

Tools of the Trade:

ENTIRE POPULATION and SAMPLE SIZE SURVEYS

We are going to discuss the characteristics of an entire population survey and a sample size survey.

A population is defined as a set of elements; an element is defined as the basic unit that comprises the population. Some examples of populations are (a) all persons, 18 years and older, living in dwelling units within Pennsylvania on January 1, 1998, or (b) all discharges from acute-care general hospitals in Philadelphia during the time period July 1, 1997 to June 30, 1998.

We all know that it would be very expensive and time consuming to survey all persons, 18 years and older, living in dwelling units within Pennsylvania on January 1, 1998. Not only would the survey be expensive and time consuming but also the number of the staff needed to process a survey of this magnitude would be considerable.

Before beginning a survey, you should have a clear picture of the population or universe you want to study. The first step in defining a population is to decide whether it is a population of individuals, households, institutions, transactions, or whatever. Once you have determined the unit of analysis, then decisions must be made as to what units should be included or excluded in the study. The following criteria need to be considered.

1. **Geography:** The study will probably relate to a local area such as a state, county, city or other political unit.
2. **Age of Individuals:** Generally some minimum age is established. Ordinarily there is no maximum age, but there can be if the study deals with a population such as women of childbearing age.
3. **Other Demographic Variables:** Sex, race, marital status, and education are other variables sometimes used to define a population.
4. **Household Variables:** If the unit of analysis is the household, one must then define the household. Will it include only core family units (husband, wife and children) or any combination of related/unrelated members?

Quite frequently a sample is chosen from the population to survey. A sample is defined as a subset of the population. Sample surveys can save you time and money and can be handled by fewer staff. Not only is doing a sample of a population more convenient, but you may also get better cooperation from those included in the survey, especially if they know they are one of just a few chosen to be included in the survey.

The goal is to get a representative sample - a sample that provides a small picture of a piece of everything in the large picture and has everything in the same proportion as in the large picture. A sample is not just a part of the population you are studying but an accurate miniature of that population. If you do not get a typical selection, you cannot claim that your sample is sufficient to represent the entire population.

The sample size is also quite important. Larger sample sizes allow finer breakdowns of the sample for detailed analysis (e.g. by sex or race or household income). Sample size also depends on other factors such as the degree of precision required and the expected size of the nonresponse rate. Determining sample size is usually a matter of judgment coupled with a lot of experience and is better left to an expert.

There are two basic types of samples: probabilistic and nonprobabilistic. When using a probability sample, you know in advance the chances a particular person or unit in a population has of being selected. Whereas, with a nonprobability sample, you cannot indicate the probability of an individual or unit being selected. Two types of nonprobabilistic samples are convenience and quota sampling. Convenience sampling is simply selecting the nearest or most convenient respondents. An example of convenience sampling would be to stand on a street corner and ask pedestrians as they walk by to respond. Quota sampling is when an interviewer is given a quota of a certain type of individual to interview. If the man/woman on the corner is instructed that fifty percent of his/her respondents must have red hair, a quota sampling is then being conducted. Probability sampling is, by far, the preferred method.