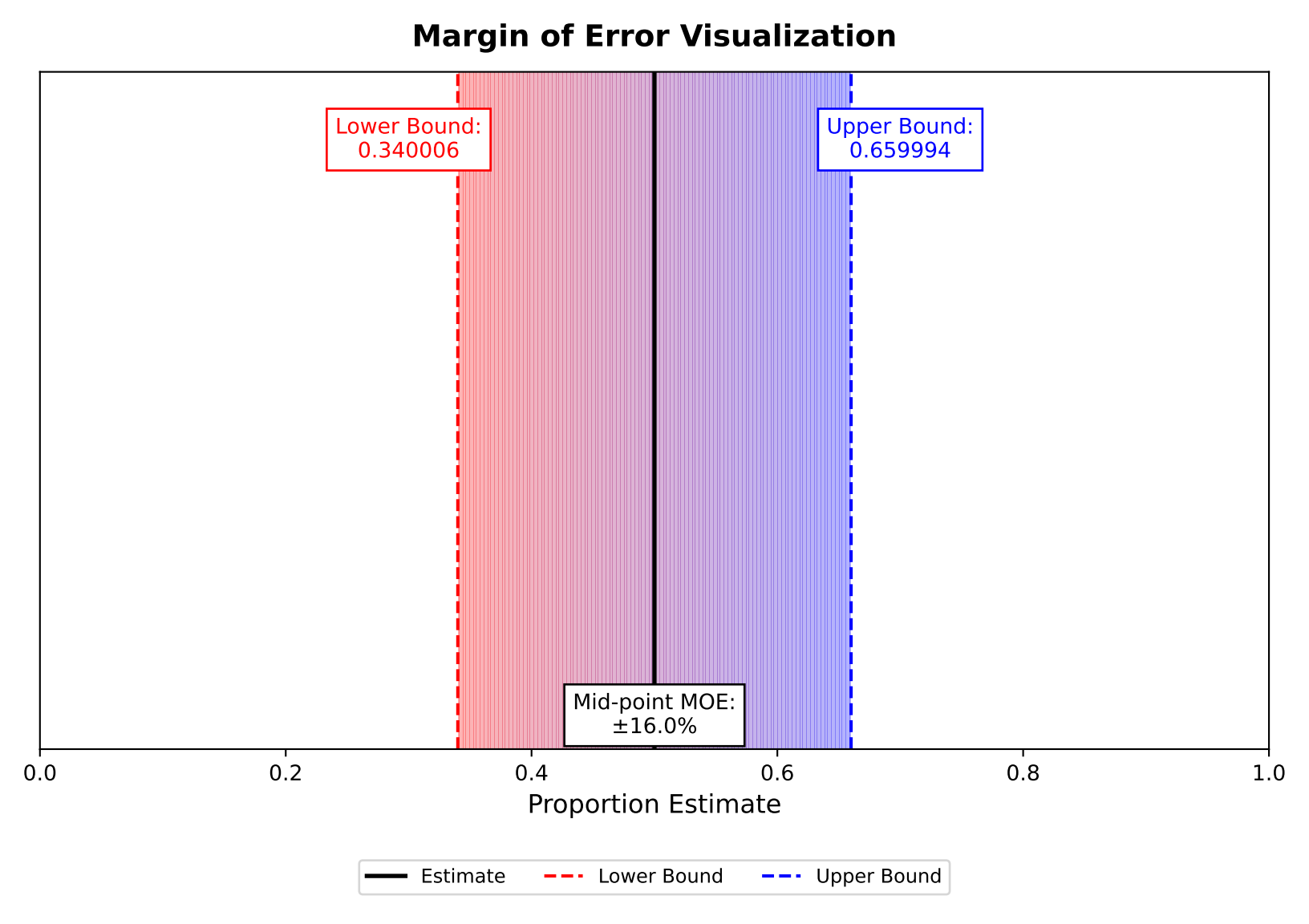
Margin of Error Visualization
Lower Bound:
0.340006
Upper Bound:
0.659994
Mid-point MOE:
±16.0%
0.0
0.2
0.4
0.6
0.8
1.0
Proportion Estimate
Estimate
Lower Bound
Upper Bound

Interpretation & Example

How to Read the Visualization

This visualization illustrates the concept of margin of error (MOE) in the context of a sample proportion, using Cochran's sample size equation with finite population correction.

Black vertical line (Estimate):

The center black line represents the observed proportion from your sample. In this case, it's 0.50, meaning 50% of the sampled group exhibited the measured characteristic.

Red dashed vertical line (Lower Bound):

This shows the smallest plausible value of the proportion within the specified margin of error — here 0.340006.

Blue dashed vertical line (Upper Bound):

This shows the largest plausible value — here 0.659994.

Shaded red→blue gradient:

The shaded area between the bounds represents the confidence interval — the range of values in which the true population proportion is expected to fall at the chosen confidence level (e.g., 95%). The gradient reflects the movement from the lower bound (red) to the upper bound (blue).

Mid-point MOE label (±16%):

This states the size of the margin of error in percentage points. A ±16% MOE means the estimate could be up to 16 percentage points higher or lower than the sample result.

How to interpret it

If the visualization is based on a 95% confidence level, we can be 95% confident that the true population proportion lies somewhere in the shaded range between the lower and upper bound. The key insight is not just the estimate (50%) but also the uncertainty around it — which is what the MOE communicates.

Real-Life Example for Context (IEP Monitoring)

Scenario:
A state monitoring team wants to estimate the percentage of IEP folders that are compliant with federal and state requirements during a monitoring review.

Sample size: 150 IEP folders
Sample proportion: 50% of folders reviewed are fully compliant
Confidence level: 95%
Margin of error: ±16% (calculated using Cochran's formula with finite population correction for the total number of IEP folders in the LEA)

Interpretation:
Based on the sample review, the monitoring team can be 95% confident that the true compliance rate for all IEP folders in the LEA lies between 34.0% and 66.0%.

Why this matters:
A ±16% margin of error indicates substantial uncertainty. The wide shaded range means the actual compliance rate could be much higher or lower than the estimate. If the LEA's compliance threshold is 80%, this result suggests a high likelihood of noncompliance — but more precise estimates would require reviewing a larger sample to reduce the MOE.