

Mean:

$$\bar{x} = \frac{\sum_{i=1}^n x_i}{n}$$

* Extreme observations can be dropped to obtain a trimmed mean.

Variance:

$$s^2 = \frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n - 1}$$

* Standard deviation = $s = \sqrt{s^2}$.

Least squares line: $y = a + bx$

Slope

$$b = \frac{\sum (x - \bar{x})(y - \bar{y})}{\sum (x - \bar{x})^2} = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sum x^2 - \frac{(\sum x)^2}{n}}$$

Intercept

$$a = \bar{y} - b\bar{x}$$

Coefficient of determination:

$$r^2 = 1 - \frac{\sum_{i=1}^n (y_i - \hat{y})^2}{\sum_{i=1}^n (y - \bar{y})^2}$$

* Pearson's correlation coefficient = $r = \sqrt{r^2}$.