



SAMPLING

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Population and Sample

Population and Sample

Population:

Collection / all members of the object of research and fulfill certain criteria that have been determined by the research.

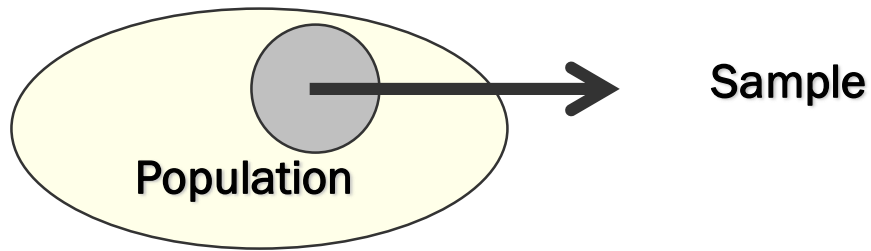
criteria that have been set in the research

Research that involves the population as the object of research is called a Census

Sample:

A certain part of the population unit

Research involving samples as the object of research is called Sampling



Population and Sample

Population:

Pros: Data is guaranteed to be more complete

Conclusions/generalizations are more accurate

Weaknesses : Requires a lot of resources (cost, energy, time)

There is no guarantee that all members of the population can be recorded / tracked in the field

Sample:

Pros : Efficient use of resources (labor, cost, time)

Sample members are easier to record/trace in the field

Weaknesses : Requires accuracy in determining the sample

Drawing conclusions/generalizations needs careful analysis and is done carefully

Sampling

The process of selecting a number of elements from a population so that by studying the sample and understanding the properties of the subjects in the sample, we are able to generalize these properties to the elements of the population.

Reason for Sample Selection

1. The extent of the object of research that causes it cannot be reached as a whole
2. The elements / members contained in the population are too many so that they cannot be studied at all
3. The location of population members is not known with certainty
4. Limitations of time, energy and cost of the researcher
5. Heterogeneous population elements
6. In research there may be “destructive” activities. (example: research on bulb durability)

Sampel yang baik

In practice, it is very rare for research to apply a census in its data collection efforts due to operational limitations. So that research more often uses sampling techniques. However, it is necessary to pay attention to important things related to the selection of a good sample.

Good Samples:

- Representative (must be able to represent the population or all elements of the sample)
- Sample boundaries must be clear
- Can be tracked in the field
- There is no double sample membership (in the data twice or more)
- Must be up to date (the latest and in accordance with the circumstances when the research was conducted)

Sampling Method

Probability sampling

- Simple random sampling
- Systematic Sampling
- Stratified random sampling
- Cluster sampling or Area sampling

Non Probability sampling

- Convenience sampling
- Judgment sampling or Purposive sampling
- Quota sampling

Probability Sampling

Simple random sampling

namely how to take samples randomly (Random). The sampling method can be done by lottery. However, the sampling method with this method must meet the condition that the population members are homogeneous. If this condition is not met then this method is not suitable for use.

Simple Random Sampling

All elements of the population have an equal chance of being selected as sample members.

as a sample member. Sample members are selected randomly by drawing lots:

1. Using the member number as the lottery number.
2. Using a table of random numbers (random numbers) based on member numbers

Terms of Use of Simple Random Sampling Method:

1. The nature of the population is homogeneous
2. The state of population members is not too geographically dispersed
3. There must be a clear sampling frame.

Goodness: The use procedure is simple

Weaknesses: The requirements for using this method are difficult to fulfill

Systematic Sampling

This method is used if the population members are known and are not homogeneous but heterogeneous and not stratified. So that all elements in the population members can be represented, the sampling method is carried out systematically. Technically, sampling is done by first grouping members of the population according to their similarity (homogeneity) then from these groups are taken systematically (randomly or proportionally).

Stratified random sampling

This method is almost the same as systematic sampling, the difference is that in this system the homogeneity of population members has been formed based on their stratification or level. For example, members of the population consisting of groups with elementary, junior high, high school, and college education. Thus sampling can be done by taking samples from each stratum (level) randomly so that each stratum (level) can be represented.

Stratified random sampling

The population is grouped into sub-populations based on certain criteria that the population elements have. Each sub-population is attempted to be homogeneous. From each sub-population, some members are then taken randomly with proportional or disproportional composition.

The total selected members are determined as the number of research sample members. Example: Out of 1000 voters in the general election, 100 people will be taken.

(10%) as a sample based on the age of voters proportionally

Age of Voters	All Population	Proportion	Number of Samples
17 - 26 th	100	10 %	10
27 - 36 th	200	10 %	20
37 - 47 th	400	10 %	40
> 47 th	300	10 %	30
	1000		100

Cluster sampling/Area sampling

This method is used if the population members are scattered in several places that cover a large area and are difficult to reach. The sampling method is done by taking samples proportionally from each area (cluster), so that each area or cluster can be represented.

Cluster sampling

The population is grouped into sub-populations in clusters.

The sub-population is further broken down into smaller sub-populations

Members of the last sub-population are randomly selected as the research sample.

Example: A research sample will be selected to examine the average
income of construction workers in Semarang City

Semarang City is divided into 16 sub-districts

From the 16 sub-districts, 2 sub-districts are selected as the population of sampling I.

From each of the 2 sub-districts, 2 urban villages will be selected as the population of sampling II.

From each of the 2 sub-districts, 50 construction workers were selected as the sample.

Thus, 100 construction workers will be selected as the research sample.

According to the number of stages of selection, samples from Cluster sampling can be selected through One Stage Cluster Sampling, Two Stage Cluster Sampling and so on.

Non Probability sampling

Convenience sampling

This sampling method is carried out if the population is unknown, so that researchers can take samples based on the level of ease of obtaining and the convenience of students or researchers in choosing samples. Thus the researcher can determine for himself which sample he wants to take as long as he or the object is a member of the population.

Judgment Sampling or Purposive sampling

This sampling method is carried out if the researcher conducts sampling based on the decision of the researcher himself based on the criteria set by the researcher as long as the elements to be studied are members of the population.

For example: at least 17 years old, female, domiciled in a certain area.

Quota sampling

This sampling method is carried out if the population is unknown so that the researcher must determine the desired sample size himself.

The sampling method can be done by purposive or convenience sampling method.

Quota sampling

A method of selecting samples that have certain characteristics in the desired number or quota.

Example: Will be researched on the benefits of using the internet to improve quality of the teaching and learning process in certain courses

The researcher determines the quota for each sample:

number of students = 50 people

number of lecturers = 5 people

number of courses = 3 courses

So that 150 students and 15 lecturers were obtained as research samples for 3 courses that utilize the internet in the teaching and learning process

Pros: Easy and fast to use

Weaknesses: Sample determination tends to be subjective for researchers