

Simple Linear Regression

11.3 Finding the Standard Error of the Slope Estimator

Use the data provided below to calculate $S_{\hat{\beta}_1}$ as an estimate of $\sigma_{\hat{\beta}_1}$ the standard error of the slope estimator.

X	2.2	1.3	4.1	5.7	3.2	2.9
Y	5.3	4.1	6.4	7.9	6.1	5.5

Answer:

The preliminary calculations and final answer:

$$\sum x = 19.4, \sum y = 35.3, \sum x^2 = 74.48, \sum y^2 = 215.73$$

$$SS_{xx} = 11.7533, SS_{yy} = 8.0483, SS_{xy} = 9.5933$$

$$\hat{\beta}_1 = 0.8162$$

$$SSE = 0.2180$$

$$S^2 = 0.05451$$

$$S_{\hat{\beta}_1} = 0.06810$$