Advances and Applications in Mathematical Sciences
Volume 18, Issue 10, August 2019, Pages 1055-1062

SAMPLING TECHNIQUES

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Abstract

Sampling technique is an integral part of the research methodology. It is a very convenient and useful technique to select the samples from the universe of the research. Sampling technique is considered to be very important as it help the researcher to collect data from the correct elements or units of the research. The whole universe is dependent upon the data collection and its interpretation. Sampling technique aids and guides the researcher to identify the elements or units from whom the data is to be collected. Now this is a very vital step as the wrong identification will lead to the erroneous collection of the data. There are various types of sampling techniques and the researcher has to choose the most appropriate technique depending upon the nature and size of the population and also the type of data to be collected. Each sampling technique i.e. the probability as well as the non-probability techniques along with its sub classifications have peculiarities and limitations. Hence they have to be used accordingly in order to maximize the merits.

1. Introduction

One cannot deny the importance and utility of the principles of research methodology. It is this methodology which makes the research authentic and valuable. Hence it becomes compulsory for the research to follow the principles of research methodology. All the steps of the research methodology are very important and each and every step has some significance. The step which involves the identifying of the tools of data collection to be employed in the research projects is important from two aspects as follow.

1. It helps the researcher to collect data and it is only on the basis of this data that the researcher is able to process, analysis and interpret the data.

2010 Mathematics Subject Classification: 62D05.

Keywords: sampling technique, sampling error, probability sampling technique, non-probability sampling technique, simple random technique, stratified sampling technique, proportionate stratified sampling technique and disproportionate stratified sampling techniques.

Received July 26, 2019; Accepted September 11, 2019

Data collection provides the substance of the research, on which the entire processing and the resultant of the research is dependent upon.

2. The second aspect is this that, this step of the tools of data collection, reflects the nature of the research. To put it in other words, the nature of the research depends upon the tools employed for data collection. So if the primary tools of data collection are employed, then the research is classified as non-doctrinal research. If the research is non-doctrinal project only then, the step of sampling will be included in the research project. So sampling technique is applicable only to an empirical research. In case of a doctrinal research, no sampling technique will be applicable.

In an empirical research the data has to be collected from the members of the society. Now it is virtually impossible for the researcher to contact and then to collect data from each and every member of the universe of his research. Hence as a matter of convenience the principles of research methodology have prescribed the mode of sampling technique.

The meaning of sample-selection is to select the portion from the whole universe to study and draw conclusion and apply them to the entire universe of the research. So here the researcher selects a part from the whole for the purpose of study that part and apply the conclusions on the whole unit or universe of the research. Instead of studying the whole universe of the research the researcher studies on a part of it and this is called as sampling technique.

The sampling technique is adopted for the following reasons:

1. In case of non-doctrinal research, it becomes virtually impossible for the researcher to contact each and every person and then collect data from him, hence it is easy for the researcher to collect data from a chosen few i.e. the sample.

2. To study the entire universe the researcher has to spend a lot of time and energy. So the technique of sampling saves time and energy.

3. Apart from time and energy the sampling technique saves expenditure. As it is obvious that to contact and collect data from each and every unit would be to incur more expenses as compared to the collection of data from the samples selected.

4. The sampling technique enables the researcher to concentrate only on the samples and hence he can devote more time and energy for detailed study and analysis to be drawn from the sample. The researcher can pay more attention to the units of sample rather than to collect as data from the entire universe.

5. The sampling technique saves time as it becomes possible for the researcher to finish or complete his research in the prescribed time frame.

Since the conclusions drawn upon the selected sample are to be applied upon the entire universe, of the research, it is must that the sample is the exact replica of the universe. That is, the characteristic of the sample and the universe from which it is drawn should be the same or similar. If the characteristic of the sample and the universe are different, then the conclusion drawn from the study of the sample would not be applicable to the universe and then in such a case the whole purpose of the sampling technique would fail.

The steps which are to be followed in the sampling technique are as follows-

(a) A perfect and detailed analysis of the entire area of the research regarding.

i. Territorial (if it is applicable) the size of the territory/size of the population.

ii. Subject wise i.e. number of people- number of people which fall in the universe of the study.

(b) Identification of the nature of the population.

A prerequisite of the sampling technique is to study and analysis the population of the universe of the research in at least two respects. One the nature of population should be found out. That is whether the population is heterogeneous or homogenous etc. the other aspect for the researcher to know, is the number of people which are included in his universe of research. One caution would be liked to express here is that, the analysis of the population of the universe of the research has to be done in accordance with the objectives of the research.

(c) Once the size of population is ascertained then the size of the sample can be determined. The size of the sample should be optimum i.e. neither too small nor to large. The size of the sample should be drawn by considering the size of the population and information on the data which is to be extracted from the sample.

(d) Preparation of the sampling frame. The researcher has to prepare a sampling frame in all the names or the numbers of units of the population of the research are serially arranged. Selection of probability and non probability technique. The researcher has to choose between the probability and non probability technique to select the required sample.

In the probability sampling technique, each and every unit of the population of the universe has an equal chance of being included in the sample. Where as in a non probability technique, the researcher selects the number of sample according to a system, because of which each and every unit of the Sampling Techniques population of the research does not enjoy a chance of being included in the sample.

I. The types of probability sampling technique are as follows:

1. Simple Random Technique.

i. Fish bowl method: all the units of the population of the research are given some number and separate chits have to be prepared and each chit should contain only one number. After mixing all the chits together some chits have to be selected, corresponding to the number of samples to be selected.

ii. Tippets grid method: According to this method the units of the population of the research have to be given the tippets numbers and also the required numbers of the sample have to be systemically selected by the method given by Tippet. It is to be remembered that the first number is to be necessarily randomly selected.

iii. Systematic random sampling

A sampling frame has to be formulated in which all the units of the population have to be listed and numbered. After doing this, the researcher has to select systematically the samples (i.e. the numbers) from the sampling frame. For example the researcher selects every fifth or tenth number to be

included in the sample. As the researcher applies some system in selecting the samples, obviously he excludes the numbers which are not falling in the system category. For example as mentioned above if the researcher decides to choose every fifth number from the sampling frame, then it is but natural that the second, third and the fourth numbers are already excluded and they do not have a chance of being included in the sample. In this case every unit or number does not enjoy an equal chance of being included in the sample because the system of selection is such that it automatically excludes some units and includes some in the sample; after the selection of the first number it is utmost importance that the selection of the first number of the systematic sampling has to necessarily to be chosen randomly. As the first number is chosen randomly, systematic sampling technique falls in the category of probability sampling technique.

2. Stratified Random Sampling

If the universe of the research is heterogeneous then it is advisable to adopt the stratified random sampling technique. As the universe is heterogeneous, it becomes a little difficult to find the sample which is the exact replica of the universe of the research. Hence the universe has to be divided into different strata, this is called as stratified random sampling. Sampling Techniques Further the stratified random sampling is sub-divided into two sections.

(a) Proportionate stratified random sampling-Here the universe is divided into the stratas according to the size of the strata the numbers of requisite sample are selected. In the proportionate stratified sampling the size of the sample is dependent upon the size of the strata.

(b) Disproportionate stratified sampling-in this type of sampling the universe is divided into different stratas and then the equal numbers of samples are collected from every strata irrespective of size of the strata. In the disproportionate stratified sample representation is ensured but it is disproportionate representation. Whereas the proportionate stratified sampling ensures proportionate representatives of the samples.

Stratified random sampling is very complex as compared to the simple random sampling. One has to have a detailed study of the universe, because

if the stratas are inaccurately formulated then it may result in the sampling error. However if the stratas are accurately formulated then the proportionate stratified random sampling technique ensures maximum percentage of actual representativeness of the stratas.

II. The Non probability sampling:

It is also called as the non-random sampling. Here the samples are not selected randomly and so each and every element does not enjoy an equal chance of being included in the sample. There are three types of non-probability sampling techniques:

1. Accidental Sampling Technique:

In this method, the researcher happens to meet the sample by accident and immediately the researcher includes him in his sample. Here the researcher meets the sample by chance or fluke and he has made no deliberate effort to collect the sample. The researcher simply collects the samples as they come in his way just like the rolling stone which gathers the moss as it comes in his way.

2. Quota Sampling:

In quota sampling the samples are collected from a particular area or group and the sample is projected as the replica of the group the researcher would like to generalize upon.

The caution which one has to take is that the researcher has to be sure that the sample is the replica of the universe of the study. Simply because if the sample does not have the same or similar characteristics, then the wrong sample will be collected this will lead to sampling error. If a sampling error prevails then the whole exercise of collecting the sample is nullified and it hampers the authenticity of the research work.

3. Judgemental or purposive sampling technique:

In this type of sampling technique, the researcher uses his own judgement to select a particular sample because he feels that the particular selected sample will give the required data and such a sample would be an exact replica of the universe of the research. The researcher has a purpose to select a specific or a particular sample. Hence this type of sampling is called as a judgemental or purposive sampling technique.

This non-probability sampling technique is comparatively easy or simple as compared to the probability sampling technique. However, in the non-probability sampling technique, the chances of sampling error is to the maximum extent. If the correct sample is selected then the data collected from such sample will be correct and the research will be authentic and fruitful. If however a sampling error exists then the data collected will be erroneous. For example in the case of judgemental sampling technique, if the researcher's judgement is accurate then almost 80% correct data can be collected but if the researcher's judgement is wrong the 100% wrong data would be collected thus rendering the whole exercise of research futile.

2. Conclusion

Sampling techniques are very useful and valuable because the data can be collected from the samples easily as compared to the census method. So also sampling techniques help the researcher to concentrate and study a portion of the universe thus making the research work manageable and feasible. There are many sampling techniques available to a researcher and each sampling technique has got a significance of its own. The research should have detailed knowledge of the universe as well as the various sampling techniques and then he should choose the most suitable sampling technique. All the sampling techniques are helpful in collecting data.

However if a sampling error exists then the advantage of the sampling is lost and erroneous data is collected resulting into erroneous conclusions. So it is said that sampling technique has the potential of either making or wrecking of the research conclusions.

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