An Assessment of the Sampling Methods in Social Research

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Abstract—*The aim of this study is to assess the sampling methods in social research. The role of research in several fields of applied economics, whether related to business or to be economy as a whole has greatly increased in modern times. The researcher must decide the way of selecting a sample from a given population and probability samples are those based on simple random sampling, systematic sampling, stratified sampling, cluster/area sampling whereas non-probability samples are those based on convenience sampling, judgment sampling, and quota sampling techniques. Thus, this paper attempts evaluating information from sampling and assesses its merits and demerits so that appropriate conclusion and suggestions could be made.*

1. INTRODUCTION

For studying a social problem, it is difficult to study the whole universe of the problem under study. It is because it is both costly, time consuming and complex as well as financially not viable. Today it is being increasingly felt that social researchers have neither time, nor money nor energy nor resources to study the entire population, which is connected or proposed to be covered in a study. In other words, Census Method of study is proving more and more costly and time consuming. The idea of gathering data from a population is one that has been successfully used over the years and is called a census. This method is mentioned several times in the bible. It was also used by the Ancient Egyptians "to obtain empirical data describing their subjects" Accordingly, it is felt that the representative sample should be picked up and conclusions drawn should be supposed to represent the whole population. According to P.V. Young, "A statistical sample is miniature picture or cross section of the entire group or aggregate from which the sample is taken. The entire group from which a sample is chosen is known as The Population, Universe, or Supply." The sample method involves taking a representative selection of the population and using the data collected as research information. It has also been described as a representative "taste" of a group. The sample should be "representative in the sense that each sampled unit will represent the characteristics of a known number of units in the population." *Sampling is used in practice for a variety of reasons such as;

i. Sampling is cheaper than census method. It is economical too. ii. As the magnitude of operations is small in case of sampling, so data collection, and analysis can be carried out accurately and efficiently. iii. Sampling is the only way when the population is as large as the population of a country. iv. Sampling enables the researcher to make a precise estimate of the standard error, which helps in obtaining information concerning some characteristic of the population. It is therefore sampling method is becoming more and more popular. In fact social researcher Census Method is being replaced by sampling method. Convenient to pick up a sample out of the universe proposed to be covered by the study. However, sampling needs much care. It should be representative and picked up in a manner that it represents the universe as a whole.

2. OBJECTIVES OF THE STUDY

The objectives of the paper are as follows:

1. To find out different types of probability sampling methods and non-probability sampling methods.
2. To evaluate its importance in social research.
3. To assess the sampling methods in social research.
4. To draw appropriate conclusion and suggest measures to reduce errors in sampling..

The main purpose of this paper is to assess the sampling methods in social research. For this purpose, describe sampling as a method of data collection. This paper will focus on sampling as a method to select participants for surveys; more specifically interviewing and self-administered questionnaires. Probability and non-probability sampling as well as the surrounding validity issues will be discussed.

3. SAMPLING METHODS

There are various types of sampling methods. The methods on the whole have its own advantages as well as disadvantages Sampling theory is important to understand in regards to selecting a sampling method because it seeks to "make sampling more efficient" (Cochran 5). Cochran posits that using correct sampling methods allows researchers the ability to reduce research costs, conduct research more efficiently (speed), have greater flexibility, and provides for greater accuracy.

Two standard categories of the sampling method exist. These two categories are called probability sampling and non-probability sampling.

Probability sampling is sometimes called random sampling and non-probability sampling is sometimes called non-random sampling. These terms are interchangeable.

Probability and non-probability sampling have advantages and disadvantages and the use of each is determined by the researcher's goals in relation to data collection and validity. Each sampling category includes various methods for the selection process. Sampling methods are broadly categorized into two groups: Probability sampling methods and Non-probability sampling methods.

4. PROBABILITY SAMPLING METHODS

In probability sampling methods, the researcher should know the universe from which the sample is drawn. Under this sampling design every item of the universe has an equal chance of inclusion in the sample.

4.1. Simple Random Sampling

Selecting a student from the complete students names from a box with blind or folded eyes is the best example of random sampling, it is the best technique and unbiased method. It is the best process of selecting representative sample. But the major disadvantage is that for this technique we need the complete sampling frame i.e. the list of the complete items or population which is not always available. Probability sampling methods are of three types) Simple random sampling: in this method, each element has the equal probability to be selected as a sample. It is bias free. Here an element cannot come twice as sample.

4.2. Systematic Sampling

In this method every nth element is selected from a list of population having serial number. For a large population (say, one lakh) is taken into study and the sample size is 100, so the investigator is to select every nth name means 1000th name. The starting name may be anyone within 1000, so selecting a particular element/person taking the 1000th name cannot represent the different strata or groups that may exist in that big population. Moreover, once the starting number is decided and collected data it cannot be changed or switched over the other category as per its definition (systemic). Moreover, the list may have the chance to repeat the same category of element by passing the other. It is biased and misleading but useful in homogeneous population.

4.3. Stratified Random Sampling

In stratified random sampling the population is first divided into different homogeneous group or strata which may be based upon a single criterion such as male or female. On the other hand, upon combination of more criteria like sex, caste, level of education and so on. This method is generally applied when different category of individuals constitutes the population viz. general, O.B.C, S.C, S.T or upper caste, middle caste, backward caste or small farmers, big farmers, marginal farmers landless farmers etc. To have an actual picture of a particular population about the standard of living, in case of India it is advisable to categorize the population on the basis of caste, religion, or land holding otherwise some section may be under-represented or not represented at all. Stratified random sampling may be of two types.. Proportionate stratified random sampling and Dis-proportionate stratified random sampling

4.3.1. Proportionate Stratified Random Sampling

In case of proportionate random sampling method, the researcher stratifies the population according to known characteristics and subsequently, randomly draws the sample in a similar proportion from each stratum of the population according to its proportion. That is, the population is divided into several sub-populations depending upon some known characteristics, this sub population is called strata and they are homogeneous. Suppose, a Gaon Panchayats consists of 1000 voters among which 60% is Hindus, 30% is Muslims and 10% is schedule tribes. Now the investigator wants to draw a sample of 150 voters from the population as per their proportion. That can be done by multiplying the sample number with their proportion; as per this method the sample size of Hindu voter will be 150 x 60% = 90, Muslims will be 150 x 30% = 45 and S.T will be 150 x 10% = 15.

Therefore, the investigator has to collect the complete voter list of the G.P and randomly select the sample from each category as calculated above. In this method, the sampling error is minimized and the sample possesses all the required characteristics of the population.

4.3.2. Disproportionate Stratified Random Sampling

In this method the sampling unit in each stratum is not necessarily be as per their population. Suppose for the said G.P the investigator wants to the know the voting pattern of male and female of Hindu, Muslim and S.T voters; in that case he must take equal no. of male and female voter from each category. Here the investigator has to give equal weightage to each stratum. This is a biased type of sampling and in this case some stratum is over-represented and some are less

represented; these are not truly representative sampling, still this to be used in some special cases.

4.4. Cluster Sampling

This is another type of probability sampling method, in which the sampling units are not individual elements of the population, but group of elements or group of individuals are selected as sample. In cluster, sampling the total population is divided into a number of relatively small sub-divisions or groups, which are themselves clusters and then some of these cluster are randomly selected for inclusion in the sample.

Suppose an investigator wants to study the functioning of mid-day meal service in a district in that case he can use some schools clustering in a block or two without selecting the schools scattering all over the district. Cluster sampling reduces the cost and labor of collecting the data of the investigator but less precise than random sampling

5. NON-PROBABILITY SAMPLING METHODS

In this type of sampling, items for the sample are selected deliberately by the researcher instead of using the techniques of random sampling. It is also known as purposive or judgment sampling. For instance an investigator wants to verify the profit making and self-dependency of the self-help groups in their chosen enterprises assisted by the central Govt. fund in a state; then the investigator may select one or two districts having more number of S.H.G, getting comparatively more fund, and researcher having long term experience in that locality. This is a biased type of sampling bears large sampling errors. This type of sampling is rarely adopted in large and important purposes. However, for research purpose the research scholar may take this. Some important techniques of non-probability sampling methods are: Quota Sampling, Purposive Sampling, Systematic Sampling, Snow Ball Sampling And Double Sampling

5.1. Convenience Sampling

This is a relatively easy choice for researchers when a group of people cannot be found to survey or question. For example, convenience sampling may include going to a place of business (mall, restaurant, etc.) and questioning or surveying those people who are available and consent to being questioned. If the researcher is interested in what people think of hair cutting techniques from a consumer perspective, the researcher may go to a hair salon and a barber shop and poll those patrons leaving the establishment after getting their hair cut. While convenience sampling includes only those ready and available, there is no excuse for sloppiness (Babbie 99). Babbie goes on to explain, "Survey researchers need to find ways of procuring a sample that will represent the population they are interested in learning about (99). In the example above, the interest is in people who have had their hair cut recently. The researcher would get far less results from those people exiting a restaurant. While some of those people may have had their haircut that day, the better selection is to go to a place where haircuts take place.

5.2. Quota Sampling

This method of sampling is almost same with that of stratified random sampling as stated above, the only difference is that here in selecting the elements randomization is not done instead quota is taken into consideration. In the above example the G.P. consists of 60% Hindu voters; for a sample size 150 the proportion is 90 individual, this number of individual is selected from the voter list of Hindu voters not observing the rule of randomization but as quota, so 90 number voters are selected as per convenience of the investigator. As quota, sampling is not random so sampling method is biased and lead to large sampling errors.

5.3. Purposive Sampling (Judgmental Sampling)

This is also non-random sampling method; here the investigator selected the sample arbitrarily which he considers important for the research and believes it as typical and representative of the population. Say, an investigator wants to forecast the chance of coming into the power of a political party in general election; for that purpose he selected some reporters, some teachers and some elite people of the territory and collect their opinions. He considers those are the leading persons and their view are relevant for the chance of coming in to the power of the party. As it is a purposive method, it has big sampling errors and carry misleading conclusion.

5.4. Snow Ball Sampling(Network Sampling)

This is a socio-metric sampling technique generally used to study the small group. All the persons in a group identify their friends who in turn know their friends and colleagues, until the informal relationships converge into some type of a definite social pattern. It is just like the snow ball go on increasing its size when rolling in a ice-field. In case of drug addict people it is difficult to find out who are the drug user but when one person is identified he can tell the names of his partner then each of his partner can tell another 2 or 3 whom he knows uses drug . In this way, the required number of element/person is identified who collects data. This method is suitable for diffusion of innovation, network analysis, decision making.

5.5. Double Sampling

In this method sampling is drawn twice. For the first time a large size of sample is selected and send the mailed questionnaire to the respondents (say 500) after receiving back the answered questionnaire (say 300, as all mailed questionnaire do not come back,) the investigator again randomly draws the required number of sample (say100) and send the modified questionnaire to the respondents. This method is time consuming and expensive.

6. ASSESSMENT OF THE SAMPLING METHODS

As with all research methods, sampling provides some room for error on the part of the researcher. Being aware of those possible errors is essential in selection of the sampling method used as well as calculation of the data collected. Simply being aware of possible errors is often not enough. Arlene Fink believes that no matter how thorough and proficient the researcher is, "sampling bias or error is inevitable" (25). Sampling error may be defined as "the error that results from taking one sample instead of examining the whole population" (Lohr 15). Lohr simply defines several types of sample errors as "under coverage, nonresponse, and sloppiness in data collection" (16).

Under coverage refers to selecting a sample that is not large enough. The error here is that the information gathered from a small sample is not representative of the population and cannot be generalized to that population. Gary Henry indicates, "Small sample size may contribute to a conservative bias (Type II error) in the application of the statistical test" (13). This happens when "a null hypothesis is not rejected although in fact it is false" (13).

Non-response is a non-sampling error that precludes that some members of the population who are eligible to be sampled are unwilling to participate or do not answer all questions on the survey(s) (Cochran 292: Fink 26; Henry 124; Lohr 6). Lohr indicates, "The main problem caused by non-response is potential bias of population estimates" (257).

Non-sampling errors "occurs because of imprecision in the definition of the target and study population and errors in survey design and measurement" (Fink 25). Some errors of non-sampling include changes due to historical circumstances, neglecting definitions and inclusion and exclusion of criteria, and instrument or survey process instrument bias (Fink 26).

Researchers should keep in mind that an "increase and sample size and an increased homogeneity of the elements being sampled" allow for the reduction of sampling error (Babbie 89). However, Lohr warns that "increasing the sample size without targeting nonresponse does nothing to reduce nonresponse bias; a larger sample size merely provides more observations from the class of persons that would respond to the survey" (257).

7. CONCLUSION AND SUGGESTIONS

Researchers may choose from a variety of sampling methods. The researcher goals inform which sampling method is best for the research to be conducted. The main choice in regards to sample method choice is whether the researcher wants to generalize the findings from the sample to the whole of the population being studied. Being aware of possible errors due to the sample method chosen is also very important because giving possible errors within the results section allows the study to be regarded as valid. Many sample method choices are available; the researcher must choose the method that is right for the study.

In conclusion, it can be said that using a sample in research saves mainly on money and time, if a suitable sampling strategy is used; appropriate sample size selected and necessary precautions taken to reduce on sampling and measurement errors, then a sample should yield valid and reliable information.

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