

Measures of Dispersion

* Dispersion is the measure of the variation of the items" - H.L. Bowley.

* The degree to which numerical data tend to spread about an average value is called the variation or dispersion of the data. "Spiegel."

* Dispersion or spread is the degree of the scatter or variation of the variable about a central value." Brooks & Dick.

* "The measurement of the scatteredness of the mass of figures in a series about an average is called measure of variation or dispersion." - Simpson & Kafka.

Methods of Studying Variation:-

① The Range

The range is the difference between the value of the smallest item and the value of the largest item included in distribution.

$$R = L - S$$

The relative measure corresponding to range, called the coefficient of range,

Coefficient of Range

$$C.R = \frac{L - S}{L + S}$$

② The Interquartile Range or Quartile Deviation

Interquartile range represents the difference between the third quartile and the first quartile.

$$\text{Interquartile Range} = Q_3 - Q_1$$

and Quartile Deviation or Semi-interquartile Range

$$Q.D. = \frac{Q_3 - Q_1}{2}$$

Percentile Range - It is also measure of dispersion. Then

$$\text{Percentile Range} = P_{90} - P_{10}$$

where P_{90} and P_{10} are the 90th and 10th percentiles. The semi-percentile range

$\left(\frac{P_{90} - P_{10}}{2} \right)$ can also be used; but is not commonly employed