Sample Size Calculation Worksheet

This worksheet provides step-by-step formulas and worked examples for determining sample size in common research scenarios.

1. Sample Size for an Infinite Population (Cochran's Formula)

Formula:

$$n = (Z^2 \times p \times (1 - p)) / e^2$$

Where:

- n = Required sample size
- Z = Z-value (1.96 for 95% confidence)
- p = Estimated proportion (0.50 if unknown)
- e = Margin of error

Worked Example

Given:

Z = 1.96
p = 0.50
e = 0.05

Calculation:

$n = (1.96^2 \times 0.50 \times 0.50) / 0.05^2$
$n = (3.8416 \times 0.25) / 0.0025$
$n = 384.16 \approx 385$ respondents

2. Sample Size for a Finite Population

Formula:

$$n = n_0 / (1 + ((n_0 - 1) / N))$$

Where:

- n_0 = Initial sample size from Cochran's formula
- N = Population size

Worked Example

Population (N) = 2,000
Initial sample size (n_0) = 385
n = 385 / (1 + (384/2000)) = 323 respondents (approx.)

3. Worksheet

Research Title: _____

Population Size (N): _____

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Confidence Level: _____

Z-value: _____

Margin of Error (e): _____

Estimated Proportion (p): _____

Calculated Sample Size (n_0): _____

Adjusted Sample Size (if finite): _____

Final Sample Size Used: _____

Reason for Selection: _____