

① $R^2 = \frac{SS_{exp}}{SS_T}$

$R^2_{Y1} = \frac{3000}{8000} = 0.375$

$SS_T = 3000 + 5000 = 8000$

② $R^2 = \frac{4000}{8000} = 0.5$

③ $k = \text{number of independent variables}$

SV	SS	df	MS	F	sig
REG	2300	b) 3	d) 766.667	0.7	.012
RES	a) 6571.434	c) 6	e) 1095.239		
TOTAL	8871.434	N-1=9			

④ $R^2 = \frac{SS_{exp}}{SS_T} = \frac{2300}{8871.434} = 0.259$

$F = \frac{MS_{exp}}{MS_{res}} \rightarrow 0.7 = \frac{766.667}{MS_{res}} \rightarrow 0.7 \cdot MS_{res} = 766.667$
 $MS_{res} = \frac{766.667}{0.7} = 1095.239$

$MS_{res} = \frac{SS_{res}}{df_{res}} \rightarrow 1095.239 = \frac{SS_{res}}{6} \rightarrow SS_{res} = 1095.239 \cdot 6 = 6571.434$

⑥ $.012 < 0.05 \rightarrow \text{sig}$

effect size ≤ 0.18 low
 ≥ 0.67 High } $0.259 - \text{low/medium}$

- The statistical significance can be due to an excessively high statistical power

Questions 7-10

$\Sigma X = 172$
 $\Sigma X^2 = 3166$
 $\Sigma XY = 2264.5$
 $\Sigma Y = 129.5$
 $\Sigma Y^2 = 1708.25$

$$\textcircled{7} b = \frac{\Sigma XY - \frac{\Sigma X \Sigma Y}{N}}{\Sigma X^2 - \frac{(\Sigma X)^2}{N}} = \frac{2264.5 - \frac{172 \cdot 129.5}{10}}{3166 - \frac{172^2}{10}}$$

$$= \frac{2264.5 - 2227.4}{3166 - 2958.4} = \frac{37.1}{207.6} = 0.179$$

$$\textcircled{9} r_{xy} = \frac{\Sigma XY - \frac{\Sigma X \Sigma Y}{N}}{\sqrt{\Sigma X^2 - \frac{(\Sigma X)^2}{N}} \sqrt{\Sigma Y^2 - \frac{(\Sigma Y)^2}{N}}} = \frac{2264.5 - \frac{172 \cdot 129.5}{10}}{\sqrt{3166 - \frac{172^2}{10}} \sqrt{1708.25 - \frac{129.5^2}{10}}}$$

$$= \frac{37.1}{\sqrt{207.6} \sqrt{31.225}} = \frac{37.1}{14.4108 \cdot 5.588} = \frac{37.1}{80.512} = 0.461$$

$R^2 = 0.461^2 = 0.212$

$\textcircled{10} 1 - R^2 = 1 - 0.212 = 0.788$

En Sevilla a 19 de noviembre de 2018

Fdo. El Responsable del Proyecto
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