METHODS FOR ECONOMIC ANALYSIS – II
SATISTICAL METHODS

UNIT –I

Mean, median, and mode are three kinds of "averages". There are many "averages" in statistics, the three most common, and are certainly the three most likely to encounter in pre-statistics courses

The "mean" is the "average up all the numbers and then divide by the number of numbers. The "median" is the "middle" value in the list of numbers. To find the median, listed in numerical order from smallest to largest. The "mode" is the value that occurs most often. If no number in the list is repeated, then there is no mode for the list.

- Find the mean, median, mode, and range for the following list of values:

  13, 18, 13, 14, 13, 16, 14, 21, 13

The mean is the usual average, then divide:

(13 + 18 + 13 + 14 + 13 + 16 + 14 + 21 + 13) ÷ 9 = 15

Note that the mean, isn't a value from the original list. This is a common result.

The median is the middle value, so first I'll have to rewrite the list in numerical order:

13, 13, 13, 13, 14, 14, 16, 18, 21

There are nine numbers in the list, so the middle one will be the (9 + 1) ÷ 2 = 10 ÷ 2 = 5th number:

13, 13, 13, 13, 14, 14, 16, 18, 21

So the median is 14.

The mode is the number that is repeated more often than any other, so 13 is the mode.

The largest value in the list is 21, and the smallest is 13, so the range is 21 – 13 = 8.

mean: 15
median: 14
mode: 13
range: 8

- Find the mean, median, mode, and range for the following list of values:

  1, 2, 4, 7

The mean is the usual average: (1 + 2 + 4 + 7) ÷ 4 = 14 ÷ 4 = 3.5

The median is the middle number. In this example, the numbers are already listed in numerical order, But there is no "middle" number, because there are an even number of numbers. Because of this, the median of the list will be the mean (that is, the usual average) of the middle two values within the list. The middle two numbers are 2 and 4, so: (2 + 4) ÷ 2 = 6 ÷ 2 = 3

So the median of this list is 3, a value that isn't in the list at all.

The mode is the number that is repeated most often, but all the numbers in this list appear only once, so there is no mode.

The largest value in the list is 7, the smallest is 1, and their difference is 6, so the range is 6.

mean: 3.5
median: 3
mode: none
range: 6

- Find the mean, median, mode, and range for the following list of values:

  8, 9, 10, 10, 10, 11, 11, 11, 12, 13

The mean is the usual average, then divide:

(8 + 9 + 10 + 10 + 10 + 11 + 11 + 11 + 12 + 13) ÷ 10 = 105 ÷ 10 = 10.5

The median is the middle value. In a list of ten values, that will be the (10 + 1) ÷ 2 = 5.5-th value; the formula is reminding me, with that "point-five", that need to average the fifth and sixth numbers to find the median. The fifth and sixth numbers are the last 10 and the first 11, so:

$(10 + 11) \div 2 = 21 \div 2 = 10.5$

The mode is the number repeated most often. This list has two values that are repeated three times; namely, 10 and 11, each repeated three times.

The largest value is 13 and the smallest is 8, so the range is 13 – 8 = 5.

mean: 10.5
median: 10.5
modes: 10 and 11
range: 5

Methods of measuring Dispersion:-

There are two mathematical methods of ascertaining dispersion :
(A) Methods of limits (B) Methods of moments
(a) Range (a) Mean deviation
(b) Inter-Quartile Rang (b) Standard Deviation
(c) Percentile Range (c) Other Measures
(d) Quartile Deviation
a- Range :- Higher value (H) lowest value(L)
Coefficient of Range
b- Inter quartile Range
c- Percentile Range
d- Semi Inter quartile Range
e- Mean Deviation
From mean
f- From Medium
g- from Mode
h- Standard deviation:-
Coefficient of standard deviations

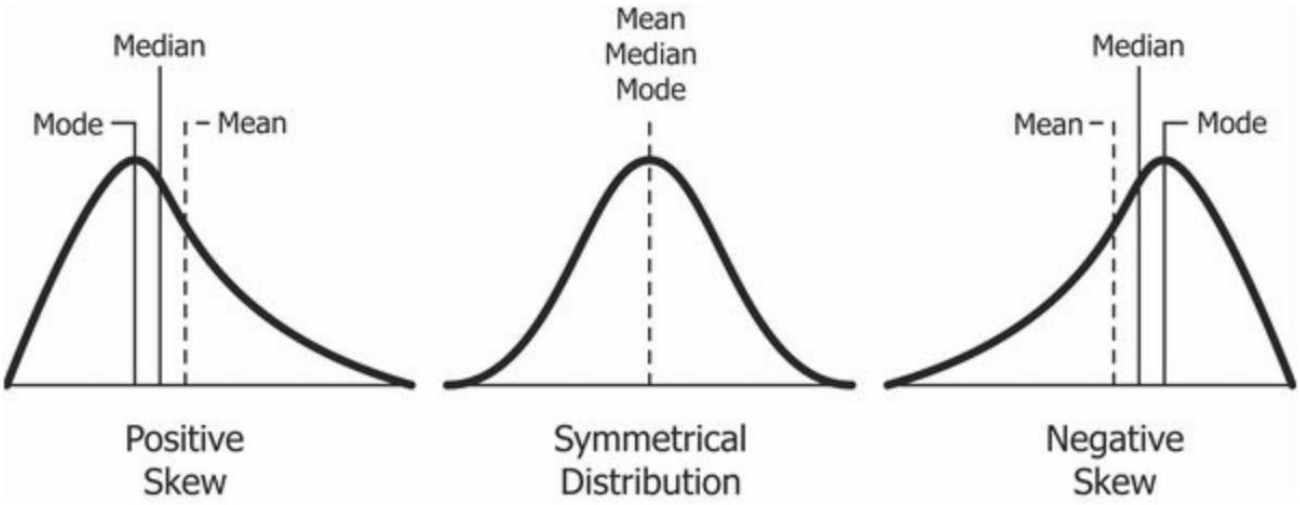
Coefficient of Variation (CV)

The coefficient of variation (CV) is a statistical measure of the dispersion of data points in a data series around the mean. The coefficient of variation represents the ratio of the standard deviation to the mean, and it is a useful statistic for comparing the degree of variation from one data series to another, even if the means are drastically

Skewness is the measure of the asymmetry of an ideally symmetric probability distribution and is given by the third standardized moment. If that sounds way too complex, don’t worry! Let me break it down for you.

skewness is the measure of how much the probability distribution of a random variable deviates from the normal distribution. Well, the normal distribution is the probability distribution without any skewness. two types of skewness:

- Positive Skewness
- Negative Skewness



The probability distribution with its tail on the right side is a positively skewed distribution and the one with its tail on the left side is a negatively skewed distribution. skewness is such an important concept for a data science professional.