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Population and Sample

A *population* consists of the totality of all the elements or entities from which you want to obtain information. A *sample* is a subset of the population. The idea is to come up with a conclusion about a population on the basis of the information obtained from the sample. For example, if you want to study the percentage of 2012 high school graduates in the Philippines who actually continue on to college, you

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Suppose you are interested in some labor issues and you want to study the percentage of college students who have either part-time or full-time jobs. If your focus is to study the college students in your school only, then you may consider all the college students in your school as your population. On the other hand, if your aim is to study the college students in the Philippines as a whole, then the college students at your school can be a sample of the population. This, however, may not be the best representative of the population.

A *census* is a process of collecting information from the population. The term *census* also refers to an official count by a national government of its country's population.

A census determines the size of a country's population and the characteristics of its people, such as age, gender, educational background, civil status, profession, and income level. Most countries conduct population censuses at regular intervals. By comparing the results of successive censuses, statisticians can see whether the population is growing, stable, or declining. Governments use census information for public policies such as fund allocations for schools and road construction.

A *survey* is the process of collecting information from a sample. It is generally conducted when the population is too large and getting information from the whole population is a costly and time-consuming task. A public opinion poll is an example of a survey. Public opinion polls are usually concerned with attitudes and preferences of a population toward events, circumstances, personalities, and issues of public interest. The sample of people from which the information has been collected in a survey should not be biased. A sample is usually considered *biased* when certain groups in the population are not included in the study. For example, when women are not included in a sample for a survey on the issue of reproductive health (RH) bill, the sample is biased.

Parameter and Statistic

Any numerical value that describes a characteristic of a population is called a *parameter*. Recall that statistic refers to any numerical value describes a characteristic of a sample.

Researchers are often interested with the population of the study and its associated parameters. Oftentimes, they are not able to obtain these values. They rely on statistics from samples to provide them with inferences about the population parameters.

Variables

A *variable* is any characteristic or information measurable or observable in every element of the population or sample. There are two types of variables: *quantitative variables* and *qualitative variables*.

Pop-Up!

A *qualitative variable* indicates what kind of characteristic or quality an individual, object, or event possesses.

Qualitative variables are also known as *categorical variables*. School, favorite basketball team, or cellular phone brand are examples of qualitative variable.

Pop-Up!

A *quantitative variable* indicates how much or how many, that is, the quantity of a characteristic, an individual, object, or event possesses.

Height, weight, temperature, number of students enrolled this term, and score in an examination are examples of quantitative variables.

Pop-Up!

Not all variables involving numbers are considered quantitative variables. Student identification (ID) number, for example, is a qualitative variable. These numbers are considered tags or labels.