

How do I calculate the coefficient of variation in Google Sheets?

Authored by
stats writer

April 19, 2024

RECOMMENDED CITATION

stats writer (2024). *How do I calculate the coefficient of variation in Google Sheets?*. PSYCHOLOGICAL SCALES. Retrieved from <https://scales.arabpsychology.com/?p=137267>

The coefficient of variation is a statistical measure that calculates the variability or dispersion of a data set relative to its mean. In Google Sheets, this can be calculated by using the formula "`=STDEV(data range)/AVERAGE(data range)`". This will give you the coefficient of variation as a percentage, which can be used to compare the variability of different data sets. To use this formula, simply select the data range you want to analyze and enter the formula into an empty cell. This will provide you with a numerical value that represents the variation of your data set.

Calculate the Coefficient of Variation in Google Sheets

A coefficient of variation, often abbreviated as CV, is a way to measure how spread out values are in a dataset relative to the mean. It is calculated as:

$$CV = \sigma / \mu$$

where:

σ : The standard deviation of dataset
 μ : The mean of dataset

In plain English, the coefficient of variation is simply the ratio between the standard deviation and the mean.

When to Use the Coefficient of Variation

The coefficient of variation is often used to compare the variation between two different datasets.

In the real world, it's often used in finance to compare

the mean expected return of an investment relative to the expected standard deviation of the investment. This allows investors to compare the risk-return trade-off between investments.

For example, suppose an investor is considering investing in the following two mutual funds:

Mutual Fund A: mean = 7%, standard deviation = 12.4%

Mutual Fund B: mean = 5%, standard deviation = 8.2%

Upon calculating the coefficient of variation for each fund, the investor finds:

CV for Mutual Fund A = $12.4\% / 7\% = 1.77$

CV for Mutual Fund B = $8.2\% / 5\% = 1.64$

Since Mutual Fund B has a lower coefficient of variation, it offers a better mean return relative to the standard deviation.

Example: Calculating the Coefficient of Variation in Google Sheets

There is no built-in function in Google Sheets to calculate the coefficient of variation for a dataset, but

it's relatively easy to calculate using simple formulas.

	A	B	C	D	E
1	Data values				
2	88				
3	85				
4	82				
5	97				
6	67				
7	77				
8	74				
9	86				
10	81				
11	95				
12	77				
13	88				
14	85				
15	76				
16	81				
17	82				
18	82				
19	84				
20	90				
21	91				
22					
23					
24					
25					
26					
27					

To calculate the coefficient of variation for this dataset, we only need to know two numbers: the mean and the standard deviation. These can be calculated using the following formulas:

	A	B	C	D	E
1	Data values				
2	88		Mean	83.4	=AVERAGE(A2:A21)
3	85		Std. Deviation	7.2067	=STDEV(A2:A21)
4	82				
5	97				
6	67				
7	77				
8	74				
9	86				
10	81				
11	95				
12	77				
13	88				
14	85				
15	76				
16	81				
17	82				
18	82				
19	84				
20	90				
21	91				
22					
23					

To calculate the coefficient of variation, we then divide the standard deviation by the mean:

	A	B	C	D	E
1	Data values				
2	88		Mean	83.4	=AVERAGE(A2:A21)
3	85		Std. Deviation	7.2067	=STDEV(A2:A21)
4	82				
5	97		Coefficient of Variation	0.0864	=D3/D2
6	67				
7	77				
8	74				
9	86				
10	81				
11	95				
12	77				
13	88				
14	85				
15	76				
16	81				
17	82				
18	82				
19	84				
20	90				
21	91				
22					
23					

The coefficient of variation turns out to be 0.0864.

How to Calculate the Coefficient of Variation in Excel

How to Calculate the Coefficient of Variation in SPSS