What is the difference between Cluster Sampling and Stratified Sampling?

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Cluster Sampling and Stratified Sampling are two commonly used methods in statistical sampling. Both methods involve dividing a population into smaller groups, or clusters, in order to select a representative sample for data collection.

The main difference between Cluster Sampling and Stratified Sampling lies in how the clusters are selected. In Cluster Sampling, the clusters are chosen at random. This means that each cluster has an equal chance of being selected for the sample. On the other hand, in Stratified Sampling, the clusters are selected based on specific characteristics or variables of interest. This ensures that the sample is representative of the population in terms of these specific characteristics.

Another difference is the size of the clusters. In Cluster Sampling, the clusters tend to be larger, while in Stratified Sampling, the clusters are smaller and more homogenous in terms of the selected characteristics. This can affect the precision of the results, as smaller clusters may provide a more accurate representation of the population.

Additionally, the data analysis process differs for each method. In Cluster Sampling, data from all individuals within the selected clusters are collected and analyzed as a whole. In Stratified Sampling, data from each cluster is analyzed separately and then combined to obtain an overall representation of the population.

In summary, Cluster Sampling is a simpler and more cost-effective method, while Stratified Sampling allows for a more precise representation of the population. The choice between the two methods depends on the research objectives and the characteristics of the population being studied.

Cluster Sampling vs. Stratified Sampling: What's the Difference?

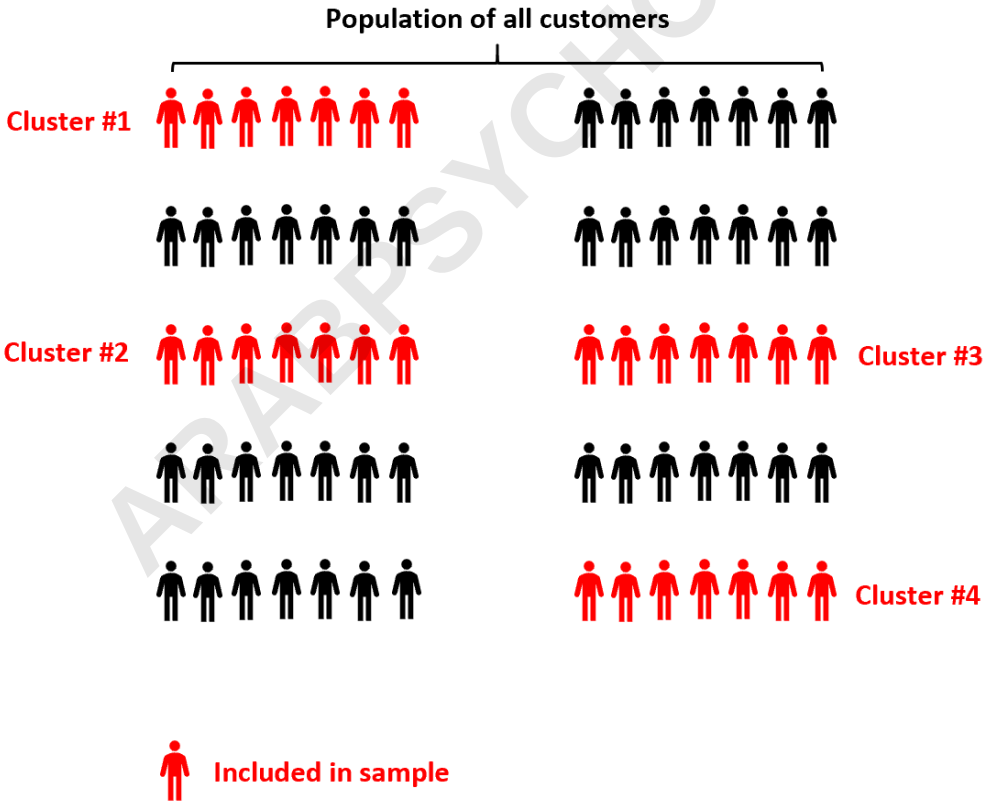
In statistics, two of the most common methods used to obtain from a population are cluster sampling and stratified sampling.

This tutorial provides a brief explanation of both sampling methods along with the similarities and differences between them.

Cluster Sampling

Cluster sampling is a type of sampling method in which we split a population into clusters, then randomly select some of the clusters and include all members from those clusters in the sample.

For example, suppose a company that gives whale-watching tours wants to survey its customers. Out of ten tours they give one day, they randomly select four tours and ask every customer about their experience.

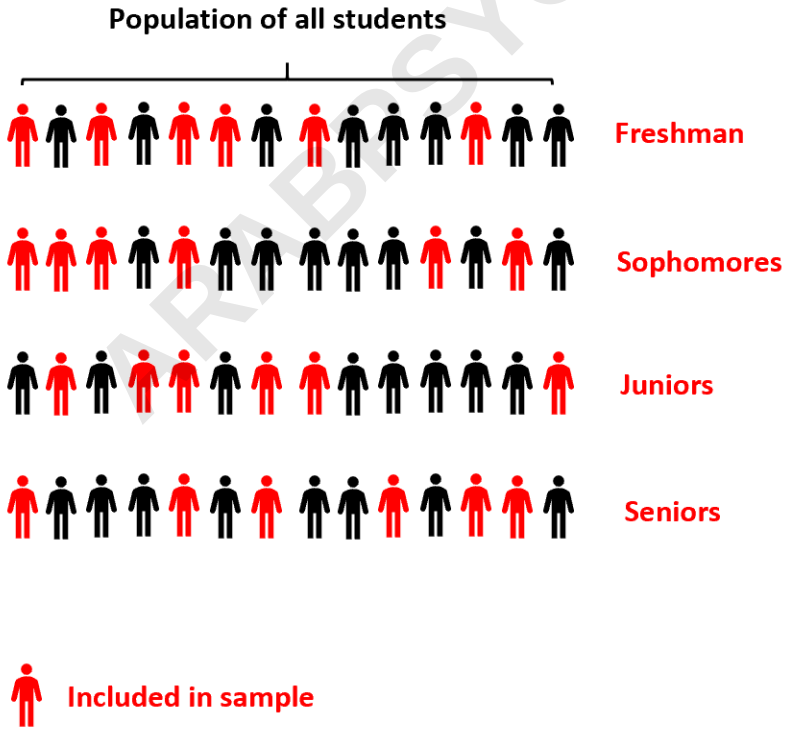


This is an example of cluster sampling.

Stratified Sampling

Stratified sampling is a type of sampling method in which we split a population into groups, then randomly select some members from each group to be in the sample.

For example, suppose a high school principal wants to conduct a survey to collect the opinions of students. He first splits the students into four stratums based on their grade - Freshman, Sophomore, Junior, and Senior - then selects a simple random sample of 50 students from each grade to be included in the survey.



This is an example of stratified sampling.

Similarities & Differences

Cluster sampling and stratified sampling share the following similarities:

Both methods are examples of *probability sampling methods* - every member in the population has an equal probability of being selected to be in the sample.Both methods divide a population into distinct groups (either clusters or stratums).Both methods tend to be quicker and more cost-effective ways of obtaining a sample from a population compared to a simple random sample.

Cluster sampling and stratified sampling share the following differences:

Cluster sampling divides a population into groups, then includes *all* members of some randomly chosen groups.Stratified sampling divides a population into groups, then includes *some* members of *all* of the groups.

When to Use Each Sampling Method

There is a simple rule of thumb we can use to decide whether to use cluster sampling or stratified sampling:

If a population is heterogeneous (i.e. there are natural differences between individuals) then it's best to use stratified sampling to obtain a random sample.

In our previous example with high school students, the students could naturally be divided into four groups based on grade. Thus, it made sense to include some students from each grade in the sample to get a representative sample of all students in the school.

If a population is homogeneous (i.e. there are no noticeable differences between individuals) then it's best to use cluster sampling to obtain a sample.

In our previous example with whale-watching tours, there were no clear differences between one group of customers and the next. Thus, it made sense to just randomly choose some groups and include all customers from those chosen groups to be included in the sample.

Keep this rule of thumb in mind when deciding whether

to use stratified sampling or clustering sampling.