum x^2 - n.\bar{x}^2}}$$

Ensayo de hipótesis sobre el coeficiente de regresión

$$H_0)\beta_1 = \beta$$
$$H_0)\beta_1 \neq \beta$$



$$t = \frac{b_1 - \beta_1}{S_{b1}}$$

Intervalo de confianza para $\hat{y}(x_0)$

$$P\left(\hat{y}(x_0) - t_{\binom{1-\alpha/2}{n-2}}.S_{\hat{Y}0}. \leq \beta_0 + \beta_1.x_0 \leq \hat{y}(x_0) + t_{\binom{1-\alpha/2}{n-2}}.S_{\hat{Y}0} \right) = 1 - \alpha \qquad S_{\hat{Y}0} = S_{xy}.\sqrt{\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{\sum x^2 - n.\bar{x}^2}}$$

$$\hat{y}(x_0) = b_o + b_1.x_0$$

Intervalo de predicción de y (x_0)

$$P\left(\hat{y}(x_0) - t_{\binom{1-\alpha/2}{n-2}}.S_{Y0}. \leq \beta_0 + \beta_1.x_0 + \varepsilon \leq \hat{y}(x_0) + t_{\binom{1-\alpha/2}{n-2}}.S_{Y0} \right) = 1 - \alpha \qquad S_{Y0} = S_{xy}.\sqrt{1 + \frac{1}{n} + \frac{(x_0 - \bar{x})^2}{\sum x^2 - n.\bar{x}^2}}$$

$$\hat{y}(x_0) = b_o + b_1.x_0$$

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