

Sampling Method

Q. What is 'Sampling method' ?

Sampling—Before research work, the investigator has to decide whether the entire population is to be made the subject for data collection or a particular group is to be selected as representative of the entire population. The former method when the entire population is taken into account, is called 'Census method'. On the other hand, when a small group is taken into account as representative of the whole, it is called 'Sampling method'.

Definition of Sampling Method—Sampling method has been defined by various scholars in various ways. Given below are a few definitions :

(1) **Frank Yates**—According to Frank Yates, "The term sample should be reserved for a set of unit or portion of an aggregate and material which has been selected in the belief that it will be representative of the whole aggregate."

(2) **William J. George and Paul K. Hatt**—"A sample, as the name implies, is smaller representative of a larger whole."

(3) **P. V. Young**—According to P. V. Young, "A statistical method is a miniature picture or cross-section of the entire group or aggregate from which the sample is taken."

(4) **Bogardus**—"Sampling is the selection of certain percentage of a group items according to a pre-determined plan."

TYPES OF SAMPLING METHOD

Q. Describe briefly the various types of 'Sampling method' and give a brief description of each of them.

Types of Sampling—In social research, various methods are utilised for selecting and drawing the samples. For the convenience of study, these methods have been grouped together under the following major heads :

RANDOM SAMPLING

In this method all the units are given equal importance. Every unit has the possibility of being included in the sampling. It is also known as 'Proportionate sampling', because in it each class of items is in the same proportion as the universe of entire population. It has been defined by *Parten* in the following words :

“Random sampling is the form applied when the method of selection assures that each individual or element in universe has an equal chance of being chosen.”

Advantages of Random Sampling—The method of random sampling is simple and said to be a very easy form of the method employed for the study of social problems. That is why *Auckoff* has remarked :

‘Simple ‘Random sampling’, in a sense, is the basic form of all scientific sampling.’”

In this method, the investigator can keep himself away from prejudices, bias and other elements of subjectivity. It has the following advantages :

- (a) It is quite simple. The investigator does not have to exercise his brain whether a particular unit is to be chosen for selection or not. That is why *Frank Yates* has remarked : “Random sampling is the simplest type of rigorously selection sample, and is the basis of most of the more complicated sampling method,”

- (b) It is free from bias and prejudices.
- (c) It is said to be more representative because in this method, each unit has equal chance of being selected.
- (d) In this method if some error has crept in, it will not be difficult to detect it in case the sampling has been done strictly according to 'Random sampling method'.

Demerits of Random Sampling Method—Although the random sampling method has some very high advantages, it suffers from certain demerits as well. These demerits are :

(a) Selection according to strictly random basis is not possible—Sometimes instead of random sampling, we resort to chance selection which vitiates the whole procedure.

(b) Lack of control of the investigator—In this method, the investigator has no control over the selection of the unit. Consequently it may happen that the units selected are very widely dispersed and it may not be possible to contact all of them. In such events, the whole sample shall not be possible.

(c) Random sampling does not suit heterogeneous groups—Random sampling is an useful method if all the units are equal but if the units out of which the selection is to be made, are heterogeneous in nature and of different size and nature, the 'Random sampling' method may not be very useful and applicable.

STRATIFIED SAMPLING METHOD

In this method, the universe or the entire population is divided into a number of groups or 'strata'. Since the method deals with 'strata' and so it is called 'Stratified sampling method'. Once the whole universe is divided into various groups, certain numbers of items are taken from each group at random. In selecting the units at random out of different strata, we select them with a definite purpose or with a deliberate intention. Although the selection is done with a purpose, it is done at random.

Merits of the Stratified Sampling Method—Stratified sampling method has certain merits and advantages as a method of sampling method of research. *Auckoff* has rightly said : "Stratified sampling enables the researcher to make a comparison of properties of the strata as well as to estimate population characteristics." The merits of the stratified sampling method are described below in brief :

(a) **Greater control of the investigator**—In this method, the investigator has greater control over the selection of the samples. In random sampling although every group has a chance of being selected and included in the sample but there is every possibility and sometimes it does happen that certain important groups are left unrepresented, but in stratified sampling method no important group is likely to be left out.

(b) Easy to achieve representative character—In this method it is possible to achieve representative character with fewer items. In case of homogeneity in stratum, even a few items fulfil the ingredient representative character.

(c) Replacement of units is possible—Normally if a particular unit is not accessible for study, it is difficult to replace it by another but in stratified sampling method replacement of an inaccessible case by an accessible case study is possible. Stephen has said : “By providing that fixed proportion of the sample shall come from each geographic area or income class, stratification automatically brings about a replacement of persons lost to the sample by persons of the same stratum. Thus partly correcting the bias that would result if there were no replacement of losses.”

Demerits of Stratified Sampling Method—Stratified sampling method has certain merits and advantages that we have already seen. But it has certain merits and disadvantages also, that are described below :

(a) Possibility of bias—In this method if a stratification has not been done properly and scientifically, there is very possibility of bias creeping in. Sometimes in this method, representation of a particular stratum becomes higher while that of another lower.

(b) Difficult to attain proportion—It is very difficult to attain proportion through deliberated means. In random sampling method, it is achieved automatically. Attainment of proportion becomes particularly difficult when the size of different strata is extremely unequal.

(c) Difficulty in making the sample representative—In disproportionate type of stratified sampling, the element of weighing introduces the factor of selection and this again leads to make the unit representative. If undue weighing has been done, the sample becomes unrepresentative.

(d) Difficulty in placing cases under stratum—If the stratas are not very clear-cut, it may not be easy to decide in which unit or stratum a particular case is to be placed. This difficulty upsets the whole method.

PURPOSIVE SAMPLING

In this method of sampling, the investigator or researcher purposefully selects certain units for study. In this type of method, it is the selection which is upper-most and nothing is left to chance. *Adolph* has defined it in the following words :

“**Purposive selection** denotes the method of selecting a number of groups of units in such a way that selected groups together yield as quickly as possible the same averages or proportions as the totality with respect of those characteristics which are already a matter of statistical knowledge.”

Merits of the Purposive Sampling Method—The characteristics enumerated above, include many of the merits and advantages of the ‘Purposive sampling method’ but apart from it this method of research has the following advantages :

(a) Even a small sample can be representative—In this method, if prejudices and bias have been avoided, even a small sample can be representative.

(b) Purpose of the research fulfilled—In this method if the samples has been selected cautiously, the purpose of the research is fulfilled without any botheration.

(c) Useful units selected—If the investigator, as we have already discussed in the characteristics of the purposive sampling, has idea

about the universe, he shall note which units are useful for the research. In this method, the selector has supreme say and he selects all those units that are useful for the study. As a result of this, all relevant and useful units are given place in the selected list.

Demerits of the Purposive Sampling or Selection Method—Although certain merits and characteristics have been enumerated above, the 'Purposive sampling method' has certain demerits and disadvantages which have been pointed out even by great scholars and social thinkers. The demerits are enumerated below :

(a) Complete knowledge not possible—This method starts with the assumptions that the investigator has complete knowledge of the universe in advance but in normal course, it is not possible. Because of this lack of knowledge it is not possible to make scientific selection. That is why *Parten* has pointed out that, "Statisticians have class for nothing to say in favour of Purpose selection."

(b) Restrictions and controls not effective—The restrictions and the controls that are imposed in the selection of the units in this method are not very effective. That is why Neyman has said that "This method is hopeless."

(c) Not possible to assess the inaccuracies—In this method, because of bias and prejudices, inaccuracies creep in. In fact this purposive sampling is based on hypothesis in which it is not possible to test through practice, that is why mistakes crept in the selection method are not easily detected.