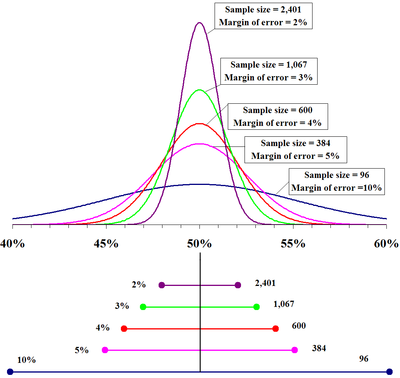
MARGIN OF ERROR IN EXCEL – DEMO NOTES

Pollsters tend to report results with a “margin of error” that is assumed to be within 2-3%. What does this number mean, and why is it assumed to be 2-3%?

The margin of error is. Here is a good visualization [from Wikipedia](https://en.wikipedia.org/wiki/Margin_of_error):



The equations are

These are the bounds around which we would expect to find the population mean 95% of the time (for a 95% confidence interval).

We have a dataset and will calculate a running average.

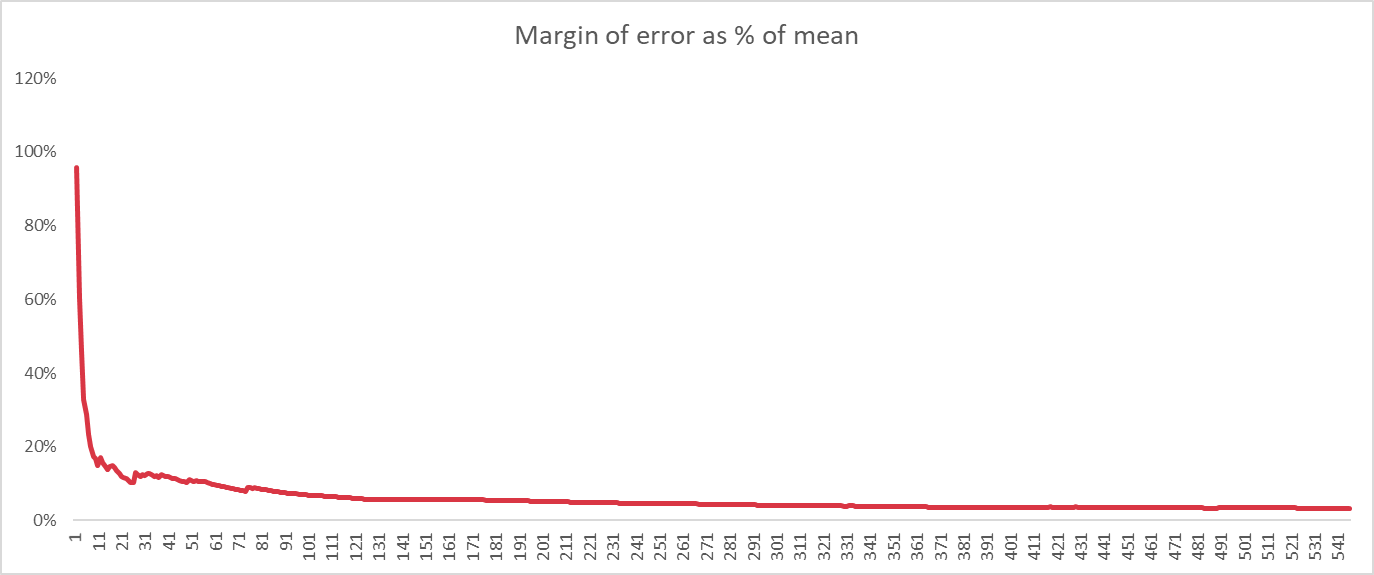
Where

For the demonstration, fill out the below columns of the start worksheet using these formulas.

**Demo file:** [**margin-of-error.xlsx**](https://github.com/summerofgeorge/blog-files/blob/master/margin-of-error.xlsx)

|  |  |  |
| --- | --- | --- |
| **Column position** | **Column label** | **Formula** |
| C | Sample mean | =AVERAGE($B$2:INDEX($B$2:$B$547,$A3)) |
| D | Variance | =VAR.S($B$2:INDEX($B$2:$B$547,$A3)) |
| E | Standard Error | =SQRT(D3)/SQRT(A3) |
| F | Critical value | =VLOOKUP($A3,'critical-value'!$A$1:$B$34,2) |
| G | Margin of error | =E3\*F3 |
| H | Margin of error as % of mean | =G3/C3 |

By default, Column H will be plotted as a line chart expressing the margin of error as a percent of the mean:



This expresses the amount of sampling error there is in the sample mean being reflective of the population. The margin of error dips significantly around n=30, n=60 and n=100. These are empirical results but are generally good rules of thumb as “good, better, best” sample sizes for conducting inferential statistics.