

§ 11.5 The Coefficient of Correlation

In this section we attempt to determine the "strength" of a relationship in bivariate data.

Definition The coefficient of correlation, r , is a measure of the strength of the linear relationship between two variables x and y .

See page 617 for the formulas. Once again, we use the calculator for calculating r .

Definition The coefficient of determination, r^2 , represents the proportion of the total sample variability around \bar{y} that is explained by the linear relationship between y and x .

Examples In the examples of section 11.2 the r and r^2 are also calculated when finding the "best fit" line.

Generally speaking r values "close to" 1 indicate a strong positive relationship or correlation, values "close to" -1 indicate a strong negative correlation and r^2 near zero indicate a weak or no correlation.

Warning: correlation does not imply causality!