

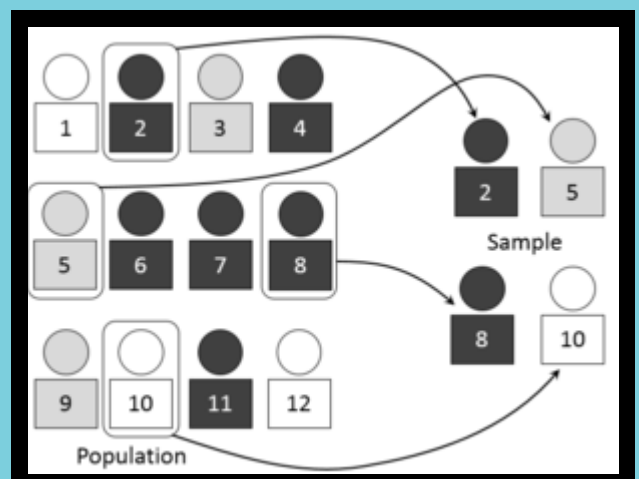
SAMPLING TECHNIQUES

- In statistics, survey sampling describes the process of selecting a sample of elements from a target population to conduct a survey.
- A sample survey is a survey which is carried out using a sampling method, i.e. in which a portion only, and not the whole population is surveyed.



- There are many techniques by which a population can be sampled.
- These techniques are called Sampling Techniques.

- These techniques are classified into two types.
- Probability sampling
- Non Probability Sampling



PROBABILITY SAMPLING

A PROBABILITY SAMPLING METHOD IS ANY METHOD OF SAMPLING THAT UTILIZES SOME FORM OF RANDOM SELECTION. IN ORDER TO HAVE A RANDOM SELECTION METHOD.

Simple Random Sampling

IN THIS CASE EACH INDIVIDUAL IS CHOSEN ENTIRELY BY CHANCE AND EACH MEMBER OF THE POPULATION HAS AN EQUAL CHANCE, OR PROBABILITY, OF BEING SELECTED. ONE WAY OF OBTAINING A RANDOM SAMPLE IS TO GIVE EACH INDIVIDUAL IN A POPULATION A NUMBER, AND THEN USE A TABLE OF RANDOM NUMBERS TO DECIDE WHICH INDIVIDUALS TO INCLUDE

Stratified Random Sampling

IN THIS METHOD, THE POPULATION IS FIRST DIVIDED INTO SUB-GROUPS (OR STRATA) WHO ALL SHARE A SIMILAR CHARACTERISTIC. IT IS USED WHEN WE MIGHT REASONABLY EXPECT THE MEASUREMENT OF INTEREST TO VARY BETWEEN THE DIFFERENT SUB-GROUPS. GENDER OR SMOKING HABITS WOULD BE EXAMPLES OF STRATA. THE STUDY SAMPLE IS THEN OBTAINED BY TAKING SAMPLES FROM EACH STRATUM.

Systematic Random Sampling

INDIVIDUALS ARE SELECTED AT REGULAR INTERVALS FROM A LIST OF THE WHOLE POPULATION. THE INTERVALS ARE CHOSEN TO ENSURE AN ADEQUATE SAMPLE SIZE. FOR EXAMPLE, EVERY 10TH MEMBER OF THE POPULATION IS INCLUDED. THIS IS OFTEN CONVENIENT AND EASY TO USE, ALTHOUGH IT MAY ALSO LEAD TO BIAS FOR REASONS OUTLINED BELOW.

Cluster Sampling

IN A CLUSTERED SAMPLE, SUB-GROUPS OF THE POPULATION ARE USED AS THE SAMPLING UNIT, RATHER THAN INDIVIDUALS. THE POPULATION IS DIVIDED INTO SUB-GROUPS, KNOWN AS CLUSTERS, AND A SELECTION OF THESE ARE RANDOMLY SELECTED TO BE INCLUDED IN THE STUDY. ALL MEMBERS OF THE CLUSTER ARE THEN INCLUDED IN THE STUDY. CLUSTERING SHOULD BE TAKEN INTO ACCOUNT IN THE ANALYSIS.

NON PROBABILITY SAMPLING

NON-PROBABILITY SAMPLING IS A SAMPLING TECHNIQUE WHERE THE SAMPLES ARE GATHERED IN A PROCESS THAT DOES NOT GIVE ALL THE INDIVIDUALS IN THE POPULATION EQUAL CHANCES OF BEING SELECTED.

Convenience Sampling

CONVENIENCE SAMPLING IS PERHAPS THE EASIEST METHOD OF SAMPLING, BECAUSE PARTICIPANTS ARE SELECTED IN THE MOST CONVENIENT WAY, AND ARE OFTEN ALLOWED TO CHOOSE OR VOLUNTEER TO TAKE PART. GOOD RESULTS CAN BE OBTAINED, BUT THE DATA SET MAY BE SERIOUSLY BIASED, BECAUSE THOSE WHO VOLUNTEER TO TAKE PART MAY BE DIFFERENT FROM THOSE WHO CHOOSE NOT TO.

Snowball Sampling

THIS METHOD IS COMMONLY USED IN SOCIAL SCIENCES WHEN INVESTIGATING HARD TO REACH GROUPS. EXISTING SUBJECTS ARE ASKED TO NOMINATE FURTHER SUBJECTS KNOWN TO THEM, SO THE SAMPLE INCREASES IN SIZE LIKE A ROLLING SNOWBALL. FOR EXAMPLE, WHEN CARRYING OUT A SURVEY OF RISK BEHAVIOURS AMONGST INTRAVENOUS DRUG USERS, PARTICIPANTS MAY BE ASKED TO NOMINATE OTHER USERS TO BE INTERVIEWED.

Quota Sampling

THIS METHOD OF SAMPLING IS OFTEN USED BY MARKET RESEARCHERS. INTERVIEWERS ARE GIVEN A QUOTA OF SUBJECTS OF A SPECIFIED TYPE TO ATTEMPT TO RECRUIT. FOR EXAMPLE, AN INTERVIEWER MIGHT BE TOLD TO GO OUT AND SELECT 20 ADULT MEN AND 20 ADULT WOMEN, 10 TEENAGE GIRLS AND 10 TEENAGE BOYS SO THAT THEY COULD INTERVIEW THEM ABOUT THEIR TELEVISION VIEWING. THERE ARE SEVERAL FLAWS WITH THIS METHOD, BUT MOST IMPORTANTLY IT IS NOT TRULY RANDOM

Judgmental Sampling

THIS METHOD IS A COMMON NON-PROBABILITY SAMPLING METHOD IN WHICH THE RESEARCHER DECIDES WHICH MEMBERS OF THE ENTIRE POPULATION SHOULD BE SELECTED BASED ON HIS/HER JUDGMENT. SINCE THE RESEARCHER'S JUDGMENT IS THE CRITERIA FOR SELECTING SAMPLE, IT IS NECESSARY THAT S/HE ENSURES THAT THE SELECTED SAMPLE IS AN APPROPRIATE REPRESENTATIVE OF THE ENTIRE TARGET POPULATION AND IF IT IS NEEDED SOME ALTERNATIVE JUSTIFICATION FOR REPRESENTATIVENESS MAY BE APPLIED.

- A major advantage with non-probability sampling is that — compared to probability sampling — it's very cost- and time-effective. It's also easy to use and can also be used when it's impossible to conduct probability sampling (e.g. when you have a very small population to work with).

The calculation for how large a sample data set should be depends on:

- The type of data (continuous or discrete) being measured
- How precise you want your statistical inferences to be.
- The estimate of the standard deviation for the entire population.
- The confidence level desired.

SUBJECT Sampling Techniques

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