

CORRELACIÓN Y REGRESIÓN. UNA VARIABLE INDEPENDIENTE

	Estadístico de contraste	Intervalo de confianza
Coefficiente de correlación	$T = \frac{r_{xy} \sqrt{n-2}}{\sqrt{1-r_{xy}^2}} \quad (g.l. = n-2)$	
Pendiente	$T = \frac{B-0}{\frac{S_y}{S_x} \sqrt{\frac{1-r_{xy}^2}{n-2}}} = \frac{B-0}{\sigma_B} \quad (g.l. = n-2)$	$E_{max} = t_{n-2; 1-\alpha/2} \sigma_B$ $B \pm E_{max}$
Ordenada en el origen	$T = \frac{B_0-0}{\hat{S}_\varepsilon \sqrt{\frac{1}{n} + \frac{\bar{X}^2}{(n-1)\hat{S}_X^2}}} = \frac{B_0-0}{\sigma_{B_0}} \quad (g.l. = n-2)$	$E_{max} = t_{n-2; 1-\alpha/2} \sigma_{B_0}$ $B_0 \pm E_{max}$

Estadístico F Fisher ($T^2 = F$):

F.V.	S.C.	g.l.	M.C.	F
Regresión	$SC_{Reg} = \sum (Y' - \bar{Y})^2$	1	$MC_{Reg} = \frac{SC_{Reg}}{1}$	$F = \frac{MC_{Reg}}{MC_{Res}} = \frac{r^2}{\frac{(1-r^2)}{(n-2)}}$ <p style="text-align: center;">(g.l. = 1, n-2)</p>
Residual	$SC_{Res} = \sum (Y - Y')^2$	n-2	$MC_{Res} = \hat{S}_\varepsilon^2 = \frac{SC_{Res}}{n-2}$	
Total	$SC_{Total} = \sum (Y - \bar{Y})^2$	n-1		

$$SC_{Total} = \sum (Y - \bar{Y})^2 = \sum Y^2 - n\bar{Y}^2$$

$$SC_{Res} = \sum (Y - Y')^2 = (1 - r_{xy}^2) \cdot SC_{Total}$$

$$SC_{Reg} = \sum (Y' - \bar{Y})^2 = r_{xy}^2 \cdot SC_{Total}$$

REGRESIÓN LINEAL MÚLTIPLE. DOS VARIABLES INDEPENDIENTES

	Directas	Diferenciales	Típicas
Ecuaciones de regresión	$Y' = B_1X_1 + B_2X_2 + B_0$	$y' = B_1x_1 + B_2x_2$	$z_{y'} = \beta_1z_1 + \beta_2z_2$
Coefficiente B_0	$B_0 = \bar{Y} - B_1\bar{X}_1 - B_2\bar{X}_2$	0	0
Coefficiente para X_1	$B_1 = \beta_1 \frac{S_y}{S_1} = \frac{\sum x_1 y \sum x_2^2 - \sum x_2 y \sum x_1 x_2}{\sum x_1^2 \sum x_2^2 - (\sum x_1 x_2)^2}$		$\beta_1 = \frac{r_{y1} - r_{y2}r_{12}}{1 - r_{12}^2} = B_1 \sqrt{\frac{\sum x_1^2}{\sum y^2}}$
Coefficiente para X_2	$B_2 = \beta_2 \frac{S_y}{S_2} = \frac{\sum x_2 y \sum x_1^2 - \sum x_1 y \sum x_1 x_2}{\sum x_1^2 \sum x_2^2 - (\sum x_1 x_2)^2}$		$\beta_2 = \frac{r_{y2} - r_{y1}r_{12}}{1 - r_{12}^2} = B_2 \sqrt{\frac{\sum x_2^2}{\sum y^2}}$

CORRELACION. DOS VARIABLES INDEPENDIENTES

Coef. de determinación múltiple	$R_{y.12}^2 = \frac{r_{y1}^2 + r_{y2}^2 - 2r_{y1}r_{y2}r_{12}}{1 - r_{12}^2} = \beta_1 r_{y1} + \beta_2 r_{y2} = \frac{SC_{Reg}}{SC_{Total}}$	
Coef. de determinación múltiple ajustado	$\hat{R}_{y.12}^2 = 1 - \left(1 - R_{y.12}^2\right) \frac{n-1}{n-p-1}$ Donde: $p = \text{n}^\circ$ de variables independientes.	
	Para X_1	Para X_2
Correlaciones semiparciales	$sr_1 = \frac{r_{y1} - r_{y2}r_{12}}{\sqrt{1 - r_{12}^2}}$ $sr_1^2 = R_{y.12}^2 - r_{y2}^2$	$sr_2 = \frac{r_{y2} - r_{y1}r_{12}}{\sqrt{1 - r_{12}^2}}$ $sr_2^2 = R_{y.12}^2 - r_{y1}^2$
Correlaciones parciales	$pr_1 = \frac{r_{y1} - r_{y2}r_{12}}{\sqrt{(1 - r_{y2}^2)(1 - r_{12}^2)}}$ $pr_1^2 = \frac{R_{y.12}^2 - r_{y2}^2}{1 - r_{y2}^2}$	$pr_2 = \frac{r_{y2} - r_{y1}r_{12}}{\sqrt{(1 - r_{y1}^2)(1 - r_{12}^2)}}$ $pr_2^2 = \frac{R_{y.12}^2 - r_{y1}^2}{1 - r_{y1}^2}$