

Sample Size Calculator

I. INTRODUCTION

The Sample Size Calculator program has been developed as a tool to aid agencies who want to conduct a survey of clients. This tool helps agencies determine how many clients out of their entire population of interest should fill out a questionnaire. An adequate sample size is needed in order to provide sufficient accuracy for estimates from a sample of clients to represent the population at large. This sample size program is based upon a common method used by statisticians to determine a sample size, yet is easy enough for anyone to use. (Please note: The confidence interval calculation procedure below applies only to percentage estimates, e.g., what percent of clients are low income, and not to non-percentage kinds of measures such as mean age, income, etc.)

II. INSTRUCTIONS

Step 1. Select Confidence Level

The confidence level is an indicator of how likely it is that the actual population's response lies in the confidence interval that is selected. The 95% confidence level is used by most researchers and is recommended for the POMP project. This means that 95% of the time the population response would lie within the defined confidence interval.

Step 2. Record Population Size

When working with a relatively small population such as in the POMP project, a population adjustment factor is applied to the sample size calculation. The population size is the total number of clients of interest from which the sample will be drawn. Once the population size is known, this information is entered into the program in order to determine the sampling rate required.

Step 3. Confidence Interval

This is the plus or minus interval seen in most polls to indicate the range where the population's response to a question would most likely fall. In general, a smaller range will reflect a higher precision in your estimate of the population's response, but comes at the cost of increasing the sample size.

The screenshot shows a window titled "Sample Size Calculator" with a blue title bar and standard Windows window controls. The main area has a light blue background and is divided into two sections. The top section, "Input Parameters:", contains four rows of input fields: "Confidence Level" with radio buttons for 90%, 95% (selected), and 99%; "Population Size" with an empty text box; "Confidence Interval" with a text box containing "5" and a "%" symbol; "Response Rate" with a text box containing "95" and a "%" symbol; and "Population Propotion" with a text box containing "50" and a "%" symbol. Below these fields is a "Calculate Sample Size" button. The bottom section, "Sample Size:", contains a "Sample Size" text box that is currently empty. At the very bottom of the window are two buttons: "Help" and "Exit".

For the POMP project, a 5% confidence interval is recommended, which means that we can be 95% sure that the population's response will be within $\pm 5\%$ of the sample's response to a question. In combination with the confidence level, this contributes to specifying the accuracy of the sample. In this example, the population response will be within 5 percent of the sample response about 95 percent of the time.

Step 4. Response Rate

The response rate is an estimate of the percent of the clients in the sample that will complete the questionnaire. For example, a 95% response rate assumes that 5% of the people in the sample will not complete the survey because they refused or couldn't be reached or because of other reasons. It is usually estimated in advance based upon previous experience by an agency in administering surveys.

Step 5. Population (Proportion) Estimates

The population proportion is an estimate of the percent of the sample that will pick a particular response. When calculating confidence intervals, it is best to assume the worse case, which is 50% of the clients will have same characteristics. Response patterns will vary by specific questions on a survey, but an overall estimate is necessary when designing a sample. When analyzing the actual data collected, the reliability of the estimates can be computed for each question and response item.

Step 6. Calculate Sample Size

After all the basic information is provided, press the calculate button. The sample size will be reported on the screen. The sample size indicates the number of clients to be included in the sample and contacted. It is not an estimate of the number of completed interviews unless you expect a 100% response rate. Instead, the sample size estimate takes into consideration that not every client in the sample will complete the questionnaire by adding replacements to the original sample. The replacements are necessary in order to achieve the desired level of precision in your sample estimates.