

January, 2019

$$R^2 = \frac{SS_{exp}}{SST}$$

$$\textcircled{1} R^2_{Y(2.1)} = R^2_{Y.12} - R^2_{Y1} = 0.5 - 0.286 = 0.214$$

$$R^2_{Y.12} = \frac{3500}{7000} = 0.5$$

$$SST = SS_{exp} + SS_{res} = 3500 + 3500 = 7000$$

$$R^2_{Y1} = \frac{2000}{7000} = 0.286$$

$$\textcircled{2} R^2_{Y(3.12)} = R^2_{Y.123} - R^2_{Y.12} = 0.571 - 0.5 = 0.071$$

$$R^2_{Y.123} = \frac{4000}{7000} = 0.571$$

$$\textcircled{3} R^2_{Y1.2} = \frac{R^2_{Y.12} - R^2_{Y2}}{1 - R^2_{Y2}} \quad \text{--- } R^2_{Y(1.2)}$$

A value lower than zero (so the result is going to be a value higher than the numerator)

Questions 4-6

	X_1	X_2	\bar{Y}
INT	1	0	190
EXT	0	0	200
AMB	0	1	170

$$\hat{Y} = b_0 + b_1 X_1 + b_2 X_2 \rightarrow \hat{Y} = 200 - 10X_1 - 30X_2$$

$$\textcircled{4} \text{ EXT} \rightarrow 200 = b_0 + b_1 \cdot 0 + b_2 \cdot 0$$

$$\textcircled{5} \text{ INT} \rightarrow 190 = 200 + b_1 \cdot 1 + b_2 \cdot 0$$

$$190 - 200 = b_1$$

$$\boxed{-10 = b_1}$$

$$\textcircled{6} \text{ AMB} \rightarrow 170 = 200 - 10 \cdot 0 + b_2 \cdot 1$$

$$170 - 200 = b_2$$

$$\boxed{-30 = b_2}$$

$$\textcircled{7} e = Y - \hat{Y} = 170 - 170 = -30$$