

Introduction to Hypothesis Testing

Starter

1. **(Review of last lesson)** Without using the special function on your calculator, find the PMCC for $\sum x_i = 357.7$, $\sum y_i = 278.7$, $\sum x_i^2 = 11696.95$, $\sum y_i^2 = 7119.71$, $\sum x_i y_i = 8396.1$ and $n = 12$. Comment on your findings.

$$\text{Working: } S_{xy} = \sum x_i y_i - \frac{\sum x_i \sum y_i}{n} = 8396.1 - \frac{357.7 \times 278.7}{12} \approx 88.516$$

$$S_{xx} = \sum x_i^2 - \frac{(\sum x_i)^2}{n} = 11696.95 - \frac{357.7^2}{12} \approx 1034.509$$

$$S_{yy} = \sum y_i^2 - \frac{(\sum y_i)^2}{n} = 7119.71 - \frac{278.7^2}{12} = 646.902 \text{ (4 d.p.)}$$

$$r = \frac{S_{xy}}{\sqrt{S_{xx} S_{yy}}} = \frac{88.516}{\sqrt{1034.509 \times 646.902}} = 0.108 \text{ (3 d.p.)}$$

Since the PMCC value is close to 0, there is very little correlation between the data sets.

2. **(Review of last lesson)** Using the special function on your calculator, find the PMCC for the following data:

x	1020	1032	1028	1034	1023	1038
y	320	335	345	355	360	380

Comment on your findings.

Working: $r = 0.655$ (3 s.f)
There is weak positive correlation between x and y .

[Solutions to Starter and E.g.s](#)

Exercise

No exercise