Measures of Dispersion - (12).

Mean Deviation.

Mean Deviation is the arithmetic average of the deviation of all the values taken from some average value (Mean, Median, Mode) of the series, ignoring signs (+ or −) of the deviation.

Clark and Schakde,

"Mean Deviation is the Arithmetic Average of deviation of all the value taken from a statistical average of series. In taking deviation of value, algebraic signs + and -ve are not taken into consideration, that is negative deviations are also treated as positive deviation."

Calculation of mean deviation involves the following steps:

(1) We first of all find out mean, median or mode of a series.

(2) As a second step, we find out the deviations of different items from the central value mean, median, or mode of the series. These deviations are added up.

While adding up these deviations positive (+) and (-) negative signs are ignored. All deviations are treated as positive

(3.) On both sides of deviation, from the mean, are drawn two straight lines signifying that while calculating deviation negative signs have been ignored and all deviations have been treated as positive.

(4) Mean deviation is known by dividing the sum total of the deviation by the number of items.

Formula

If deviations are taken from median, the following formula is used

$$MD_m = \frac{\Sigma(X - M)}{N} \text{ or } \frac{\Sigma|dm|}{N}$$

and, if deviations are taken from arithmetic average of the series, then,

$$MD_{\bar{x}} = \frac{\Sigma(X - \bar{X})}{N} \text{ or } \frac{\Sigma|dx|}{N}$$

MD = Mean deviation. $X - M$ = Deviation from the median.

$X - \bar{X}$ = Deviation from mean.

Thank you