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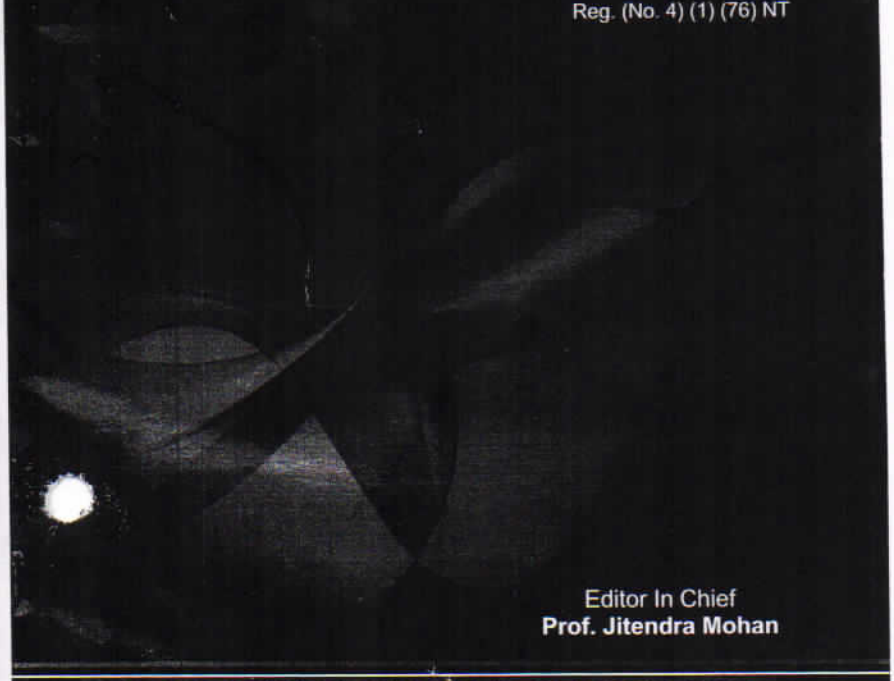

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NON-PROBABILITY SAMPLING DESIGNS IN QUANTITATIVE RESEARCH

Z. S. Kadam*

The purpose of this study is to introduce the non-probability sampling designs for quantitativ research. Two opposing philosophies underpin the selection of sampling units in quantitativ research. In quantitative studies a sample is supposed to be selected in such a way that represents the study population, which is achieved through randomisation. I introduce followin non-probability sampling designs (1) Quota sampling (2) Accidental sampling (3) Judgementa purposive sampling (4) expert sampling.

Non-probability sampling designs are used when the number of elements in a pop is either unknown or cannot be individually identified. In such situations the selec elements is dependent upon other considerations, which are commonly used i qualitative and quantitative research. These are :

1. Quota Sampling;
2. Accidental Sampling;
3. Judgemental Sampling or Purposive Sampling;
4. Expert Sampling;
5. Snowball Sampling.

What differentiates these designs being treated as quantitative or qualitative predetermined sample size. In quantitative research you use these designs to s predetermined number of cases (sample size), whereas in qualitative research you decide the number of respondents in advance but continue to select additional ca you reach the data saturation point. In addition, in qualitative research, you will predom use judgemental and accidental sampling strategies to select your respondents. sampling is very similar to judgemental sampling except that in expert sampling pop comprises experts in the field of enquiry. You can also use quota and snowball sa

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in qualitative research but without having a predetermined number of cases in mind (sample size).

Quota sampling

The main consideration directing quota sampling is the researcher's ease of access to the sample population. In addition to convenience, you are guided by some visible characteristic, such as gender or race, of the study population that is of interest to you. The sample is selected from a location convenient to you as a researcher, and whenever a person with this visible relevant characteristic is seen that person is asked to participate in the study. The process continues until you have been able to contact the required number of respondents (quota). Let us suppose that you want to select a sample of 20 male students in order to find out the average age of the male students in your class. You decide to stand a the entrance to the classroom, as this is convenient, and whenever a male student enters the classroom, you ask his page. This process continues until you have asked 20 students their age. Alternatively, you might want to find out about the attitudes of Aboriginal and Torres Strait Islander students towards the facilities provided to them in your university. You might stand at a convenient location and, whenever you see such a student, collect the required information through whatever method of data collection (such as interviewing questionnaire) you have adopted for the study. The advantages of using this design are : it is the least expensive way of selecting a sample; you do not need any information, such as a sampling frame, the total number of elements, their location, or other information about the sampling population; and it guarantees the inclusion of the type people you need. The disadvantages are : as the resulting sample is not a probability one, the findings cannot be generalized to the total sampling population; and the most accessible individuals might have characteristics that are unique to them and hence might not be truly representative of the total sampling population. You can make your sample more representative of your population by selecting it from various locations where people of interest to you are likely to be available.

Accidental sampling

Accidental sampling is also based upon convenience in accessing the sampling population. Whereas quota sampling attempts to include people possessing an obvious/visible characteristic, accidental sampling makes no such attempt. You stop collecting data when you reach the required number of respondents you decided to have in your simple. This method of sampling is common among market research and newspaper reporters. It has more or less the same advantages and disadvantages as quota sampling but, in addition, as you are not guided by any obvious characteristics, some people contacted may not have the required information.

Judgemental or purposive sampling

The primary consideration in purposive sampling is your judgement as to who can provide the best information to achieve the objectives of your study. You as a researcher only go

o those people who in your opinion are likely to have the required information and be willing o share it with you. This type of sampling is extremely useful when you want to construct historical reality, describe a phenomenon or develop something about which only a little s known. This sampling strategy is more common in qualitative research, but when you use it in quantitative research you select a predetermined number of people who, in your udgement, are best positioned to provide you the needed information for your study.

Expert sampling

The only difference between judgement sampling and expert sampling is that in the case of the former it is entirely your judgement as to the ability of the respondents to contribute to the study. But in the case of expert sampling, your respondents must be known experts in the field of interest to you. This is again used in both types of research but more so in qualitative research studies. When you use it in qualitative research, the number of people you talk to is dependent upon the data saturation point whereas in quantitative research you decide on the number of experts to be contacted without considering the saturation point. You first identify persons with demonstrated or known expertise in an area of interest to you, seek their consent for participation, and then collect the information either individually or collectively in the form of a group.

Snowball sampling

Snowball sampling is the process of selecting a sample using networks. To start with, a few individuals in a group or organization are selected and required information is collected from them. They are then asked to identify other people in the group or organisation, and the people selected by them become a part of sample. Information is collected from them, and then these people are asked to identify other members of the group and, in turn, those identified become the basis of further data collection. This process is continued until the required number or a saturation point has been reached, in terms of the information being sought. This sampling technique is useful if you know little about the group or organisation you wish to study, as you need only to make contact with a few individuals, who can then direct you to the other members of the group. This method of selecting a sample is useful for studying communication patterns, decision making or diffusion of knowledge within a group. There are disadvantages to this technique, however. The choice of the entire sample rests upon the choice of individuals at the first stage. If they belong to a particular faction or have strong biases, the study may be biased Also, it is difficult to use this technique when the sample becomes fairly large.

Systematic sampling design : a 'mixed' design

Systematic sampling has been classified as a 'mixed' sampling design because it has the characteristics of both random and non-random sampling the sampling frame is first divided into a number of segments called intervals. Then, from the first interval, using the

SRS technique, one element is selected. The selection of subsequent elements from other intervals is dependent upon the order of the element selected in the first interval. If in the first interval it is the fifth element, the fifth element of each subsequent interval will be chosen. Notice that from the first interval the choice of an element is on a random basis, but the choice of the elements from subsequent intervals is dependent upon the choice from the first, and hence cannot be classified as a random sample. Although the general procedure for selecting a sample by the systematic sampling technique is described above, you can deviate from it by selecting a different element from each interval with the SRS technique. By adopting this, systematic sampling can be classified under probability sampling designs. To select a random sample you must have a sampling frame. Sometimes this is impossible, or obtaining one may be too expensive. However, in real life there are situations where a kind of sampling frame exists, for example records of clients in an agency, enrolment lists of students in a school or university, electoral lists of people living in an area, or records of the staff employed in an organization. All these can be used as a sampling frame to select sample with the systematic sampling technique. This convenience of having a 'ready-made' sampling frame may be at a price : in some cases it may not truly be a random listing. Mostly these lists are in alphabetical order, based upon a number assigned to a case, or arranged in a way that is convenient to the users of the records. If the 'width of an interval' is large, say, 1 in 30 cases, and if the cases are arranged in alphabetical order, you could preclude some whose surnames start with the same letter or some adjoining letter may not be included at all. Suppose there are 50 students in a class and you want to select 10 students using the systematic sampling technique. The first step is to determine the width of the interval (50/10=5). This means that from every five you need to select one element. Using the SRS technique, from the first interval (1-5 elements, select one of the elements. Suppose you selected the third element. From the rest of the intervals you would select every third element.

Sampling in qualitative research

As the main aim in qualitative enquiries is to explore the diversity, sample size and sampling strategy do not play a significant role in the selection of a sample. If selected carefully, diversity can be extensively and accurately described on the basis of information obtained even from one individual. All non-probability sampling designs-purposive, judgemental, expert, accidental and snowball-can also be used in qualitative research with two difference :

1. In quantitative studies you collect information from a predetermined number of people but, in qualitative research, you do not have a sample size in mind. Data collection based upon a predetermined sample size and the saturation point distinguishes their use in quantitative and quantitative research.
2. In quantitative research you are guided by your judgement as to who is likely to provide you with the 'best' information.

The concept of saturation point in quantitative research

As you already know, in quantitative research data is usually collected to a point where you are not getting new information or it is negligible–the data saturation point. This stage determines the sample size. It is important for you to keep in mind that the concept of data saturation point is highly subjective. It is you who are collecting the data and decide when you have attained the saturation point in your data collection. How soon you reach the saturation point depends upon how situation or phenomenon that you are studying. The greater the diversity, the greater the number of people from whom you need to collect the information to reach the saturation point. The concept of saturation point is more applicable to situations where you are collecting information on a one-to-one basis. Where the information is collected in a collective format such as focus groups, community forums or panel discussions, you strive to gather as diverse and as much information as possible. When no new information is emerging it is assumed that you have reached the saturation point.

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