

Descriptive statistics (variability)...

Indicator	Definition	Formula	In Excel	In Stata	In R
Variability					
Variance	<p>The variance measures the dispersion of the data from the mean.</p> <p>It is the simple mean of the squared distance from the mean.</p>	$s^2 = \frac{\sum (X_i - \bar{X})^2}{(n-1)}$	=VAR(range of cells)	- tabstat var1, s(variance) or - sum var1, detail	var(x) sapply(x, var, na.rm=T)
Standard deviation	<p>The standard deviation is the squared root of the variance. Indicates how close the data is to the mean. Assuming a normal distribution:</p> <ul style="list-style-type: none"> • 68% of the values are within 1 sd (.99) • 95% within 2 sd (1.96) • 99% within 3 sd (2.58). 	$s = \sqrt{\frac{\sum (X_i - \bar{X})^2}{(n-1)}}$	=STDEV(range of cells)	- tabstat var1, s(sd) or - sum var1, detail	sd(x) sapply(x, sd, na.rm=T)
Range	<p>Range is a measure of dispersion. It is simple the difference between the largest and smallest value, “max” – “min”.</p>		=MAX(range of cells) - MIN(same range of cells)	tabstat var1, s(range)	range=(max(x)-min(x));range

NOTE: You can estimate all statistics in Excell using “Descriptive Statistics” in “Analysis Toolpack”. In Stata by typing all statistics in the parenthesis tabstat var1, s(mean median variance sd range). In R see