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Research Methodology in Economics

SEMESTER - IV

ECONOMICS

BLOCK 2

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BLOCK INTRODUCTION

This is the second block of the Course Research Methodology in Economics. This block contains Untis 8 to 14. Units 8 to 10 are on sampling techniques. In these three units, we shall deliberate on the topics ranging from basics of sampling to different sampling methods. Further, discussion on variables has also been made. Concepts of population and sample have also been discussed. Unit 11 deliberates on data collection. Here, meaning, importance and the different types of data collection have been discussed. The last three units of the course is on interview. In Unit 12, basic concepts of interview, viz., its meaning, process of interview, its different types have been discussed. The next two units are on interview techniques. Here, the concepts like preparation of a questionnaire, features of a good questionnaire, its merits and demerits as well as the distincition between questionnaire and schedule have been discussed. The concluding unit of the course deals with different techniques of interviews. This includes two major techniques of interview, viz., the case study method and focus group discussion.

Overall, the course on Research Methodology in Economics will provide you an insight into the basic concepts of research methodology. This course will also be helpful if you want to undertake research career in the field of Economics.

While going through a unit, you will notice some along-sode boxes, which have been included to help you know some of the difficult, unseen terms. Some 'ACTIVITY' (s) has been included to help you apply your own thoughts. Again, we have included some relevant concepts in 'LET US KNOW' along with the text. At the end of sections, you will get 'CHECK YOUR PROGRESS' questions. These have been designed to self-check your progress of study. It will be better if you solve the problems put in these boxes immediately after you go through the sections of the units and then match your answers with 'ANSWERS TO CHECK YOUR PROGRESS' given at the end of each unit.

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UNIT 8: SAMPLING TECHNIQUES - I

UNIT STRUCTURE

8.1 Learning Objectives

8.2 Introduction

8.3 Meaning of Sampling

8.4 Types of Sampling Methods

- 8.4.1 Random Sampling
- 8.4.2 Stratified Random Sampling
- 8.4.3 Systematic Sampling
- 8.4.4 Cluster Sampling

8.5 Let Us Sum Up

8.6 Further Reading

8.7 Answer to Check Your Progress

8.8 Model Questions

8.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- put forward the meaning of sampling
- differentiate between population and sample
- discuss the advantages and disadvantages of sampling
- describe the different types of sampling techniques with appropriate examples

8.2 INTRODUCTION

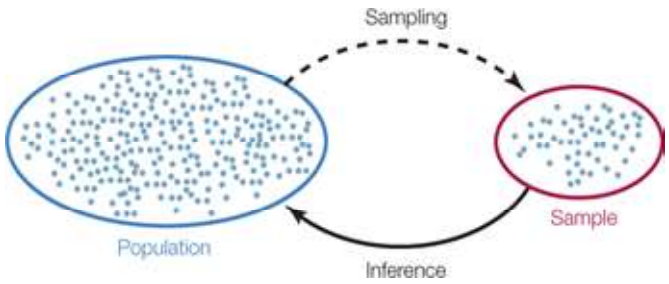
In any field of inquiry, we have a 'universe' or a 'population' which consists of all the items or individuals related to particular study. While initiating a survey or research the very first thing that would come to our mind is whether to consider the entire set of population or only a limited portion of it for the study. A population can be an entire class of student, the total number of people residing in a district, the available commercial products in the market, all patients in a hospital, total number of households in a village, all the workers of a factory, and so on.

Suppose we want to conduct a study to check the academic progress of the students of a school having 1000 students. In this case, if we take into consideration the records of all the 1000 students of the school without leaving anyone's data, then we are taking the entire "population" for the study. The field of inquiry in this case would be much larger. It will be extremely time consuming to check the records of all the 1000 students of the school to come to a conclusion. On the contrary, the same study can be done in a short span of time with the help of a relatively smaller set of data. For instance, instead of collecting data from the 1000 students, we can rather collect the data from 20 students from each class which might bring the total set of data to 200 assuming 10 classes in the school. This would reduce the amount of data to be collected to make conclusions about the students of the school making the study more convenient and less time consuming. This method of considering a part of the population is called 'sampling method', and the smaller group of the population considered for the study is called the 'sample'.

8.3 MEANING OF SAMPLING

Sampling is the process of selecting a few (a sample) from the bigger group (the population) for obtaining, estimating and/or predicting various attributes or characteristics of the bigger group. A sample is a subgroup of the population a researcher is interested in. Thus, from Figure 8.1, it can be seen that the larger sphere consists of the total units of data or population and the smaller sphere has a sample drawn from the population. Now, a researcher can make inferences or conclusions about the population based of the sample data.

Figure 8.1: Population and Sample



Supose we want to find out the average income of families living in a city. Let us consider the amount of effort and resources required to go to every family in the city to find out their income. Instead, a researcher can select a few families as sample and then, on the basis of findings of the sample an estimate of the income of families in the city can be obtained. Thus, a sample is a subgroup of the population we are interested in which facilitates inferences about the population.

The main principle behind sampling is that we get to know about the total units by observing a few units and extend our inference about the sample to the entire population. For example, to check if a bag of rice is of good quality or not we generally take a handful of rice from the bag and accordingly see if the quality of the bag of rice is good or bad. This is a very general example of sampling we use in our day to day life. There are certain basic principles of sampling as mentioned below:

- Sample units must be selected in a systematic and objective manner.
- Sample units must be clearly defined and easily identifiable.
- Sample units must be distinct from each other.
- Same units of sample should be used throughout the study.

Advantages and Disadvantages of Sampling: Let us consider the advantages of the sampling method. Sampling is useful when the population is very large and scattered such that a complete coverage may not be possible. It has higher degree of accuracy since it is based on a smaller group of units. It is economical in nature both in terms of cost and time. It results in higher rate of response and greater cooperation from the respondents.

However, the major disadvantage of sampling is that one does not find out the population characteristics directly; instead one can only estimate or predict them. Hence, the possibility of an error in estimation always exists, which is referred to as "sampling error". Sampling error is an integral part of sampling and hence, can't be eliminated.

Sampling, therefore, is a trade-off between certain benefits and disadvantages. While on the one hand it saves time and resources, on the other hand it may lead to a compromise in the level of accuracy in the

findings. Through sampling we only make an estimate about the actual situation about the total population from which the sample is drawn. If done properly, the estimates derived from the sample are expected to be similar to the actual results of the population when obtained directly. However, it is also important to note that there remains the possibility of sampling error which can be minimised but not eliminated completely. Hence, tolerance of this possibility of error is an important consideration in research.

While collecting a sample, a researcher must keep in mind the following points:

- **Nature of population:** Sampling depends on the nature of the population. Population can be either a finite or infinite one. For example, households of a village, number of workers in an office are examples of finite population whereas output from a machine is an example of infinite population. Considerations for sampling, in both these case, would be different.
- **Sampling unit:** Each individual element of the population is called a sampling unit. It can be a district, village, an individual, etc. A researcher has to decide such sampling units appropriate for his study.
- **Sampling frame:** It is the operational definition of the population that provides the basis for sampling. It is also known as the source list.
- **Size of sample:** It is the number of items or sampling units to be selected from the population for the sample. The sample size should not be either too large or too small rather it should be optimum. There are definite ways of determining the optimum sample size for a study. Parameters of interest: Specific attributes of the population are called parameters. Likewise, the similar attributes of the sample are termed as the "statistic". The researcher should consider the question of the specific population parameters which are of interest. The purpose of sampling is to derive the population parameters based on the findings about the sample statistic. This process is known as generalisation.
- **Budgetary constraints:** Cost considerations are to be kept in mind and accordingly the size of sample should be considered.
- **Sampling procedure:** The researcher must decide the specific ways

in which the sampling units are to be selected and the sample is to be drawn. This is termed as the sampling procedure. Appropriate sampling procedure ensures that it produces relatively small errors and minimises the systematic biases.

- **Sampling errors:** If sample size selected for study is very small or due to non-representative nature of the sample, the estimated results may differ from the actual population results. The difference thus obtained between the sample results and the actual population values are referred to as the sampling error. Sampling errors can be reduced by increasing the sample size.
- **Characteristics of a good sample design:** Following are considered as some of the indications of a good sample design:
  - It must result in a truly representative sample.
  - It should result in small sampling error.
  - It should be feasible in terms of funds and other resources available for the research study.
  - It should be such that systematic bias can be controlled in a better way.
  - It should be such that the results from the sample study can be applied to the universe with reasonable level of confidence.



CHECK YOUR PROGRESS

Q 1: What is meant by sampling? Answer in about 50 words.

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Q 2: Distinguish between population and a sample? Answer in about 50 words.

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Q 3: Mention one advantage and disadvantage of sampling. Answer in about 50 words.

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8.4 TYPES OF SAMPLING METHODS

Basically, there are two types of sampling methods, viz., probability sampling and non-probability sampling. In this unit, we shall discuss probability sampling and its different types.

In the probability sampling, selection of the each and every unit of the population into sample is determined only by the probability or chance, and does not depend on any other considerations. In non-probability sampling selection of units of sample does not depend on probability or change but on other important considerations such as specific purpose and requirement of the study, judgement of the researchers, convenience of selecting the sample etc. The most importantly, probability sampling allows reasonable generalisations about the population parameters. Contrarily, generalisations are not carried out on the basis of non-probability samples.

8.4.1 Simple Random Sampling

Among the probability sampling methods, Simple Random Sampling (SRS) is the most popular and common one. In Simple Random Sampling every sampling unit of the population has an equal chance of being selected to the sample. Equal probability here implies that the each element in the population has got the same chance of being selected to the sample. The Simple Random Sampling preferably requires the following for effective implementation:

- Complete list of units to be studied should be available;

- Size of the universe should be known;
- Sample size should be adequately specified;
- Each unit should be ensured equal chance of being selected to the sample.

Let us now discuss how to draw a simple random sample along with its different types. Simple Random Sample is drawn by the following methods:

- **Lottery method:** Here, firstly the researcher needs to prepare the complete list of all the units of the population. Secondly, all the units are to be written down in small pieces of paper. Next, all the pieces of paper to be put in a jar and mix well. Finally, the researcher has to select papers from jar the one by one and continue till the desired numbers of samples are not fulfilled. For example, suppose, a researcher wants to study the relationship between income and expenditure of the people in a certain village consisting of 300 households, with house numbers allotted from 1 to 300. The researcher then first has to write the house numbers on pieces of papers, then put them into a jar and accordingly select the slips with house numbers written on it. If the researcher wants to have a sample size of 100 households, he or she needs to pick 100 slips of papers and the numbers written on it will be the respective units to be selected.
- **Tippet table or table of random numbers:** The statisticians have prepared a set of tables called Tippet Table or Tables of Random numbers. A sample is framed with reference to these tables. Of these tables, Tippet's Table is most widely used. Using 41,600 figures, Tippet has involved 10,400 numbers comprising of four units each. In using this method, all items of the universe are first arranged in an order and then by using Tippet's Table the required numbers of items are selected as per the requirement of the sample size.

Sampling with or without replacement:

Random sampling can be selected using two different systems: sampling without replacement and sampling with replacement. Suppose we want to select a sample of 20 students out of a total of 80. The first student is selected out of the total class, and so the probability of selection for the first student is 1/80. When you select the second student there are only 79 left in the class and the probability of selection for the second student is not 1/80 but 1/79. The probability of selecting the next student is 1/78. By the time you select the 20th student, the probability of his/her selection is 1/61. This type of sampling is called sampling without replacement. But this is contrary to our basic definition of randomisation; that is, each element has an equal and independent chance of selection. In the second system, called sampling with replacement, the selected element is replaced in the sampling population and if it is selected again, it is discarded and the next one is selected. If the sampling population is fairly large, the probability of selecting the same element twice is fairly remote. In most of the cases the second one i.e. sampling with replacement is adopted.

Advantages of Simple Random Sampling: The advantages of simple random sampling include the following:

- All elements of the population have equal chance of being selected in the sample;
- This method is free from personal bias of the investigator;
- It is the simplest of all the sampling methods and easier to conduct;
- This method can be used in conjunction with other methods in probability sampling;
- Degree of sampling error is low;
- The universe gets fairly represented by the sample drawn using this method.

Disadvantages of Simple Random Sampling: However, there are some disadvantages of simple random sampling like:

- It does not make use of the knowledge of population which the researcher may have;
- Sometimes, operationalisation of simple random sampling method, especially when an exhaustive list of the population units is absent, becomes very difficult.
- It cannot be used if the researcher wants to break the respondents into subgroups for comparison purposes.

8.4.2 Stratified Sampling

This method of sampling is generally used when the population does not constitute a homogeneous group. According to this method of sampling, the population is divided into several sub-population or sub-groups called 'strata' having common characteristics. From each stratum, items are selected to make the sample. Since each stratum is more homogeneous than the total population, we are able to get more precise estimates for each stratum and by estimating more accurately each of the component parts; we get a better estimate of the whole. In brief, stratified produces better representations on several occasions. It is also important for the characteristic that becomes the basis of stratification to be related to the main variable that you are exploring. Suppose we want to conduct a research upon the income expenditure behaviour among the employees of an office. Here, we must look for these three relevant questions in the context of stratified sampling:

- How to form the strata?
- How should the items be selected from each stratum?
- How many items are to be selected from each stratum or how to allocate the sample size of each stratum?

Let us now briefly discuss these questions.

- *How to form the strata?* To resolve this question, the researcher can form the strata on the basis of the common characteristics. For this, the entire population should be divided into sub groups with homogeneous nature. For the example cited above, the

employees have different income groups based on certain condition. So, we can arrange the employees according to their income ranges say between Rs.10,000-20,000, 20,000-30,000, 30,000-50,000, etc. In this manner, we will divide the entire population of employees of the office into the smaller groups with a common characteristic being their monthly income.

- *How should the items be selected from each stratum?* For the second question, the most usually used method of selecting units from the stratum for the sample is simple random sampling. There are two types of stratified sampling: proportionate stratified sampling and disproportionate stratified sampling. With proportionate stratified sampling, the number of elements from each stratum is selected as per the proportions to the total population, whereas in disproportionate stratified sampling, consideration is not given to the size of the stratum.
- *How many items are to be selected from each stratum?* Regarding the third question cited above, generally proportionate allocation is followed. If Pi represents the proportion of population included in stratum i, and n represents the total sample size, the number of elements selected from stratum i is n.Pi. Suppose we want a sample of size n=20 to be drawn from a population of size N=100 which is divided into three strata with 30, 50 and 20 elements in each. Using the proportionate method, number of units to be selected from the three strata would be 6, 10 and 4 units respectively.

Advantages of Stratified Sampling:

- The sample chosen can represent various groups and patters of characteristics in the desired proportions.
- It can be used for comparing sub-categories.
- It provides reliable and meaningful results.

Disadvantages of Stratified Sampling:

- It requires more time and efforts than simple random sampling.
- It is a comparatively complex method of selecting sample.

- This method is suitable only when complete knowledge about the diverse characteristics of the population is available. Hence, it has a limited scope.
- There is possibility of biasness while classifying the population into different strata.
- If size of population is already small, it may be difficult to further divide it into smaller groups or strata.

8.4.3 Systematic or Interval Sampling

According to this method, units of the population are numerically, geographically or alphabetically arranged and then every nth item of the population is selected for the sample. In simple terms, it is randomly selecting the first respondent and then every nth person after that; where 'n' is called the sampling interval.

For instance, if we want to collect a sample of 10 individuals out of 100, then first we would systematically arrange the people. Secondly, any one individual from the first 10 individual would be randomly selected. After that every tenth person would be selected for the sample. Like, if we first select the 5th person, then the sample would include the 5th, 15th, 25th, 35th, 45th, 55th, 65th, 75th, 85th, 95th individual. Thus, in systematic sampling only the first unit is selected randomly and the remaining units of the sample are selected at fixed intervals. The sampling interval is taken as N/n, where N is the population size from which 'n' number of units are to be selected as sample. Systematic sampling differs from simple random sampling as in the latter selection of sample units are independent of each other, whereas in the former the selection of sample units depend upon the selection of a previous unit.

Advantages of Systematic Sampling:

- It is considered as an improvement from a simple random sample as a systematic sample is spread more evenly over the entire population.
- It is an easier and less costly method of sampling.

- It can also be used when size of population is large. There is hardly any possibility of personal bias in this method.
- It is a rapid method and eliminates several steps otherwise taken in the other methods.

Disadvantages of Systematic Sampling:

- Every item in the population does not get the equal chance of being selected because only the first item is selected randomly.
- It ignores the units of population between two nth numbers. This may result in possibility of over representation or under representation of several groups.
- If there is some hidden periodicity in the population, systematic sampling will prove to be inefficient method of sampling. In practise, systematic sampling is efficient when list of population is available and they are of considerable length.



CHECK YOUR PROGRESS

Q 4: Define sampling error. Answer in about 50 words.

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Q 5: Mention the other name of probability sampling. Answer in about 10 words.

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Q 6: What is meant by stratified sampling? Answer in about 40 words.

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Q 7: What is meant by systematic sampling? Answer in about 40 words.

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8.4.4 Cluster Sampling

Simple random and stratified sampling techniques are based on a researcher's ability to identify each element in a population. It is easy to do this if the total sampling population is small, but if the population is large, as in the case of a city, state or country, it becomes difficult and expensive to identify each sampling unit. In such cases the use of cluster sampling is more appropriate.

Cluster sampling is based on the ability of the researcher to divide the sampling population into groups (based upon visible or easily identifiable characteristics), called clusters, and then to select elements within each cluster, using the simple random sampling technique. Clusters can be formed on the basis of geographical proximity (called area sampling) or a common characteristic that has a correlation with the main variable of the study (as in stratified sampling). Depending on the level of clustering, sometimes sampling may be done at different levels. These levels constitute the different stages (single, double or multiple) of clustering.

Suppose, a researcher wants to study the problems faced by the undergraduate students in India in the context of pursuing their higher education. UG students are to be found in ample all over the country. Moreover, there are numerous institutions both colleges and universities that offer UG courses. In every institute there are various disciplines that provide UG courses that generally cover a period of three to four years. Thus, the magnitude of the

task on the part of the researcher can be well understood. In such situations, cluster sampling is extremely useful in selecting a random sample.

The first level of cluster sampling could be at the state or territory level. Clusters could be grouped according to similar characteristics that ensure their comparability in terms of student population. If this is not easy, you may decide to select all the states and territories and then select a sample at the institutional level. For example, with a simple random technique, one institution from each category within each state could be selected (one university and one college). This is based upon the assumption that institutions within a category are fairly similar with regards to student profile. Then, within an institution on a random basis, one or more academic programmes could be selected, depending on resources. Within each study programme selected, students studying in a particular year could then be selected. Further, selection of a proportion of students studying in a particular year could then be made using the simple random technique. The process of selecting a sample in this manner is called multi-stage cluster sampling.

Advantages of Cluster Sampling:

- It is convenient to use cluster sampling when population is large or a large geographical area is taken for the study.
- The cost involved in this method is relatively less than the other methods of sampling.
- Respondents can be readily substituted for other respondents.
- It ensures flexibility in sampling.
- Characteristics of clusters can be estimated.
- It can be used when it is inconvenient to randomly select respondents.

Disadvantages of Cluster Sampling:

- Each cluster is not of equal size. For example while having clusters of towns and villages, each town or each village in the country is not of equal size.

- Comparison would not be on equal basis.
- Sampling error would be greater.
- In some situations, one individual might belong to two clusters and studied twice.
- It lacks representation.
- There could be homogeneity in one cluster but heterogeneity in the other.

Difference between Cluster Sampling and Stratified Sampling:
The difference between cluster sampling and stratified sampling is that in the former homogeneous group (say a geographical region) is classified into heterogeneous units (towns, cities, villages, etc.) whereas in the latter a heterogeneous group is classified into homogeneous sub groups called strata.

Area Sampling: When clusters happen to be based on some geographical subdivision, it is called area sampling. For example, suppose you want to study the impact of government schemes on the entrepreneurs of Kamrup district. For this you have to divide the entire district into sub groups like blocks and then from each block select random samples depending upon the sample size.

Multi-stage Sampling: Multi-stage sampling is a further development of the principle of cluster sampling. In this method, sampling is selected in various stages but only the last sample of subjects is studied. For example, if we want to study the status of self-help-groups in India, first we will divide the entire country into four zones East, west, north and south. Then from each zone, we will select two states randomly; say from east we have Assam and Kolkata, from West we have Gujarat and Maharashtra, from north we have Punjab and Himachal Pradesh and from the south we have Kerala and Tamil Nadu. Next from each of these 8 states we will randomly select two towns and two villages randomly. Out of these 16 selected towns and villages we will randomly select a sample of say 1000 SHGs. Now, these 1000 respondents would be the representative of the entire country and with their data we will conduct the study

about the status of SHGs in the nation.

Thus, multi-stage sampling is generally applied in big enquiries extending to a considerably large geographical area, say the entire country. Since sampling frame under multi-stage sampling is developed in partial units and a large number of units can be sampled for a given cost, this method of sampling is considered to be advantageous than the other ways of sampling.



CHECK YOUR PROGRESS

Q 8: What is meant by cluster sampling. Answer in about 50 words.

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3.10 LET US SUM UP

- In any field of inquiry, we have a 'universe' or a 'population' which consists of all the items or individuals related to a certain area of study. A population can be an entire class of student, the total number of people residing in a district, the available commercial products in the market, all patients in a hospital, total number of households in a village, all the workers of a factory, and so on.
- Sampling is the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group. A sample is a subgroup of the population you are interested in.
- The main principle behind sampling is that we get to know about the total units by observing a few units and extend our inference about the sample to the entire population.

- Sampling is useful when the population is very large and scattered such that a complete coverage may not be possible. It has higher degree of accuracy since it is based on a smaller group of units. It is economical in nature both in terms of cost and time. It results in higher rate of response and greater cooperation from the respondents. However, the disadvantage of sampling is that you do not find out the information about the population's characteristics of interest to you but only estimate or predict them. Hence, the possibility of an error in your estimation exists.
- Basically, there are two types of sampling methods- probability sampling and non-probability sampling. In this unit, you will learn about the former and its types. In probability sampling every unit of the population has an equal and independent chance of being selected for the sample. Whereas, in non-probability sampling every unit does not have the equal chance of getting selected in the sample, rather the selection of units for the sample depends upon the researcher.
- If sample size selected for study is very small or due to non-representative nature of the sample, the estimated results may differ from the actual results. The error thus emerging is called sampling error. Sampling errors can be reduced by increasing the sample size.

  Simple random sampling, stratified sampling, systematic sampling and cluster sampling are the types of probability sampling.
- The stratified method of sampling is generally used when the population does not constitute a homogeneous group. According to this method of sampling, the population is divided into several sub-population or sub-groups called 'strata' having common characteristics. From each stratum, items are selected to make the sample for the study.
- According to the Systematic or interval sampling method, units of the population are numerically, geographically or alphabetically arranged and then every nth item of the population is selected for

the sample. In simple terms, it is randomly selecting the first respondent and then every nth person after that; 'n' is a number termed as sampling interval.

If the population is large, as in the case of a city, state or country, it becomes difficult and expensive to identify each sampling unit. In such cases the use of cluster sampling is more appropriate. Cluster sampling is based on the ability of the researcher to divide the sampling population into groups called clusters, and then to select elements within each cluster, using the simple random sampling technique. Clusters can be formed on the basis of geographical proximity (called area sampling) or a common characteristic that has a correlation with the main variable of the study (as in stratified sampling. Depending on the level of clustering, sometimes sampling may be done at different levels.

- Multi-stage sampling is a further development of the principle of cluster sampling. In this method, sampling is selected in various stages but only the last sample of subjects is studied.



8.6 FURTHER READING

(1) Ahuja, R. (2018). Research Methods. Jaipur: Rawat Publications.

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(3) Kumar, R. (2011). Research Methodology. New Delhi: SAGE Publications India Pvt. Ltd.



8.7 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: A 'population' consists of all the items or individuals related to a certain area of study. A population can be an entire class of student, the total number of people residing in a district, the available commercial products in the market, all patients in a hospital, total number of households in a village, all the workers of a factory, and

so on. Whereas, a sample is a subgroup of the population we are interested in.

Ans to Q No 2: Sampling is the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group.

Ans to Q No 3: The advantage of Sampling is that it is useful when the population is very large and scattered such that a complete coverage may not be possible. It is economical in nature both in terms of cost and time. The disadvantage of sampling is that we do not find out the information about the population's characteristics but only estimate or predict them. Hence, the possibility of an error in our estimation exists.

Ans to Q No 4: If sample size selected for study is very small or due to non-representative nature of the sample, the estimated results may differ from the actual results. These are called sampling errors. Sampling errors can be reduced by increasing the sample size.

In probability sampling every unit of the population has an equal and independent chance of being selected for the sample. Whereas, in non-probability sampling every unit does not have the equal chance of getting selected in the sample, rather the selection of units for the sample depends upon the researcher.

Ans to Q No 5: Probability sampling is also known as 'random sampling' or 'chance sampling'.

Ans to Q No 6: The stratified method of sampling is generally used when the population does not constitute a homogeneous group. According to this method of sampling, the population is divided into several sub-population or sub-groups called 'strata' having common characteristics. From each stratum, items are selected to make the sample for the study.

Ans to Q No 7: According to the Systematic or interval sampling method, units of the population are numerically, geographically or alphabetically arranged and then every nth item of the population is

selected for the sample. In simple terms, it is randomly selecting the first respondent and then every nth person after that; 'n' is a number termed as sampling interval.

Ans to Q No 8: When population is large, it becomes difficult to collect data from each unit of the population. In this case, cluster sampling is used. Cluster sampling is based on the ability of the researcher to divide the sampling population into groups called clusters, and then to select elements within each cluster, using the simple random sampling technique.



8.8 MODEL QUESTIONS

Q 1: Define sampling. State the advantages and disadvantages of sampling.

Q 2: Explain the characteristics of a good sample design.

Q 3: Differentiate between probability and non-probability sampling with examples.

Q 4: What is simple random sampling? Explain with examples.

Q 5: State the advantages and disadvantages of simple random sampling.

Q 6: What are strata? Give examples.

Q 7: Explain stratified sampling and state the advantages and disadvantages.

Q 8: Explain systematic sampling with a suitable example.

Q 9: What is cluster sampling? Explain in details with examples.

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UNIT 9: SAMPLING TECHNIQUES - II

UNIT STRUCTURE

9.1 Learning Objectives

9.2 Introduction

9.3 Non-Random Sampling Methods

- 9.3.1 Convenience Sampling
- 9.3.2 Purposive Sampling
- 9.3.3 Quota Sampling
- 9.3.4 Snowball Sampling
- 9.3.5 Volunteer Sampling

9.4 Let Us Sum Up

9.5 Further Reading

9.6 Answer to Check Your Progress

9.7 Model Questions

9.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- differentiate between probability and non-probability sampling
- discuss the different types of non-probability sampling techniques
- discuss the advantages and disadvantages of non-probability sampling techniques.

9.2 INTRODUCTION

In our previous unit, firstly, we learnt about the concepts of sample and population and the differences between them. Secondly, types of sampling (probability and non-probability sampling techniques), particularly probability sampling techniques, were discussed in detail. In this unit, we will be learning about the non-probability sampling methods.

Non-probability sampling is a sampling procedure that does not afford any basis for estimating the probability that each item in the population has of being included in the sample. Non-probability sampling is also known by different names such as deliberate sampling, purposive sampling and

judgment sampling. In this type of sampling, items for the sample are selected deliberately by the researcher; their choice concerning the items remains supreme. In other words, under non-probability sampling, the organizers of the inquiry purposively choose particular units of the universe for constituting a sample on the basis that the small mass that they so select out of a huge one will be typical or representative of the whole. For instance, if a researcher wants to study the economic conditions of people living in a state, a few towns and villages may be purposively selected for intensive study on the principle that they can represent the entire state. The judgment of the organizers of the study plays an important part in this sampling design.

The prime difference between probability and non-probability sampling is that in the former type, each of the units of a population has the equal opportunity to get selected in a sample, whereas in the latter type, the sample is drawn based on some condition or willingness of the researcher. Hence all the units of the population do not have an equal chance of being included in the sample drawn.

9.3 TYPES OF NON-RANDOM SAMPLING METHOD

There are five types of non-random sampling or non-probability sampling methods-

9.3.1 Convenience Sampling

It is also known as 'accidental' sampling. It depends upon the convenience of the researcher in finding the sample. As such, the researcher considers the people readily found in that instant for his/her sample. For example- if someone wants to study the use of library among college students, he/she would consider the number of readers in the library; based on the attendance he/she would draw the conclusion. This method of sampling is common among market research and newspaper reporters. Especially during elections, the media personnel take the opinions of the general public present in and around them. Again, approaching people standing in banks, grocery shops, malls, etc. and asking questions

would also be an example of convenience sampling.

Advantages of convenience sampling include the easy access to sample population and it is economic in terms of money and time. Disadvantages of convenience sampling include the biasness of the researcher, since only a certain units of the population are taken into consideration for the study.

9.3.2 Purposive Sampling

It is also known as 'judgemental sampling'. Here, the researcher makes a judgement as to who would be the best one to include in the sample in order to get the desired responses. As such, he approaches only those people who can provide him with the information he/she is searching for. For example, the TV reporters stopping certain individuals on the street in order to ask their opinions about certain political changes constitutes the most popular example of this sampling method. However, it is important to specify that the TV reporter has to apply certain judgment when deciding who to stop on the street to ask questions; otherwise it would be the case of random sampling technique.

Let us consider another example. Suppose, a group of researchers wants to study the factors which lead a person to select ethical hacking as a profession. We know that ethical hacking is a skill which has been recently attracting youth. More and more people are selecting it as a profession. The researchers who understand what ethical hacking is will be able to decide who should form the sample to learn about it as a profession. That is when judgmental sampling is implemented. Researchers can easily filter out those participants who can be eligible to be a part of the research sample.

Economy in terms of money and time, avoidance of irrelevant units in the sample, better results when investigator is unbiased are some of the advantages of purposive sampling. On the other hand, personal biasness and unequal chance of getting selected in the sample are some of the limitations of purposive sampling. Since

selection of the sample is governed by some pre-determined purpose, hence sample selection at times is considered to be partial.



CHECK YOUR PROGRESS

Q 1: What is meant by non-probability sampling? Answer in about 50 words.

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Q 2: Differentiate between probability and non-probability sampling. Answer in about 60 words.

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Q 3: Mention the types of non-probability sampling. Answer in about 30 words.

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Q 4: Cite an example of convenience sampling. Answer in about 30 words.

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9.3.3 Quota Sampling

It is similar to stratified sampling with the only difference that in stratified sampling, population is divided into strata and

units from each stratum are drawn randomly for the sample. Whereas, in quota sampling, there are certain fixed quotas based on which the sample is selected. The choice of the respondents is completely left to the interviewer. Let us consider the following example.

Suppose, a researcher wants to study certain behaviour of the college students of a local college. Because the researcher can access this data, s/he knows that in this given population, 43% of the students are male and 57% are female. For a sample size of 1,000, the researcher knows that 430 males and 570 females will need to be interviewed from that population.

Using the Quota Sampling Method: To more realistically represent a given population, it would be necessary to control more than one category. For example, the researcher could select gender and age, or gender and income, or level of education and income, depending on the purpose of the study. Using our example, the researcher could add age (less than 21 years and 21 years and over) as a control category, specifying that half of the sample for each gender be from each age category. Now we are searching for 215 males under 21 years and 215 males 21 years and over, along with 285 females under 21 years and 285 females 21 years and over. What has happened here is that with every added category, it may take longer to locate these individuals, thus adding cost and time to the process. However, the target population could be better represented if additional categories are considered.

Why use multiple quotas? The intent of specifying multiple control categories or quotas is to improve the representation of particular groups within the population and ensure that groups are not over-represented. In our example, males and females would be interviewed until each category has reached its quota. Once 215 males under 21 years of age have been interviewed, no further male responses from that age category will be considered. Individuals for the remaining categories will continue to be interviewed until each

quota is satisfied. This ensures that no more than 215 males and 285 females from each age category will be represented. In this way, no one category is over-represented according to the target population.

Advantages of quota sampling: Advantages of quota sampling are-(i) It is relatively less expensive (ii) Convenient (iii) Requires less time (iv) does not require sampling frames.

Disadvantages of quota sampling: Disadvantages of quota sampling are- (i) sample is not a true representative of the population (ii) presence of biasness of the interviewer (iii)amending results through a formal statistical way is not possible (iv) is not always fruitful in case of field works.



CHECK YOUR PROGRESS

Q 5: What is meant by quota sampling? Answer in about 40 words.

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9.3.4 Snowball Sampling

Snowball sampling is the process of selecting a sample using networks. It is also referred to as 'chain-referral' sampling. The researcher would first approach the respondents he/she knows and is available to him. As such, a few individuals in a group or organization are selected and the required information is collected from them. Then, these people provide references about other individuals they know who fall under the criteria of the researcher. Thus, they are asked to identify other people in the group or organization, and the people selected by them become a part of the 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 numbers of respondents have been interviewed or no other respondents are discovered. In other words, till the saturation point has been reached, in terms of data collection, the process of snowball sampling continues.

For example, suppose we want to study about the work culture in foreign institutions. For this, firstly we would approach the ones who we know in and around us working in foreign land, they will then provide us the information about people they know who are associated with foreign institutions, from them again we are going to have further links to approach employees in foreign institutions. In this way, the process will continue till we find an adequate number of respondents. Again, if a researcher wants to study about the incidence of some rare disease, firstly he will collect information from the people he knows suffering from such disease and then from his/her link would be finding other such patients suffering from the disease.

Advantages of snowball sampling: This sampling technique is useful if we know little about the group or organization we wish to study, as we need only to make contact with a few individuals, who can then direct us 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. Researchers can collect data from people who would have been otherwise difficult to approach. It is also economic in terms of cost and time, since it does not need to hire any extra research team for the purpose.

Disadvantages of snowball sampling: Firstly, 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. Secondly, it is difficult to use this technique when the sample becomes fairly large. Thirdly, in this method it is difficult to determine sampling error. Fourthly, here we are not really sure about the size of the population and hence fixing a sample size

becomes difficult. Moreover, the sample chosen might not always be the true representative of the population.

9.3.5 Volunteer Sampling

In this method, the respondents himself/herself volunteers to give information he has. This implies respondents self-select to become a part of the sample. For example- if a researcher wants to study about the number of beneficiaries of a government policy and publishes it in newspapers with a contact number to send details, and people who have been benefited reply to it on their own, it would be an instance of volunteer sampling.

Advantages of volunteer sampling: Although this method is very rarely used, it has many advantages over the other methods. It is considered to be more ethical because respondents approach the researcher and provide information willingly. While doing so, generally they are not bias and speak the truth. Moreover, it is convenient and easy for the researcher since it involves no cost in approaching respondents for data collection.

Disadvantages of volunteer sampling: Sometimes, the sample chosen may not be representative of the population. As a result, there may be biasedness since the researcher makes little effort to control the sample composition, it includes only those respondents who voluntarily come forward. In this process most of the genuine respondents might be left from the sample.



CHECK YOUR PROGRESS

Q 8: How is the sample selected in purposive sampling? Answer in about 60 words.

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Q 7: Define Snowball sampling. Answer in about 50 words.

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Q 8: When does the process of sample selection end in case of Snowball sampling? Answer in about 50 words.

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9.4 LET US SUM UP

- Non-probability sampling is that sampling procedure which does not afford any basis for estimating the probability that each item in the population has of being included in the sample. Non-probability sampling is also known by different names such as deliberate sampling, purposive sampling and judgment sampling.
- The prime difference between probability and non-probability sampling is that in the former type each of the units of a population has the equal opportunity to get selected in a sample, whereas in the latter type sample is drawn based on some condition or willingness of the researcher, hence all the units of the population do not have a equal chance of being included in the sample drawn.
- There are five types of non-random sampling or non-probability sampling methods- convenience sampling, purposive sampling, quota sampling, snowball sampling and volunteer sampling.
- Convenience sampling is also known as 'accidental' sampling. It depends upon the convenience of the researcher in finding the sample. As such, the researcher considers the people readily found

in that instant for his/her sample.

- Purposive sampling is also known as 'judgemental sampling'. Here, the researcher makes a judgement as to who would be the best one to include in the sample in order to get the desired responses. As such, he approaches only those people who can provide him with the information he is searching for.
- Quota sampling is similar to stratified sampling with the only difference that in stratified sampling, population is divided into strata and units from each stratum are drawn randomly for the sample. Whereas, in quota sampling, there are certain fixed quotas based on which the sample is selected. The choice of the respondents is completely left to the interviewer.
- Snowball sampling is the process of selecting a sample using networks. It is also referred to as 'chain-referral' sampling. The researcher would first approach the respondents he/she knows and is available to him, from this initial group of respondents the researcher would be getting information about other respondents that matches with his criterion. This process of adding units to sample continues till an adequate number of units in the sample is found.
- In volunteer sampling, the respondents himself/herself volunteers to give information he has. This implies respondents self-select to become a part of the sample.



9.5 FURTHER READING

(1) Ahuja, R. (2018). Research Methods. Jaipur: Rawat Publications.

(2) Kothari, C.R. (2011). Research Methodology, Methods and Techniques. New Age International (P) Ltd.

(3) Kumar, R. (2011). Research Methodology. New Delhi: SAGE Publications India Pvt. Ltd.



9.6 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Non-probability sampling is that sampling procedure which does not afford any basis for estimating the probability that each item in the population has of being included in the sample. Non-probability sampling is also known by different names such as deliberate sampling, purposive sampling and judgment sampling.

Ans to Q No 2: In probability sampling, each of the units of a population has the equal opportunity to get selected in a sample, whereas in non-probability sampling, the sample is drawn based on some condition or willingness of the researcher, hence all the units of the population do not have an equal chance of being included in the sample drawn.

Ans to Q No 3: There are five types of non-random sampling or non-probability sampling methods- convenience sampling, purposive sampling, quota sampling, snowball sampling and volunteer sampling.

Ans to Q No 4: If someone wants to study the use of library among college students, he/she would consider the number of readers in the library and based on the attendance he/she would draw the conclusion. Here the researcher approaches the readers available in the library as per his convenience and accordingly considers them into the sample.

Ans to Q No 5: Quota sampling is similar to stratified sampling with the only difference that in stratified sampling, population is divided into strata and units from each stratum are drawn randomly for the sample. Whereas, in quota sampling, there are certain fixed quotas based on which the sample is selected.

Ans to Q No 6: In purposive sampling, the researcher makes a judgement as to who would be the best one to include in the sample in order to get the desired responses. As such, he approaches only those people who can provide him with the information he is searching for.

Ans to Q No 7: Snowball sampling is the process of selecting a sample using networks. It is also referred to as 'chain-referral' sampling. The researcher would first approach the respondents he/she knows and is available to him, from this initial group of respondents the researcher would be getting information about other respondents that matches with his criterion.

Ans to Q No 8: The process is continued until the required numbers of respondents have been interviewed or no other respondents are discovered. In other words, till the saturation point has been reached, in terms of data collection, the process of snowball sampling continues.

Ans to Q No 9: It is considered to be more ethical because respondents approach the researcher and provide information willingly. While doing so, generally they are not bias and speak the truth. Moreover, it is convenient and easy for the researcher since it involves no cost in approaching respondents for data collection.



9.7 MODEL QUESTIONS

Long Questions. (Answer each question in around 300-500 words)

Q 1: Highlight the prime differences between probability and non-probability sampling techniques.

Q 2: Explain the types of non-probability sampling with appropriate examples.

Q 3: Explain the advantages and disadvantages of non-probability sampling techniques.

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UNIT 10: SAMPLING TECHNIQUES - III

UNIT STRUCTURE

10.1 Learning Objectives

10.2 Introduction

10.3 Meaning and Definition of Variables in Research

10.4 Various Types of Variables

- 10.4.1 Quantitative Variables
- 10.4.2 Qualitative Variables
- 10.4.3 Independent and Dependent Variables
- 10.4.4 Extraneous Variables
- 10.4.5 Background Variables
- 10.4.6 Intervening Variables
- 10.4.7 Suppressor Variables
- 10.4.8 Moderating Variables

10.5 Population or Universe of a Study

- 10.5.1 Finite and Infinite Population
- 10.5.2 Homogeneous and Heterogeneous Population
- 10.5.3 Existent and Hypothetical Population
- 10.5.4 Known and Unknown Population

10.6 Sample as a Concept

- 10.6.1 Characteristics of an Ideal / Good Sample
- 10.6.2 Population and Sampling Methods
- 10.6.3 Difference between Census and Sampling Methods

10.7 Let Us Sum Up

10.8 Further Reading

10.9 Answer to Check Your Progress

10.10 Model Questions

10.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- put forward the meaning of variables in research
- discuss different types of variables

- distinguish between the major types of variables
- discuss the concept of population of a study
- discuss the concept of sample.

10.2 INTRODUCTION

We all know that variables form an important part in our studies. Just in case of demand and supply, we have been explaining that they depend on a set of variables like quantity and price and many other related variables. In research, we shall have to deal with different types of variables. These variables may be broadly categories as dependent and independent, qualitative and quantitative variables, extraneous variables, background variable etc. This unit basically deals with variables. Here, the concept of variable has been discussed. Again, the concept of universe or population and sample have also been discussed.

10.3 MEANING AND DEFINITION OF VARIABLES IN RESEARCH

In order to comprehend research, variables are important. The researcher can get a sense of the important variables related to that particular study by reviewing the literature, and data can be acquired from primary or secondary sources. In the framework of a research study, the study's factors played a crucial role. These factors we can call as variables. A variable is something that has a value that changes over time. Some of the common examples of variables include age, religion, gender, level of education, income, consumption, expenditure, family size, country of birth, capital expenditure, height, blood pressure readings etc. The value of each of these variables differ from one individual to other. Thus, any attribute, characteristic, number, or quantity that changes over time or can take on different values in different conditions is referred to as a variable in research. Such examples are as follows: The type of product is the variable in this case if an investigator wants to compare the efficacy of four different items, A, B, C, and D. A market survey based on customer preferences can be

beneficial to a company researcher. The variable here is the consumer's preference. A social scientist could investigate the role of education in minimizing child marriages. The child marriage is the variable here. Similarly, we can add other factors to these examples, such as efficacy, effectiveness, education, gender, customer attitude, and so on. It depends on the study's goal and what a researcher is attempting to focus on.

10.4 VARIOUS TYPES OF VARIABLES

We can separate the variables in many ways based on various background characteristics:

- **Quantitative Variables:** are those variables which can be measured in numbers: These are of two types viz. (a) Continuous Variable and (b) Discrete Variable.
- **Qualitative Variables:** are those variables which can't be measured in numbers
- **Independent Variables and Dependent Variables:** Independent variables shows the impact on dependent variable.
- **Extraneous Variables:** These are not independent variable but may affect the results of estimation.
- **Background Variables:** These variables basically cover the demographic and socio-economic factors which tells us about the background characteristics of the study.
- **Intervening Variables:** These are the variables which help in understanding the relationship between other two variables.
- **Suppressor Variables:** These are the variables which don't have any relation or impact on the dependent variable but still help in predictive validity. This concept was first introduced by Horst in 1941.
- **Moderating Variables:** These are those variable which actually strengthen the association between variables.

Let's take a look at these variables in more detail:

10.4.1 Quantitative Variables

Quantitative variables, often known as numerical variables,

are variables that may be measured numerically. We can use a variety of quantitative and statistical methods to measure these characteristics. The value of total production in each state would be a quantitative variable if a researcher wanted to measure the productivity levels of different states in India. Age, height, family size, income, consumption, and expenditure are examples of quantitative variables. That is, each of the aforementioned characteristics or features varies or differs from person to person. We call these variables quantitative or numeric variables since they are expressed in numbers. There are two types of quantitative variables: continuous and discrete variables. These variables are unpredictably distributed. Any variable with an undetermined value is known as a random variable. The following are the specifics of discrete and continuous variables:

- Continuous Variable: A continuous variable is one whose value may be determined through measurement. For example: height and weight of students in a class, time and distance etc.
- Discrete Variable: A discrete variable is one whose value may be calculated by counting. For example: number of students in a class, number of participants in a competitive exam, number of events in a program etc.

10.4.2 Qualitative Variables

Qualitative variables are those that can't be assessed directly, and there are various ways for measuring qualitative variables in research. The proxy variable can be used to describe the qualitative variable and this will give a way to measure the qualitative variable indirectly. If a researcher tries to give numerical ordering to a qualitative variable then that wouldn't be possible as it doesn't follow any logical ordering. The value of the variable 'gender' viz. male, female and transgender varies qualitatively; there is no ranking for any of these. A different terminology is also given to these kind of variables viz. categorical variables. As gender

variable is expressed in categories, then this variable is considered as categorical variable. Similarly, place of residence is a categorical variable that can be defined as either rural or urban. Nominal and ordinal variables can be used to define categorical variables. The following is a description of ordinal and nominal variables:

- Ordinal variables, such as exam grades (O, A+, A, B+, and so on), can be logically ordered or rated higher or lower than another
- Nominal variables, for example, cannot be ranked or logically ordered. A qualitative variable is a characteristic that cannot be measured but can be classified as having or not having certain features. The example for this is type of gender, religion etc.

10.4.3 Independent and Dependent Variables

Many research efforts attempt to identify and understand the sources of the occurrences or problems, in order to create a causal relationship. Look at these statements to understand the relationships between variables and how we may determine which variables are dependent or independent:

- Inappropriate dietary choices causes malnutrition among children
- Alcohol enhances the risk of lung cancer.
- The drug causes the improvement of a health problem.

We have two variables in each of the above statements: one independent and one dependent. In the first instance, it is claimed that 'inappropriate dietary choices' created the 'malnutrition condition.' Therefore, it is considered as independent variable. Malnutrition is the dependent variable, because we assume that this malnutrition was caused inappropriate dietary choices. Similarly, smoking and drug are the independent variables, and lung cancer, improvement in health are dependent variables. In general, an independent variable helps in measuring its effects on the dependent variable. The classification of both the variables is as follows:

A dependent variable is one that is utilised to characterise or evaluate the problem or outcome being studied. In a causal relationship, the cause is the independent variable, while the result is the dependent variable. The independent variable is smoking, and the dependent variable is cancer, if we think that smoking causes lung cancer. Depending on the context, a dependent variable can be referred to as a predicted variable, measured variable, explanatory variable, experimental variable, responding variable, outcome variable, output variable, or label.

The component that is considered as a cause or impact of the problem/result is described or quantified by an independent variable. The investigator attempts to describe or explain the impact or effect of the variable on the dependent variable. Variability in the dependent variable is presumed to depend on variability in the independent variable. An independent variable is sometimes called an explanatory variable, predictor variable, manipulated variable, controlled variable etc.

10.4.4 Extraneous Variable

Generally, in various research studies, the focus is on identifying one independent variable and measuring its impact on the dependent variable. However, various other variables alter our predicted independent-dependent variable relationship. Extraneous variables aren't always included in studies.

10.4.5 Background Variable

Different demographic and socio-economic factors provide a data package that tells us about the study's background features. These variables are related to many independent factors, which influence or influence the dependent variable indirectly. As a consequence, they are referred to as background variables. If background components are important to the investigation, they should be measured.

10.4.6 Intervening Variable

A third variable is often responsible for an apparent link between two variables. Variables A and B, for example, may be highly correlated, but only because A causes the third variable, C, causing B in turn. C is the intermediary variable in this situation.

10.4.7 Suppressor Variable

In many circumstances, we have reason to suppose that the variables of interest are linked within themselves, yet our data contradicts this. It's likely that some unseen factors are concealing the true relationship between the two variables. Because it suppresses the true relationship between the other two variables, such a factor is known as a suppressor variable.

10.4.8 Moderating Variable

A simple one-to-one relationship must be modified to reflect other variables to properly characterise the link in the context of real-world research. This emphasises the significance to include a second indépendant variable (moderating variable), whose influence on the dependent and independent variable relationship is predicted to be significant.

10.4.9 Attributes

An attribute is a quality or characteristic of a specific variable. Variables and attributes are inextricably linked. A variable is a logical collection of characteristics. As variables can "vary," such as high and low scores. Thus these high and low scores are the attributes of a particular variables. The theory of attributes is concerned with qualitative characteristics that can be calculated using quantitative measurements. As a result, the attribute necessitates slightly different statistical treatments than the variables. Attributes are characteristics of the item under

investigation, such as a smoking or drinking habit. As a result, the terms 'smoking' and 'drinking' both refer to an example of an attribute.



CHECK YOUR PROGRESS

Q 1: What is meant by background variables? Answer in about 50 words.

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Q 2: Define the term variable in the context of research. Answer in about 60 words.

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10.5 POPULATION OR UNIVERSE OF A STUDY

The term "universe" or "population" refers to a collection of items about which we obtain information. The term population refers to the entire field of study for which knowledge is sought. For example, if a research chooses to take all 1500 students studying in a college to assess the average height of the students, the full aggregate of 1500 students will be referred to as the study's population. It is possible to have a finite or infinite population. Finite population is defined as a population with a finite number of things. On the other hand, infinte population refers to a population that has not been enumerated. The detailed description of finite and infinite population is as follows:

10.5.1 Finite and Infinite Population

Finite population refers to a population with a finite number of units that can be counted exactly. Here are a few examples of finite population:

- Population of the students who appeared in NEET Exam in India in September 2021.
- Students enrolled in Post Graduate courses in India.
- Number of teacher teaching in the University
- The population, in which the number of units is infinite and cannot be counted is called infinite population. The following are some examples infinite population:
- Decimal numbers lying between integers 1 and 2.
- Number of stars in the sky.
- Words formed by using all English alphabets.
- Number of cells in human body.

10.5.2 Homogeneous and Heterogeneous Population

A homogeneous population is one in which all of the units of the population are same or similar in terms of some characteristics. If all the units of population differ completely or in some aspects with one another, the population is called heterogeneous population. The mental and physical talents of all pupils in the same school and class differ from one another. This is an example of a population that is heterogeneous. Homogeneous is that where all the units possesses same characteristics.

10.5.3 Existent and Hypothetical Population

Existent population refers to population units that have a physical existence. In most circumstances, finite and existing populations can be thought of as alternatives to one another. A population of this type is students and teachers in a city, district, or state. Other examples of existing population are family members,

working women in a metropolis, and children with autism or dyslexia in a certain area of the city. Hypothetical population refers to a population whose units do not have physical existence but whose existence is assumed or whose probability of existence is determined using statistical methods. This type of population is sometimes referred to as a statistical population. The probability of such a population is determined by the repetition of a previous incidence or by statistical computation. The following are some examples of such a population. A population depicting the average lifespan of electric lights manufactured in a plant. The bulbs' life expectancy is based on the durability of bulbs that have been made and utilised in the past. It is impossible to determine the exact life of such goods. Maximum and minimum temperature of different cities can be assumed on the basis of past experience. It cannot be predicted precisely.

10.5.4 Known and Unknown Population

If the parameter of the population is known, it is called known population. Parameter refers to statistical measurement taken from the data from the entire population. For example, in the study of achievement of the students appeared in S. S. C. examination in 2019-2020, the set of all the students appeared in SSC exam in that year will be called known population because the average marks of all these students and standard deviation of their marks can be calculated or known easily. If the parameter of population is unknown or cannot be calculated easily, it is known as unknown population. For example, in the study of intelligence of secondary school students of Assam, the population will be of unknown type because average marks and standard deviation of scores of the students in intelligence test are not easily available and cannot be calculated easily because this population consists of a large number of students.

10.6 SAMPLE AS A CONCEPT

A sample is a subset of a population. In other words, a sample is a collection of selected or sorted units from a population. In other terms, a sample is a subset of the population that we select for research purposes. If a researcher chooses 400 students from a population of 1500, these 400 students are referred to as a sample. It means, the units, selected from the population as a sample, must represent all kind of characteristics of different types of units of population i.e. it should be representative.

10.6.1 Characteristics of an Ideal / Good Sample

Characteristics of an ideal sample are as follows.

- Number of units in sample must be proportionate. It means a size of sample must be in proper proportion of number of units in population.
- Units selected in sample must represent all the characteristics of different units of population.
- Sample should be helpful in realising all the objectives of research.
- Sample selection should be free from any kind of biases. It means all the units of population must have equal chance to be selected in the sample.
- Sample should be such, that can save time, energy and money of researcher.
- Contact of units of sample should be convenient for researcher. It means, units of sample
- should be within the reach of researcher.
- Collection of data from units of sample should be convenient for researcher. Selection of such sample makes the task of researcher easy and precise. Therefore sample is very much important in research.

Table 10.1 describe some terms related to sample:

10.1: Certain related Concepts in Sampling

Concept	Description
Sample	A representative group of individuals from a specific population
Sampling	The process of selecting a representative group of people or elements from a population. There are various methods of selecting a sample viz. probability and non-probability sampling methods.
Sampling Error	Sampling error is the difference between the means of sample groups and the population means. The term "sampling errors" refers to errors that occur as a result of the sampling procedure. It occurs as a result of poor sample method selection, erroneous sampling unit demarcation, population variability with various characteristics, and so on.
Non Sampling Errors	These errors are those which creep in due to human factors which always varies with one investigator to another. These errors general ling arise due to faulty planning, faulty selection of the sampling units, errors in compilation, negligence and non-response on the part of the respondent etc
Steps involved in the sampling process	(i)Define the population (ii)Identify the sampling frame. The sampling frame should be so selected which consists of almost all the sampling units. (iii) Specify sampling unit and sampling method (iv) Determine the sample size (v) Specify sampling plan (vi) Select the sample

10.6.2 Population and Sampling Methods

Any research can use a variety of data collection methods to obtain any measurement. Data can be gathered from either primary or secondary sources. A research study on the other hand, can use census methods or sampling methods to get an estimate on a specific research problem. The detailed description of both the methods is as follows:

Census Method: The census technique is a method in which information or data is collected from each and every unit of the population in relation to the subject under inquiry, and conclusions are reached based on this information. Complete enumeration is

another name for this procedure. The following are the merits and demerits of the Census method.

Merits of Census Method

- Data produced by the method of the census have greater reliability and precision as data from each unit of the universe are collected in this method.
- This method provides detailed information about every unit of the universe
- The strategy is better appropriate for a small population and a wide variety of attributes.

Demerits of Census Method

- The census approach is a costly one. As data is collected from each unit of the population, more money is required. This is why governments choose to employ this method for critical topics such as population censuses and agricultural censuses.
- This methods involves much time for data collection
- This type of data collection also necessitates a significant amount of labour. This necessitates a bigger number of enumerators.

Sampling Method: The sampling method is a data collection method in which data is collected from a sample of items drawn from a population and conclusions are drawn from them. In today's world, the sampling method is an important and widely used method of statistical investigation. In reality, there is almost no area where the sampling method is not used. The following are the merits and demerits of sampling methods.

Merits of Sampling Methods

- The sampling method is less costly. It saves time and money because just a small percentage of the population is studied.
- Data can be collected more quickly using a sampling method because it is obtained from some items in the universe. As a result, this method saves time.
- As number of items is less in sampling method, they can be

intensively studies

- In this method research work can be organized and executed more conveniently
- Sampling method is more scientific
- If the sample is selected in a way that entirely represents the universe, the outcome is more accurate and reliable.
- When it is impossible to conduct an investigation using the census method, the sampling method is more appropriate. In cases where the population is infinite or too large, the sampling method is used.

Demerits of Sampling Methods

- The sampling method is less accurate because, rather than enquiring about every unit in the universe, a partial inquiry or inquiry about a subset of units is conducted.
- If the method of sample selection is not unbiased or proper caution is not used, the results will undoubtedly be misleading.
- The investigator's bias is more likely, making the results less reliable.
- If all population units are different in that case, the sampling process will not prove very useful.

10.6.3 Difference between Census and Sampling Methods

On the basis of the above characteristics explained for both the methods, the main differences between the census and the sampling method are as shown in Table 10.2.

Table 10.2: Census Vs Sampling Methods

Basis of Comparison	Census Method	Sampling Method
Meaning	The census technique is a method in which information or data is collected from each and every unit of the population in relation to the subject under inquiry, and conclusions are reached based on this information.	The sampling method is a data collection method in which data is collected from a sample of items drawn from a population and conclusions are drawn from them.
Scope	All items related to the universe are investigated	Only a few items are inquired
Cost	Expensive	Economical
Field of investigation	Used for investigations with limited field	Used for investigations with large field
Results	Results would be more reliable and accurate	Results are less reliable and accurate due to various sampling and non-sampling errors during data collection
Enumeration	Complete	Partial
Homogeneity	This method is useful when units of the population are heterogeneous	This method is useful when units of the population are homogeneous
Type of universe	In such field where study of each and every unit of the universe is necessary, census method is more appropriate.	When population is infinite or vast, then sampling method is considered to be more appropriate.
Error	Not Present	Depends on the size of the population
Economy	It requires a large amount of money, time, and labour.	Relatively less money, time, and labour are required.
Organisation and Supervision	It is very difficult to organise and supervise the census method.	Easy to organize and supervise
Nature of Method	Old and not a very scientific method	New and Scientific



CHECK YOUR PROGRESS

Q 3: What is meant by unknown population? Answer in about 60 words.

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Q 4: Define the term sample. Answer in about 60 words.

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10.11 LET US SUM UP

- In order to comprehend research, variables are important. The researcher can get a sense of the important variables related to that particular study by reviewing the literature, and data can be acquired from primary or secondary sources.
- Any attribute, characteristic, number, or quantity that changes over time or can take on different values in different conditions is referred to as a variable in research.
- Quantitative variables, often known as numerical variables, are variables that may be measured numerically. We can use a variety of quantitative and statistical methods to measure these characteristics.
- A continuous variable is one whose value may be determined through measurement. For example: height and weight of students in a class, time and distance etc.
- A discrete variable is one whose value may be calculated by counting. For example: number of students in a class, number of participants in a competitive exam, number of events in a program etc.
- Qualitative variables are those that can't be assessed directly, and there are various ways for measuring qualitative variables in research. The proxy variable can be used to describe the qualitative variable and this will give a way to measure the qualitative variable indirectly.
- A dependent variable is one that is utilised to characterise or evaluate

the problem or outcome being studied. In a causal relationship, the cause is the independent variable, while the result is the dependent variable.

- Depending on the context, a dependent variable can be referred to as a predicted variable, measured variable, explanatory variable, experimental variable, responding variable, outcome variable, output variable, or label.
- The component that is considered as a cause or impact of the problem/result is described or quantified by an independent variable.
- The term "universe" or "population" refers to a collection of items about which we obtain information. The term population refers to the entire field of study for which knowledge is sought.
- Finite population refers to a population with a finite number of units that can be counted exactly
- If the parameter of the population is known, it is called known population. Parameter refers to statistical measurement taken from the data from the entire population.
- A sample is a subset of a population. In other words, a sample is a collection of selected or sorted units from a population. In other terms, a sample is a subset of the population that we select for research purposes.
- The sampling method is a data collection method in which data is collected from a sample of items drawn from a population and conclusions are drawn from them. In today's world, the sampling method is an important and widely used method of statistical investigation.



10.12 FURTHER READING

(1) Guthrie , G. (2010) Basic Research Methods: An Entry to Social Science Research, Sage Publications, New Delhi, India

(2) Kumar, R. (2011) Research Methodology, Sage Publications, New Delhi, India

(3) Nachmias, D., and Nachmias C. (2014) Research Methods in Social Sciences, St. Martin's Press, New York



10.13 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Different demographic and socio-economic factors provide a data package that tells us about the study's background features. These variables are related to many independent factors, which influence or influence the dependent variable indirectly. As a consequence, they are referred to as background variables. If background components are important to the investigation, they should be measured.

Ans to Q No 2: A variable is something that has a value that changes over time. Some of the common examples of variables include: age, religion, gender, level of education, income, consumption, expenditure, family size, height, blood pressure readings etc. The value of each of these variables differ from one individual to other. Thus, any attribute, characteristic, number, or quantity that changes over time or can take on different values in different conditions is referred to as a variable in research.

Ans to Q No 3: If the parameter of population is unknown or cannot be calculated easily, it is known as unknown population. For example, in the study of intelligence of secondary school students of Assam, the population will be of unknown type because average marks and standard deviation of scores of the students in intelligence test are not easily available and cannot be calculated easily because this population consists of a large number of students.

Ans to Q No 4: A sample is a subset of a population. In other words, a sample is a collection of selected or sorted units from a population. In other terms, a sample is a subset of the population that we select for research purposes. If a researcher chooses 400 students from a population of 1500, these 400 students are referred to as a sample.



10.14 MODEL QUESTIONS

Short Questions (Answer each question in around 150 words).

Q 1: Discuss the Meaning and Definition of Variables in Research.

Q 2: Discuss the various Types of Variables.

Q 3: Discuss the concept of universe or population.

Q 4: Briefly describe the concept of sample.

Q 5: Distinguish between census and sample.

Q 6: Write short notes on the following:

(a) Quantitative Variables (b) Qualitative Variables (c) Independent and Dependent Variables (d) Extraneous Variables (e) Background Variables (f) Intervening Variables (g) Suppressor Variables (h) Moderating Variables (i) Finite and Infinite Population (j) Homogeneous and Heterogeneous Population (k) Existent and Hypothetical Population (l) Known and Unknown Population.

Essay type Questions: (Answer each question in about 300-500 words each.)

Q 1: What is meant by variable? Discuss its the various. Draw the major distinctions between quantitative variables and qualitative Variables.

Q 2: Briefly describe the concept of sample. Mention the important characteristics of a good sample. Distinguish between census and sample.

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UNIT 11: COLLECTION OF DATA

UNIT STRUCTURE

11.1 Learning Objectives

11.2 Introduction

11.3 Data Collection: Meaning

11.3.1 Data Collection: Importance

11.4 Types of Data

11.5 Sources of Secondary Data

11.6 Primary and Secondary Data: Merits and Demerits

11.7 Let Us Sum Up

11.8 Further Reading

11.9 Answer to Check Your Progress

11.10 Model Questions

10.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- acquire knowledge about meaning and importance of data collection in research
- know about Primary and secondary data
- discuss merits and limitations of both primary and secondary data.

11.2 INTRODUCTION

In previous units, we have learnt various aspects associated with research in economics. We have learnt about review of literature, design of research and various sampling techniques used. In this unit we will learn about collection of data- an important part of research. Starting from meaning and collection of data, the unit covers about primary and secondary data along with their relative meaning.

11.3 DATA COLLECTION: MEANING

Any statistical enquiry originates from collection of related facts or

information. These facts must be capable of measurement and this measurement may either be qualitative or quantitative. The facts and figures collected for any statistical enquiry, are recorded systematically. There are three concepts that are associated with data and its collection:

- Investigator
- Respondents
- Statistical units

An **Investigator** is a person who conducts the statistical enquiry. He must be a trained person and well-acquainted with statistical analysis. He counts or measures the characteristic under study. These measurements are further analysed statistically according to the objectives of the study.

Respondents are the persons from whom the information are collected by the investigator.

The measurements or counts in any statistical investigation are done with some identifiable object or a group of objects. These are known as statistical units. These units have to be defined clearly before collection of data. (Detail in section 11.3.1).

Thus, data collection is a process. It consists not only of counting or enumerating or measurement of information but recording of the same also. It must be a systematic process. In fact, the entire structure of the statistical analysis for any enquiry is based upon systematic collection of data.

11.3.1 Data Collection: Importance

It appears that collection of data is the first step of any statistical enquiry. In fact, an efficient and well -planned statistical enquiry must ensure so many preliminaries before collection of data. Otherwise, the conclusions of the study may be misleading and biased. That is why, collection of data is so important in its operationalization and handling. Before going for collection of data, one must examine the following points:

- Objectives and scope of the enquiry.
- Statistical units to be used.
- Sources of information.

- Method of data collection.
- Degree of accuracy in the final results.
- Type of enquiry.

Let us discuss the points in some detail.

Objectives and Scope of the Enquiry: The objectives of the enquiry should be defined in clear and concrete terms. Otherwise, some irrelevant information may be collected. Similarly, some important information may be omitted.

The scope of enquiry relates to the coverage with respect to the type of information, subject matter and geographical area. It will have a great bearing upon the data to be collected and also the techniques to be used for its collection and analysis. For example, in a study of cost of living index number the area of study (a particular area or state or the country as a whole) must be specified. Moreover, the class of people (such as low -income group, middle-income group) for which they are intended must be specified clearly.

Thus, any study depends on its objectives and scope. However, the objectives and scope should be in accordance with the available resources in terms of money, manpower and time limit required for results.

Statistical Units to be Used: As mentioned in section 11.3 statistical units on which data collection is done must be clearly defined. For socio-economic surveys a unit may be an individual, a family, a block of locality etc. For these types of surveys, some arbitrary units may be used which must be defined previously. These is no ambiguity for the physical units such as metres, kilometres, kilograms quintals etc. Thus, following requisites can be summarised for a statistical units:

- **It should be un-ambiguous:** It implies that every unit of the population should be distinct and non-overlapping and the units must cover the entire population.
- **It should be specific:** In many socio-economic surveys, arbitrary units have to be taken for some characteristics/

variables. These arbitrary units varies from survey to survey, but should be specific and clear for a particular survey. For example, in an enquiry relating to wage level of industrial workers, the wages might be weekly wages or monthly wages. Similarly, workers might refer to the skilled workers or workers working on daily basis. Whatever it may be, it must be specific.

- **It should be stable:** In order to compare at different places or time, the units should be stable. For example, difference in the value of money at different times as well as difference in measurement of weight of the same item make comparisons useless.
- **It should be appropriate to the enquiry:** as discussed in point 2 that the concept and definition of arbitrary statistical units varies from study to study. However, it should be appropriate for the particular study under consideration. For example, data on whole-sale prices are taken for studying the changes in the general price level. For constructing cost of living index number, the retail prices are the appropriate unit.
- **It should be uniform:** It implies that throughout the process of investigation, unit adopted for measurement must be homogeneous. For example, we cannot compare length if we use "metre" in some occasions and "yard" in some other occasions of the same study.

11.4 TYPES OF DATA

In preceding section, we have learned about the meaning and importance of data collection. Having discussed the preliminaries we have come to the conclusion that any statistical enquiry must ensure original collection of data. That is, it should be correct and proper. Otherwise valid and useful conclusions cannot be done even after adopting sophisticated techniques of analysis and presentation of results. Data may be obtained from the following two sources:

- The investigator or the organizer may collect data first hand. This

type of data is termed as Primary Data.

- The investigator may use the data from other published sources. This type of data is termed as Secondary Data.

It is clear that primary data are originally collected by an investigator or agency for the first time for any statistical investigation and used by them in the statistical analysis. Nature of primary data depends on the objectives and scope of the enquiry. Various variables as well as statistical units for them is defined prior to the collection of data. A detailed account on collection of primary data is given in Unit 12.

On the other hand, secondary data have already been collected and processed by some agency or person, and taken over from here and used by any other agency for their statistical work. It is termed as secondary data as far as second agency is concerned. They may or may not be published. In the use of these data there exists no any problem regarding definitions of various terms and units used. It is because these type of data have already been collected under a given set of definitions of various terms and units used.

It is important to know that the distinction between primary and secondary data is a matter of degree or relativity only. The same set of data may be secondary in the hands of one and primary in the hands of others. A data set is primary to the source who collects and processes them for the first time. The same set becomes secondary for all other sources who later use it.

To clear the distinction, let us consider the data on fertility and mortality rates for India. Office of Registrar General of India, New Delhi publishes reports on various demographic rates such as birth rate and death rates etc. Similarly, United Nations Organisation (U.N.O.) publishes U.N. Statistical Abstract wherein data on various aspect are taken from individual countries. Therefore, so far as data on birth rate and death are concerned, the office of the Registrar General of India is the primary source, while U.N.O. is the secondary source.



CHECK YOUR PROGRESS

Q 1: State whether the following statements are true (T) or false (F).

(a) In collection of data, the statistical units should be stable. (T/F)

(b) Primary data is collected from a secondary source. (T/F)

11.5 SOURCES OF SECONDARY DATA

Secondary data can be obtained from the following two broad sources: (a) Published sources, and (b) Unpublished sources.

- **Published Sources:** The publications of various international organisations, government, semi-government and private organisations collects and publishes data on various aspects such as business, trade, labour, prices, consumption, production, industries, agriculture, income, currency and exchange, a number of socio-economic phenomena on a regular basis (monthly, quarterly, annually etc.). These publications are a very powerful source of secondary data. Now-a-days these are available on the official websites of the organisations. A brief summary of these sources has been outlined below.
  - **Central Government's Official Publications:** Office of the Registrar General and Census Commissioner of India ,New Delhi; Directorate-General of Commercial Intelligence and Statistics- Ministry of Commerce; Labour Bureau-Ministry of Labour; Directorate of Economics and Statistics-Ministry of Agriculture and Irrigation; The Indian Army Statistical Organisation- Ministry of Defence; National Sample Survey Organisation, Department of Statistics-Ministry of Planning; Central Statistical Organisation, Department of Statistics-Ministry of Planning-are some of the important central government organisations which publish statistical data on a number of topics of current interest-prices, wages, population,

production and consumption, labour, trade, army etc. Most of the data now-a-days are available in the official websites of the respective departments. Some of the main publications of these government agencies are:

- Monthly Abstract of Statistics: Monthly Statistics of Production of Selected Industries in India; Statistical Pocket Book, India; Annual Survey of Industries-General Review; Sample Surveys of Current Interest in India National Income Statistics-Estimates of Capital Formation in India etc. All published by the Central Statistical Organisation (C.S.O.), New Delhi.
- Census data in various census reports; Vital Statistics of India (Annual), Indian Population Bulletin (Bi-eennial)-all published by Registrar-General of India (R.G.I.)
- Various statistical reports on phenomenon relating to socio-economic and demographic conditions , prices, area and yield of different crops, as a result of the various surveys conducted in different rounds by National Sample Survey Organisation (N.S.S.O.)

In addition to the above, a number of departments both in State and Central Governments like Income Tax Department, Post and Telegraphs, Central Board of Revenues, Textlile Commissioner's Office and so on publish statistical reports on current problems and the information supplies by them.

- **Publications of Semi-Government Statistical Organisations:** Various semi-governmental organisations publish their annual/monthly reports which provide very useful information. Important among them are:
  - Annual Report of Bank, Currency and Finance; Reserve Bank of India monthly Bulletin etc.-published by Statistics and Economics Department of Reserve Bank of India
  - Publications of the Institute of Economic Growth New Delhi,

- Publications of the Institute of Foreign Trade, New Delhi.;etc.

In addition to these, publications of the institutions like Municipal and District Boards, Block and Panchayat Samitis on Vital Statistics, health, sanitation and other related subjects provides a fairly reliable and useful information.

- Publications of Research Institutions: Institutes like Indian Statistical Institute (I.S.I.) Calcutta and Delhi; Indian Council of Agricultural Research (ICMR), New Delhi; National Council of Educational Research and Training (N.C.E.R.T), New Delhi; The Institute of Labour Research, Mumbai etc. has been constantly publishing their findings of their research programmes in the form of monographs, research papers, journals etc. These are, of course valuable source of secondary source of data.
- Publications of Commercial and Financial Institutions: Federation of Indian Chamber of Commerce and Industries (FICCI), Institute of Chartered Accountants of India, Trade Unions, Stock Exchanges, Bank Bodies, Co-operative societies etc. are some of the important sources of secondary information on current economic, business and other phenomena.
- Reports of various Government Appointed Committees: The reports of various survey and enquiry committees like Simon-Kuznet Committee Report on National Income in India, Kothari Commission Report on Educational Reforms, Land Reforms Committee Report, Reports of NITTI Ayoug etc. are invaluable source of secondary data.
- Newspapers and Periodicals: Economic and Political Weekly, Economic Times, The Financial Express, Stateman's Year Book and the Times of India Year Book etc. are some of the important magazines, periodicals and newspapers which provide important statistical material on a number of important current socio-economic problems.

- International Publications: The publications of a number of international agencies provide invaluable statistical information on a variety of important economic and current topics. The publications of United Nations Organisations (U.N.O.) and it's subsideries like U.N.O. Statistical Year Book, U.N. Statistical Abstracts, World Health Organisation's Report on Contagious Diseases, Reports of International Labour Organisation (I.L.O.), Reports of International Monetary Fund (I.M.F.) and so on very valued publications of secondary data.

- **Un-published sources:** Records maintained by private firms or business enterprises, various departments and offices of both central and state governments, findings of individual research scholars in universities and research institutions may remained unpublished. Private firms may not be interested in publication because of maintaining their business secrecy. Moreover, individual researchers, due to the promise of keeping confidentiality to the respondents cannot publish their findings. In spite of unpublished ness, these are sources of secondary information of great value.



CHECK YOUR PROGRESS

Q 2: What are the main concepts associated with collection of data? (Write in about 60 words)

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11. 6 PRIMARY AND SECONDARY DATA: MERITS AND DEMERITS

In previous section we have learnt in detail about primary and secondary data. We have learnt that both are totally different in collection and follow-up treatment. Which type of data is to be used depends on the nature of study which the researcher is going to undertake. Each of these two types of data, has merit on some aspects and demerits on some other aspects. In order to differentiate both types of data as well to find out relative merits and demerits, let us have a look on the Table 11.1.

Table 11.1: Primary and Secondary Data: A comparison

Sl. No	Criteria	Primary Data	Secondary Data
1	Data Collection method	Data collected by researcher	Data collected by others
2	Originality	Original or unique information	Not original or unique information
3	Adjustment	Doesn't need adjustment, is focused	Need adjustment to suit actual aim
4	Sources	Surveys, Observations, Experiments	Internal records, Govt. published data etc
5	Methods	Observation, Experiment, Interview	Desk -research method, Searching online etc.
6	Reliability	More reliable	Less reliable
7	Time consumed	More time consuming	Less time consuming
8	Need of investigators	Needs team of trained investigators	Does not need team of investigators
9	Cost effectiveness	Costly	Economical
10	Collected when	Secondary data is inadequate	Before primary data is collected
11	Capability	More capable to solve a problem	Less capable to solve a problem
12	Suitability	More suitable to achieve objective	May or may not be suitable
13	Bias	Possibility of bias exist	Somewhat safe from bias
14	Collected by	Researcher or his agents	Persons other than who collects primary data
15	Precaution to use	Not necessary	Quite necessary

It is clear from Table 11.1 that in terms of second point, viz- originality , primary data seems better. Therefore, while taking secondary source of information it should be ascertained that the data to be taken must come from the original source (where it was collected and recorded). In terms of adjustment also (point-3) secondary data has the demerit of making

adjustment to suit the objective of the survey. May be because of no need of adjustment, primary data seems more reliable (point-6) than the secondary data.

Of course points 7,8 and 9 reveal the demerits of primary data as it is more time consuming, costlier and requires more trained investigators than the secondary data. Moreover, there may have biasness on the part of the researcher while collecting primary data(point-13). So the researcher must be very careful in the choice between two types of data.



11.7 LET US SUM UP

- Data collection is a process. It consists not only of counting or enumerating or measurement of information but recording of the same also.
- An efficient and well -planned statistical enquiry must ensure so many preliminaries before collection of data.
- The objectives of the enquiry should be defined in clear and concrete terms.
- The statistical units on which data collection is done must be clearly defined. They should also be unambiguous, specific, stable, uniform and appropriate for the enquiry.
- Two types of data are used in statistical enquiries: primary and secondary

  Secondary data can be collected from both published and unpublished sources.
- Primary data seems better in terms of adjustment ability, originality, reliability, capability and suitability. Moreover, there is no need of precaution in using these data.
- However, collection of primary data is costly in terms of time, money and trained men power needed. Also, it may suffers from personal biasness on the part of the investigator.
- Secondary data seems better in terms of less cost involved in terms of short collection period, money and trained men power

required. Also, no biasness is involved here.

- However, secondary data may be less reliable, needs adjustment and can be used with great precaution.



11.8 FURTHER READING

(1) Ahuja, R. (2018). Research Methods. Jaipur: Rawat Publications.

(2) Kothari, C.R. (2011). Research Methodology, Methods and Techniques. New Age International (P) Ltd.

(3) Kumar, R. (2011). Research Methodology. New Delhi: SAGE Publications India Pvt. Ltd.



11.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: (a) True (b) False

Ans to Q No 2: There are three concepts that are associated with data and its collection:

a) Investigator

b) Respondents

c) Statistical units

An Investigator is a person who conducts the statistical enquiry. He must be a trained person and well-acquainted with statistical analysis. He counts or measures the characteristic under study. These measurements are further analysed statistically according to the objectives of the study.

Respondents are the persons from whom the information are collected by the investigator.

The measurements or counts in any statistical investigation are done with some identifiable object or a group of objects. These are known as statistical units.



11.10 MODEL QUESTIONS

Short Questions (Answer each question in about 40-50 words)

Q 1: What are qualities of a statistical unit that used in any statistical enquiry?

Q 2: Distinguish between Primary and Secondary data.

Q 3: Mention the main sources of secondary data.

Essay-type Questions (Answer each question in about 300-500 words)

Q 1: What is collection of data? Before collection of data, what point must be considered by the researcher?

Q 2: Discuss relative merits and demerits of primary and secondary data.

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UNIT 12: INTERVIEW

UNIT STRUCTURE

12.1 Learning Objectives

12.2 Introduction

12.3 Meaning of Interview

12.4 Process of Interview

12.5 Types of Interview

12.6 Merits of Interview

12.7 Demerits of Interview

12.8 Let Us Sum Up

12.9 Further Reading

12.10 Answer to Check Your Progress

12.11 Model Questions

12.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- put forward the meaning of interview
- understand the process of interview
- differentiate the different types of interviews
- discuss the merits and demerits of interview

12.2 INTRODUCTION

We have seen how the research process initiates. One of the most important aspects of any research process is data collection. There are different techniques of data collection. Out of these, interview method is a commonly used technique to collect data from a target group or sampled population. There are different types of interviews. There are certain prerequisites for the smooth conduct of the interview method. Again, it also has both advantages and disadvantages attached which we are going to discuss in detail in this unit.

12.3 MEANING OF INTERVIEW

Interview is a commonly used method of collecting information from people. In many walks of life we collect information through different forms of interaction with others. There are many definitions of interviews. According to Monette et al., 'an interview involves an interviewer reading questions to respondents and recording their answers'. According to Burns, 'an interview is a verbal interchange, often face to face, though the telephone may be used, in which an interviewer tries to elicit information, beliefs or opinions from another person'. Any person-to-person interaction, either face to face or otherwise, between two or more individuals with a specific purpose in mind is called an interview.

There are two major functions of interview technique:

- **Description:** Since interviewer enquiries about certain topics, the respondents provide certain information which helps the interviewer to attain in-depth insights into the nature of the problem he or she is concerned about.
- **Exploration:** Interviews provide insight into unexplored dimensions of the problem. Respondents get a chance to explain the problem in a better manner which is generally not possible when information is collected through questionnaires.

Some characteristics of interview are as follows-

- There is face-to-face contact, conversational exchange and verbal interaction between the interviewer and the respondent.
- The interview is not limited to two individuals only; rather it could be a group of respondents, two or more interviewers.
- The relationship between interviewer and respondents who are strangers is generally transitory.
- Questions are asked and responses are received verbally.
- The interviewer records the responses accordingly and there is flexibility in the format of interview.

12.4 PROCESS OF INTERVIEW

For smooth conduct of the interview process, the first necessary condition is the understanding of the interviewer. The interviewer needs to be clear about the objectives and aspects of the studies to be conducted. Moreover, selecting the sample population, getting appointment from the respondents, informing the respondents about the time required for the interview, having an attitude so that the respondents feel comfortable to answer, and increasing respondents' motivation and so on are to be looked after by the interviewer. For successful conduct of the interview method, interviewers should be carefully selected, trained and briefed. They should be observant, objective, sensitive to norms and practices of the society taken for study, etc.. Occasional field checks should be made to ensure that interviewers are conducted following all the necessary requirements , not deviating from instructions given to them for performing their job efficiently. In addition, some provisions should also be made in advance so that if any selected respondent refuse to cooperate or are not available when an interviewer calls upon them, such cases are duly accommodated. In fact, interviewing is an art governed by certain scientific principles. Every effort should be made to create friendly atmosphere of trust and confidence, so that respondents may feel at ease while talking to and discussing with the interviewer. The interviewer must ask questions properly and intelligently, not only that s/he must also take into congnizance emotions of the respondents and then must record the responses accurately and completely. At the same time, the interviewer must answer legitimate question(s), if any, asked by the respondent and must clear any doubt that the respondents might have regarding purpose of the study, institutional affiliation etc. has. The interviewers approach must be friendly, courteous, conversational and unbiased. The interviewer should not show surprise or disapproval of a respondent's answer but he must keep the direction of interview in his own hand, discouraging irrelevant conversation and must make all possible effort to keep the respondent on the track.



CHECK YOUR PROGRESS

Q 1: Define interview. Answer in about 50 words.

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Q 2: Mention the characteristics of interview. Answer in about 60 words.

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12.5 TYPES OF INTERVIEW

The types of interview differ from one another in terms of structure, interviewer's role, number of respondents involved, and so on. Following are some of the important types of interview:

- **Unstructured Interviews:** In unstructured interview there are no specifications in the wording of the questions and order in which they are to be asked. The interviewer can form questions as and when required. The strength of unstructured interviews is the complete freedom they provide in terms of content and structure. We are free to order these in whatever sequence we wish. We also have complete freedom in terms of the wording we use and the way we explain questions to the respondents. We may formulate questions and raise issues on the spur of the moment, depending upon what occurs in the context of the discussion. Such interviews have no time limit for continuing the interview. Unstructured interviews are prevalent in both quantitative and qualitative research. The difference

is in how information obtained through them in response to our questions is likely to be used. In quantitative research we develop response categorizations from responses which are then coded and quantified. In qualitative research the responses are used as descriptors, often in verbatim form, and can be integrated with our arguments, flow of writing and sequence of logic.

Advantages of unstructured interview: The advantages of unstructured interview include the easy flow in which the interview can be conducted in the form of natural conversations and the questions are spontaneously asked. There is greater possibility of exploring in an unrestricted manner. Knowing the interest of the respondents, the interviewer can ask questions accordingly and gain more information from that specific area.

Disadvantages of unstructured interview: There are certain disadvantages like the responses of the respondents cannot be compared with each other. With no specific sequence and format of the questions, the reliability of the data becomes doubtful. Some aspects may be left out during the interview process and at times it results in wastage of time on account of irrelevant conversations.

- **Structured interviews:** In a structured interview the researcher asks a predetermined set of questions, using the same wording and order of questions as specified in the interview schedule. An interview schedule is a written list of questions, open ended or closed, prepared for use by an interviewer in a person-to-person interaction (this may be face to face, by telephone or by other electronic media). The researcher has little freedom to make changes in the order or wordings of the questions asked.

One of the main advantages of the structured interview is that it provides uniform information, which assures the comparability of data. Structured interviewing requires fewer interviewing skills than does unstructured interviewing. Moreover, structured interviews help to lessen the personal bias mostly seen in case of unstructured interviews.

- **Standardised and unstandardised interview:** In standardised interviews answer to each question is given in a standard form of set of responses given for this purpose. For instance, the response to be chosen by the respondents might be given as yes/no, agree/ disagree, satisfied/not satisfied, illiterate/less educated/highly educated, and so on. The information attained is helpful for quantitative analysis. Whereas in unstandardised interviews there is no particular standard for the answers, rather it is left open to the respondents. Such information is collected for qualitative research analysis.
- **Individual and group interviews:** In individual interviews the interviewer asks questions to one respondent at a time. Although it gives fair opportunity to the respondent to answer without any external influence and information on sensitive issues can be collected with the help of one to one interviews but if the number of respondents is too large, it would be a time consuming task to complete the entire process. On the other hand, in group interviews, there are more than one respondent. The group might be of two individuals like husband and wife, or a family with 10-15 members, or a group of farmers or a large group of students, and so on.
- **Personal interviews:** Personal interview method requires a person known as the interviewer asking questions generally in a face-to-face contact to the other person or persons. (At times the interviewee may also ask certain questions and the interviewer responds to these, but usually the interviewer initiates the interview and collects the information.) This sort of interview may be in the form of direct personal investigation or it may be indirect oral investigation. In the case of direct personal investigation the interviewer has to collect the information personally from the sources concerned. He has to be on the spot and has to meet people from whom data have to be collected. This method is particularly suitable for intensive investigations. But in certain cases it may not be possible or worthwhile to contact directly the persons concerned or on account

of the extensive scope of enquiry, the direct personal investigation technique may not be used. In such cases an indirect oral examination can be conducted under which the interviewer has to cross-examine other persons who are supposed to have knowledge about the problem under investigation and the information, obtained is recorded. Most of the commissions and committees appointed by government to carry on investigations make use of this method.

- **Focused interview:** It is meant to focus attention on the given experience of the respondent and its effects. Under it the interviewer has the freedom to decide the manner and sequence in which the questions would be asked and also has the freedom to explore reasons and motives. The main task of the interviewer in case of a focused interview is to confine the respondent to a discussion of issues with which he seeks conversance. Such interviews are used generally in the development of hypotheses and constitute a major type of unstructured interviews. For example, studying prisoners in jail about the restrictions on their freedom, work, recreation, interaction, food habits, etc. is an example of focused interview. One basic advantage of focused interview is that the respondents get more freedom to respond to the questions and hence there is the opportunity to gather more information.
- **Clinical interview:** Clinical interview is concerned with broad underlying feelings or motivations or with the course of individual's life experience. The method of eliciting information under it is generally left to the interviewer's discretion.
- **Non-directive interview:** Here, the interviewer's function is simply to encourage the respondent to talk about the given topic with a bare minimum of direct questioning. The interviewer often acts as a catalyst to a comprehensive expression of the respondents' feelings and beliefs and of the frame of reference within which such feelings and beliefs take on personal significance.



LET US KNOW

Advantages and Weaknesses of Personal Interview Method: Despite the variations in interview-techniques, the major advantages and weaknesses of personal interviews can be enumerated in a general way as follows:

- More information and that too in greater depth can be obtained.
- Interviewer by his own skill can overcome resistance, if any, of the respondents; the interview method can be made to yield an almost perfect sample of the general population.
- There is greater flexibility under this method as the opportunity to restructure questions is always there, especially in case of unstructured interviews.
- Observation method can as well be applied to recording verbal answers to various questions.
- Personal information can as well be obtained easily under this method.
- Samples can be controlled more effectively as there arises no difficulty of the missing returns; non-response generally remains very low.
- The interviewer can usually control which person(s) will answer the questions. This is not possible in mailed questionnaire approach. If so desired, group discussions may also be held.
- The interviewer may catch the informant off-guard and thus may secure the most spontaneous reactions than would be the case if mailed questionnaire is used.
- The language of the interview can be adopted to the ability or educational level of the person interviewed and as such misinterpretations concerning questions can be avoided.
- The interviewer can collect supplementary information about the respondent's personal characteristics and environment which is often of great value in interpreting results.

But following are some of the weaknesses of the personal interview

method:

- It is a very expensive method, especially when large and widely spread geographical sample is taken.
- There remains the possibility of the bias of interviewer as well as that of the respondent; there also remains the problem of supervision and control of interviewers.
- Certain types of respondents such as important officials or executives or people in high income groups may not be easily approachable under this method and to that extent the data may prove inadequate.
- This method is relatively more-time-consuming, especially when the sample is large and recalls upon the respondents are necessary.
- The presence of the interviewer on the spot may over-stimulate the respondent, sometimes even to the extent that he may give imaginary information just to make the interview interesting.
- Under the interview method the organization required for selecting, training and supervising the field-staff is more complex with formidable problems.
- Interviewing at times may also introduce systematic errors.
- Effective interview presupposes proper rapport with respondents that would facilitate free and frank responses. This is often a very difficult requirement.

- **Telephone interviews:** This method of collecting information consists in contacting respondents on telephone itself. It is not a very widely used method, but plays important part in industrial surveys, particularly in developed regions. Moreover, newspapers, radios and TV personnel generally use this method to access public opinion.

Merits of Telephone Interviews: Following are the merits of such a system-

- ➢ It is more flexible in comparison to mailing method.
- ➢ It is faster than other methods i.e., a quick way of obtaining information.

- It is cheaper than personal interviewing method since not many investigators are required.
- Recall is easy; callbacks are simple and economical.
- There is a higher rate of response than what we have in mailing method; the non-response is generally very low.
- Replies can be recorded without causing embarrassment to respondents.
- Interviewer can explain requirements more easily.
- At times, access can be gained to respondents who otherwise cannot be contacted for one reason or the other.
- No field staff is required.
- Representative and wider distribution of sample is possible.

Demerits of Telephone Interviews: But this system of collecting information is not free from demerits. Following are some of the disadvantages:

- Little time is given to respondents for considered answers; interview period is not likely to exceed five minutes in most cases.
- Surveys are restricted to respondents who have telephone facilities.
- Extensive geographical coverage may get restricted by cost considerations.
- It is not suitable for intensive surveys where comprehensive answers are required to various questions.
- Possibility of the bias of the interviewer is relatively more.
- Questions have to be short and to the point; probes are difficult to handle.
- Each selected respondent in the sample may not own a telephone and thus be left out from responding.
- Respondents are often not motivated over the telephone because they can terminate the interview at his/her will.
- Since answers are to be given quickly, the respondents might not get much time to think about the answers.

Thus, we see that the interview as a method of data collection seems to be easy, yet its adequacy, reliability and validity pose important problems. Interviewers differ in skill and interest; again respondents differ in ability and motivation. Hence, for a successful interview, accessibility of information, understanding of the respondents and motivation are the prime factors.



CHECK YOUR PROGRESS

Q 3: Mention some types of interviews. Answer in about 40 words.

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Q 4: Differentiate between structured and unstructured interview. Answer in about 50 words.

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12.6 MERITS OF INTERVIEW

Interview as a method of data collection has certain specific merits as follows:

- Quick information- desired information can be obtained quickly.
- Proper interpretation- respondents interpret the questions properly.
- Flexibility- in both asking questions and responding there is flexibility in the process.
- Checking validity- validity of the information can be easily checked. It gives higher response rate and identity of the respondents is known.
- Observance - the interviewer has the opportunity to observe respondents'

non-verbal behavior.

- Control- exercising control on the context of questions and answers is possible.

12.7 DEMERITS OF INTERVIEW

Following are some of the demerits or limitations of interview technique:

- Due to the fear of identity, the respondents might give improper answers or hide information and give wrong responses.
- Interviews are costly both in terms of money and time.
- Interviewer's attitude has a major role to play in the process. For instance, if he is angry or tired, he would not be able to conduct the interview properly. Again, if he is in any hurry, he would not take much time and end the process quickly. Doing so would result in inadequate information.
- It is less effective for sensitive questions.
- It offers less anonymity than other methods.
- There could be variability in responses with different interviewers, particularly when interview is unstructured.

Thus, the above are certain advantages and disadvantages involved in the technique of interview when used for data collection in a research study.



CHECK YOUR PROGRESS

Q 5: Mention some of the important merits of personal interview. Answer in about 60 words.

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Q 6: What is meant by a focused group interview? Answer in about 50 words.

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12.8 LET US SUM UP

- According to Monette et al., 'an interview involves an interviewer reading questions to respondents and recording their answers'. According to Burns, 'an interview is a verbal interchange, often face to face, though the telephone may be used, in which an interviewer tries to elicit information, beliefs or opinions from another person'.
- Any person-to-person interaction, either face to face or otherwise, between two or more individuals with a specific purpose in mind is called an interview.
- Some characteristics of interview include- There is face-to-face contact, conversational exchange and verbal interaction between the interviewer and the respondent; the interview is not limited to two individuals only; rather it could be a group of respondents, two or more interviewers. The relationship between interviewer and respondents who are strangers is generally transitory. Questions are asked and responses are received verbally. The interviewer records the responses accordingly and there is flexibility in the format of interview.
- For successful implementation of the interview method, interviewers should be carefully selected, trained and briefed. They should be honest, sincere, hardworking, and impartial and must possess the technical competence and necessary practical experience.
- Some types of interview are- Unstructured Interviews, structured interviews, Standardised and unstandardised interview, Individual and group interviews, Personal interviews, Focused Group interview,

telephonic interview, etc. All of these types have their particular advantages and disadvantages.

- Certain advantages of interview method include- quick information, proper interpretation, flexibility, checking validity, control, knowing the identity of respondents, completeness of interviews and so on.
- Possibility of hiding information or providing wrong information, costly process, less effective for sensitive questions are some of the disadvantages of interview technique.



12.9 FURTHER READING

(1) Ahuja, R. (2018). Research Methods. Jaipur: Rawat Publications.

(2) Creswell, J W and Creswell, J D. (2018). Research Design. Sage Publications.

(3) Kothari, C.R. (2011). Research Methodology, Methods and Techniques. New Age International (P) Ltd.

(4) Kumar, R. (2011). Research Methodology. New Delhi: SAGE Publications India Pvt. Ltd.



12.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: According to Monette et al., 'an interview involves an interviewer reading questions to respondents and recording their answers'. According to Burns, 'an interview is a verbal interchange, often face to face, though the telephone may be used, in which an interviewer tries to elicit information, beliefs or opinions from another person'.

Ans to Q No 2: There is face-to-face contact, conversational exchange and verbal interaction between the interviewer and the respondent; The interview is not limited to two individuals only; rather it could be a group of respondents, two or more interviewers; The relationship between interviewer and respondents who are strangers is generally transitory; Questions are asked and responses are received verbally; The interviewer records the responses accordingly and there is flexibility in

the format of interview.

Ans to Q No 3: Unstructured Interviews, structured interviews, Standardized and unstandardised interview, Individual and group interviews, Personal interviews, Focused Group interview, telephonic interview, etc.

Ans to Q No 4: In unstructured interview there are no specifications in the wording of the questions and order in which they are to be asked. The interviewer has complete freedom and can form questions as and when required. Whereas, in a structured interview the researcher asks a predetermined set of questions, using the same wording and order of questions as specified in the interview schedule and lacks freedom.

Ans to Q No 5: More detailed information can be obtained through personal interviews. Moreover, if the respondents have any difficulty, the interviewer can clear those instantly. In case of a face-to-face interview, the interviewer can keep motivating the respondents to answer properly.

Ans to Q No 6: Focused group interviews focus attention on the given experience of the respondent and its effects. Under it the interviewer has the freedom to decide the manner and sequence in which the questions would be asked and has also the freedom to explore reasons and motives. The main task of the interviewer in case of a focused interview is to confine the respondent to a discussion of issues with which he seeks conversance. Such interviews are used generally in the development of hypotheses and constitute a major type of unstructured interviews.



12.11 MODEL QUESTIONS

Long Questions. (Answer each question in around 300-500 words)

Q 1: Define the term 'interview'. Explain the characteristics of interview technique.

Q 2: Explain the process of interview used for data collection.

Q 3: What are the different types of interviews? Explain the types along with their advantages and disadvantages.

Q 4: What are the merits and demerits of the interview technique? Explain in details.

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UNIT 13: INTERVIEW TECHNIQUES - I QUESTIONNAIRE

UNIT STRUCTURE

13.1 Learning objectives

13.2 Introduction

13.3 Questionnaire: Meaning

- 13.3.1 Preparation of a Good Questionnaire
- 13.3.2 Features of a Good Questionnaire
- 13.3.3 Types of Questionnaire
- 13.3.4 Merits of Questionnaire
- 13.3.5 Demerits of Questionnaire
- 13.3.6 Difference between Questionnaire and Schedule

13.7 Let Us Sum Up

13.8 Further Reading

13.9 Answer to Check Your Progress

13.10 Model Questions

13.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- put forward the meaning of questionnaire
- acquire knowledge how to prepare a good questionnaire
- explain the different types of questionnaire
- discuss the merits and demerits of questionnaire as a technique of data collection
- explain the differences between questionnaire and schedule

13.2 INTRODUCTION

By now, we have learnt that data collection is the most vital aspect in any research and based on the nature of the study or research; there are different techniques of collecting data. Interview is one such important technique, which we have discussed, in the previous unit. From that unit we have learnt about the meaning and types of interview and the processes in

which an interview is conducted. In this unit, we shall learn about questionnaire, a tool for data collection. In simple words questionnaire is a series questions printed or typed in a definite order on a form or set of forms for collecting primary data from the respondents. Here we shall discuss about how to prepare a questionnaire, what are the features of a questionnaire, the different types of questionnaire and the merit and demerits of a questionnaire.

13.3 QUESTIONNAIRE: MEANING

As mentioned above, Questionnaire is a research tool used to collect primary data. According to Goode and Hatt, the word questionnaire refers to a mechanism or tool for securing answers to questions by using a form, which the respondent fills himself. Thus, anyone who has filled in a job application has had the experience of answering a questionnaire. In a research study, the researcher develops a series of questions on the basis of the objectives of his/her study. The set of questions are all logically related to the central problem of the study. The researcher then arranges the questions in a logical sequence, prints it in a form or set of forms and gives it to his/her respondents. The aim is to generate response from the respondents on the issue or the topic of the study. The respondents are expected to read and understand the questions and write down the reply in the space provided in the questionnaire itself. They are also expected to answer the questions on their own without any external influence. Thus, a questionnaire can be defined as a research instrument, which has a series of pre-set questions that are framed in a certain way to gather objective information from respondents. It is a most popular and widely used technique of data collection used in field survey. In the next section, we shall discuss how to prepare a questionnaire.

13.3.1 Preparation of a Questionnaire

Preparation of a questionnaire is a complex task. Since questionnaire has to be filled by the respondents, it is very essential to prepare the questionnaire in such a way that the respondents

can easily understand what is being asked. The questions therefore need to be very precise and comprehensive. The questions must be connected to the objectives of the study and should be such that they fetch appropriate and required data for the study. Further, the questionnaire should also be very sensitive towards the respondents and should not hurt the sentiment and dignity of the respondents. Therefore preparing a questionnaire requires cautious efforts of the researcher. The researcher must give importance on the following aspects while preparing a questionnaire.

- **General Form:** Questionnaires should have definite, concrete and predetermined questions. Each respondent should be asked the same questions and the questions should be presented with exactly the same wording and in the same order to all the respondents.
- **Question Sequence:** The researcher must be very careful about the question sequence while preparing a questionnaire. The questionnaire would be meaningful and effective only when the questions are put in a definite order or sequence. The questions must follow a specific pattern; each question following from the above. The questions must be easy; its meaning clear and there should be a flow from one question to the other so that it helps the researcher to easily understand and give his/her views/ answers. The initial or the first few questions should be the easiest to answer and should be able to arouse the interest of the respondents.
- **Question formulation and wording:** The questions put in the questionnaire should be simple and written in a lucid language. The questions should be such that they are understood easily They should not lead to any misunderstanding and miscommunication. Further, the questions should convey only one thought at a time.

13.3.2 Features of a Good Questionnaire

- Questionnaire should be precise and simple. It should comprise of short and crisp questions that are easily understandable by the respondents.
- Questions should follow a logical sequence where it starts with the easiest questions followed by the difficult ones. It should proceed from the easy/simple to the complex questions.
- A good questionnaire should be comprehensible by the respondents. It may emphasize on the significant or important areas of the concerned research and yet the questions should be framed in a way so that the respondents do not hesitate to put forward their answers or opinions.
- The responsibility of a good questionnaire towards research is that the respondents should realize the importance of the questions asked and not brush them off as unimportant or insignificant.
- A good questionnaire should avoid questions that may be embarrassing or annoying to the respondents. Although questionnaire as a data collection tool does not leave much ground for the respondents to express themselves subjectively and also in most cases guarantee anonymity, in the ones that involve face to face interaction with the respondents, the questions should be framed with more sensitivity and care so as to not make the respondent uncomfortable. This is important for getting data, which is not coloured by uneasiness. Personal and intimate questions should be asked towards the end.
- The researcher must avoid technical or difficult terms and imprecise language, which may be incomprehensible, misunderstood or misinterpreted.
- The researcher must avoid those questions, which may hurt the sentiments and dignity of the respondents.
- The questionnaire must be prepared in a way that sufficient

space is provided for the respondents to answer the open-ended questions.



CHECK YOUR PROGRESS

Q 1: Fill in the blanks.

(a) Questionnaire is a series of _____ questions to gather _____ information from respondents.

(b) A good questionnaire should be _____ by the respondents.

13.3.3 Types of Questionnaires

Two most significant dimension along which questionnaires commonly vary are: (a) degree of structure, and (b) number of response possibilities.

Degree of Structure: In light of degree of structure, questionnaires may be of three types, i.e structured, semi-structured and unstructured. A Questionnaire can be structured or semi-structured depending on the needs of the research. Structured questionnaires are also called closed questionnaires, which usually consist of pre-set options from which respondents need to choose their answer. They are those in which the questions to be asked from the respondents and the instruction to be followed by the interviewers are very precisely and concisely stated in advance.

Semi-structured or open-ended questionnaires consist of fixed questions but leaves space for the respondents to answer in their own words. Semi-structured questionnaire may result in subjective answers for some questions, and hence does not fully qualify as quantitative data.

On the other hand, unstructured questionnaires are those in which specify only the broad areas of a subject and not the form or sequence of questions. In this context, formulation of questions is left to the interviewers themselves who are free to question respondents as their own choice.

Number of response possibilities: Here, questionnaires also vary in respect of the number of response possibilities provided to the subject. If a question provides the subject with only two response possibilities it is known a dichotomous question.

13.3.4 Merits of a Questionnaire

As said above, a questionnaire is an important tool of primary data collection. However, using questionnaire as a research tool has its own advantages and disadvantages, and hence, should only be used depending on the requirements of the research. For example, some research might demand elaborate subjective opinion from the respondents. In that case, a questionnaire would not prove to be fruitful in terms of data. Whereas, a research, which demands objective answers from respondents, would benefit a lot from a well designed, good and crisp questionnaire. Hence, as per the need of the research concerned, a questionnaire can primarily be divided into closed questionnaires and open-ended questionnaires. To elaborate further, we shall discuss a few merits and demerits of questionnaires in general that fit into both the categories.

- **Cost effective:** The best thing about a questionnaire is that it is cost effective. It is economical in terms of both time and money, to say the least, since it does not always require the researcher to interact with the respondents at a personal level. It thus saves research time, which is precious, and money as there is not a lot of travelling involved. Further, a large number of data can be collected from a large population in a very less time, making it one of the most convenient tools for conducting objective research.
- **Standardization of facts:** As a research tool, a questionnaire makes the data easy to analyze. The data collected through a questionnaire can thus be used to arrive at a generalization regarding a particular research finding. Questionnaire is the

easiest way to derive patterns of social realities on the basis of information received from the data. It also helps the researcher to codify the patterns, further making it useful as quantitative data.

- **Comparable:** One important benefit of using questionnaire as a research tool is that of comparability. The data collected through multiple questionnaires on the same topic from different respondents can be compared to arrive at generalizations or patterns of social reality. A skilful researcher may design the same set of questions in different and tactful ways for potentially diverse response from the same respondents. Though a questionnaire does not leave much room for the researcher to peak into the subjectivities of the answers provided by the respondents, the said trick proves to be useful in most cases.
- **Anonymity:** Anonymity provides most respondents with the comfort to answer certain questions that they think might be controversial or uncomfortable. A Questionnaire also ensures a kind of detachment from the answer provided, making the respondents flexible with their opinions. Without having to write one's name on it, one becomes free from the fear of unwanted associations, thus being able to contribute towards an objective data.
- **Quantifiable:** Questionnaire can help provide data which is quantifiable, that is, data which can be standardized and used for further research in similar and extended areas. A closed questionnaire is more effective in deriving quantified data.

13.3.5 Demerits of a Questionnaire

- **Lack of Personal Contact with Respondents:** One of the major demerits of questionnaire as a tool of data collection is that it does not allow the researcher to have personal interaction or contact with the respondents. This disadvantage also leads to further disadvantages throughout the process of the research, such as lack of subjective and diverse

perspectives in the research, including lack of empathy, issues of validation, etc. No personal contact between the researcher and the respondents also generates a sense of detachment on the part of both the parties, resulting in a danger of the research being taken casually.

- **Poor response:** This immediately follows the above mentioned disadvantage. A Questionnaire always runs the risk of gaining poor response among the respondents. This could be because of multiple reasons such as laziness, unwillingness, busyness and other personal reasons of the respondent, but the primary reason is generally lack of personal contact between the researcher and the respondent. This could also lead to situations like incompletely filled questionnaires or half-hearted responses.
- **Issue of validation:** Questionnaire as a research tool can face serious issues of validation. Questionnaire is always done in written format and since not all of the respondents may be well-versed in the language used, there may be misinterpretation of the questions asked. This will obviously result in poor quality data or wrong data, thus hampering the findings of the research. Further, the researcher might not be physically present while the questionnaire was being filled up (in terms of online questionnaire or postal questionnaire). Hence, there is no way that the researcher can explain a difficult question or rephrase it to make it understandable for the respondent. This also means that the researcher would generally be clueless about any manipulation of information by the respondents.
- **Misinterpretation:** In the case of questionnaire, the issue of misinterpretation can be faced by both respondents and the researcher, since the researcher is often not present while the respondent is filling the questionnaire and the respondents too are likely to not be present while the researcher is interpreting the responses. The researcher might also face the problem of legibility in responses filled in by respondents, due to bad

handwriting or unclear answers (in case of open-ended questionnaires).

- As mentioned above, preparation of a questionnaire has a lot to do with the quality of the data collected. A good questionnaire is most likely to lead the researcher to a good quality data. Despite the limitations that it is susceptible to, questionnaire is a very popular tool of collecting data in both qualitative and quantitative research methods.

13.3.6 Differences between Questionnaire and Schedule

It is a common tendency among researchers to use questionnaire and schedule interchangeably, and they do seem to be similar in certain cases. However, there are quite a few differences between the two.

- Both consist of a series of pre-set questions to be answered by the respondents, but the fundamental difference between a questionnaire and a schedule is that the questionnaire has to be filled by the respondents, while a schedule must be filled by the enumerator or the researcher herself on behalf of the respondents.
- Both are primary methods of data collection in which data is obtained by asking questions, but a questionnaire is designed to collect data from large, diverse and widely scattered groups of people whereas a schedule usually caters to a smaller population with whom the researcher interacts personally.
- A questionnaire may or may not involve personal interaction (can be sent to the respondent via mail to be filled online or by post) whereas a schedule fundamentally involves personal interaction between the researcher and the respondents.
- Both have same pre-set questions for all the respondents to ensure reliability of data. But in most cases, a questionnaire is comparatively rigid, using standardized words and phrases to get uniform results. A schedule on the other hand is more flexible,

allowing the interviewer to modify the questions as per requirement of the interview scene.

- The success of a questionnaire is majorly determined by the quality of the questions asked whereas that of a schedule depends on the honesty and competence of the interviewer. However, qualities that both questionnaire and schedule must possess as primary data collection tools are that they have to be clear and comprehensible and at the same time sensible to the respondents, and they both must be prepared responsibly so as to bring out data of rich quality.



CHECK YOUR PROGRESS

Q 2: State whether the following statement is true or false.

Questionnaire is a cost effective tool for data collection. True or false

Q 3: Fill in the blanks.

(a) In a schedule, the answers of the respondents are filled up by_____.

(b) A schedule allows _____ to the interviewer in terms of reframing questions.

(c) Questionnaire and interview are both _____ tools of data collection.



13.4 LET US SUM UP

- A questionnaire is one which consists of a number of questions printed or typed in a definite order or on a form or set of forms. It is given to the respondents who are expected to read, understand, and write down their reply in the space provided.
- Questionnaire can primarily be divided into closed questionnaires and open ended questionnaires.

- Questionnaire can be structured or semi-structured, depending on the needs of the research.
- Structured or closed questionnaires usually consist of pre-set options from which respondents need to choose their answer.
- Semi-structured or open-ended questionnaires consist of fixed questions but leave space for the respondents to answer in their own words.
- A good questionnaire should be comprehensible by the respondents.
- A good questionnaire should consist of logical questions looking for logical answers.
- A good questionnaire should avoid questions that may be embarrassing or annoying for the respondents.
- A good questionnaire should be designed in such a way that it draws the interest of the respondents. Failure to do so might lead to failure of the questionnaire to collect adequate data.
- Questionnaire as a data collection tool is cost effective. It is economical both in terms of time and money.
- Questionnaire makes the data easy to analyze. The data collected through questionnaire can be used to arrive at a generalization regarding a particular research finding and deriving patterns of social realities.
- Use of questionnaire makes data easily comparable and hence quantifiable.
- One of the major demerits of questionnaire as a tool of data collection is that it does not allow the researcher to have personal interaction or contact with the respondents, followed by poor response rate, issue of validation and misinterpretation.
- A questionnaire has to be filled by the respondents, while a schedule must be filled by the enumerator or the researcher herself on behalf of the respondents.
- A questionnaire collects data from large, diverse and widely scattered groups of people whereas a schedule usually caters to a smaller population with whom the researcher interacts personally.



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13.6 ANSWERS TO CHCK YOUR PROGRESS

Ans to Q No 1: (a) Pre-set (b) Comprehensible

Ans to Q No 2: True

Ans to Q No 3: (a) Interviewer (b) Flexibility (c) Primary



13.7 MODEL QUESTIONS

Short Questions (Answer each question in around 150 words).

Q 1: Distinguish between questionnaire and schedule

Q 2: Briefly explain the different types of questionnaire.

Long Questions. (Answer each question in around 300-500 words)

Q 1: Discuss how to prepare a good questionnaire.

Q 2: Discuss the merits and demerits of questionnaire.

Q 3: Explain the features of a good questionnaire.

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UNIT 14: INTERVIEW TECHNIQUES - II

UNIT STRUCTURE

14.1 Learning Objectives

14.2 Introduction

14.3 Case Study

- 14.3.1 Objectives and Characteristics of Case Study Method
- 14.3.2 Forms of Case Study
- 14.3.3 Steps in Case Study
- 14.3.4 Advantages of Case Study
- 14.3.5 Disadvantages of Case Study

14.4 Focus Group- Meaning and Definition

- 14.4.1 Characteristics of Focus Group
- 14.4.2 What Focus Group can and cannot tell you ?
- 14.4.3 Steps for Conducting a Focus Group Discussion
- 14.4.4 Significance of Focus Group Discussion
- 14.4.5 Advantages of Focus Group Discussion
- 14.4.6 Disadvantages of Focus Group Discussion

14.7 Let Us Sum Up

14.8 Further Reading

14.9 Answer to Check Your Progress

14.10 Model Questions

14.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- discuss case study method of conducting research
- explain how to make empirical enquiry about a contemporary phenomenon through the case study method
- discuss the advantages and disadvantages of case study method
- discuss focus group discussion as a method of conducting research
- explain the necessary steps for conducting a focus group discussion
- discuss the advantages and disadvantages of focus discussion.

14.2 INTRODUCTION

This is the concluding unit of this course. In the previous unit, we discussed some important issues relating to construction of a questionnaire. In this Unit, we shall discuss two important techniques of conducting interviews, viz, case study and focus group discussion.

It is expected that with this Unit, you will get a proper insight into the important areas of research methodology in Economics.

14.3 CASE STUDY

In simple terms, Case study is an in depth study of a particular situation. It is a method through which a very broad area of research is narrowed down into one easily researchable topic. Case study methods attempts to find out the reasons behind the behaviour pattern of the study subjects and its relationship with the environment.

According to P.V.Young, "case study is a comprehensive study of a social unit, be it a person, a group of persons, an institution, a community or a family

Kromrey says that case study involves studying individual cases, often in their natural environment and for a long period of time.

According to Goode and Hatt, " Case study is a method of exploring and analysing the life of a social unit".

Thus, we can say that case study is a method that serves different purposes- describing, exploring and explaining a situation as well as generating a theory. It involves qualitative methods of research and presents a holistic account about a particular phenomenon.

14.3.1 Objectives and Characteristics of Case Study Method

Objectives of Case study Method

- The first and foremost objective of case study method is to analyse the behavioural patterns of a single unit and its relations with the environment.

- Another major objective of a case study is that it forms the basis for a detailed study in the future. So we can say that case study is a preliminary form of investigation.
- Case study determines and defines the research question and develops hypothesis in a quantitative study.
- Case study is used by researchers to refute generalization in research.
- One of the objectives of case study is to test whether a quantitative study can be done or not.
- Case study explores, explains and describe a particular situation.

Characteristics of Case Study Method

- In case study a small number of unit is studied.
- It studies the units in totality and not some specific aspects or variables of the units.
- Case study can be qualitative or quantitative
- In this method, one unit is considered to be one study
- Case study covers a wide cycle of time
- In this method the case is the core or centre of enquiry.

14.3.2 Forms of Case Study

For different purposes of evaluation, researchers opt for different types of case study methods. Some of those are explained below-

- **Intrinsic Case study:** The study of a case (person, group, department, community) where the case itself is the primary interest in exploration is known as intrinsic case study. Here the researcher does not have to select one particular case. For example, evaluating the implementation of a new principle in an organization.
- **Instrumental Case study:** In this kind of case study, the researcher begins with a research question and make use of a case that simplifies or illuminates his analysis. So we can say

that in Instrumental case study, the case is simply a preliminary technique that paves way for further research. For example, a researcher interested in women and food habits might set up a study with middle aged women and calcium intakes in their food. In this case, the women and the food habits are not the focus. The focus is learning the relationship between women and the food habits, and why certain women have weaker bone.

- **Pilot case study:** Sometimes a researcher conducts some condensed studies before implementing a large-scale investigation. Such studies are called pilot or exploratory case studies. The main objective of this kind of case study is to have identifying research question and selecting types of measurement.
- **Cumulative Case study:** In cumulative case study the researcher aggregate information about the same unit that has been previously collected at different times. This allows him to generalize information on the basis of past data. It also saves time, money and energy.
- **Illustrative Case study:** Illustrative case studies are descriptive in nature. In this type of case study one or two instances of the same events is used to describe an existing situation. Such as study familiarises the researcher with the research area.
- **Historical case study:** Historical case study is dependent on recordings, documents and interviews. This type of study traces the development of a person, organization or a system over time. For example, the study of a political party from its formation till its rise to power.
- **Situational case study:** Situational case study studies a particular event or situation. All participants of the event are sought and their views are recorded. That helps the researcher understand and analyse the situation as a whole. For example, the reasons behind strike of workers in a factory. Here the management, the participant workers, the police forces who arrived at seen to control the situation are all interviewed.

14.3.3 Steps in Case Study Method

A good case study can be conducted if the following steps are followed:

Step 1: Selection of the Case - Whether or not to opt for a Case Study depends on the type of research a person is conducting. If a case study is required, then he/she has to identify the main objective of conducting the study. The selection of a particular case depends on whether the study is simply a preliminary reading for further investigation or whether the researcher is interested in solving a particular problem through the Case Study.

Step 2: Collection of Data - After selecting the case, the researcher has to make preparations for date collection through the case. Here, he/she can use different methods such as personal interviews, survey of records and interviews etc. Generally quantitative techniques of data collection are applicable in this procedure.

Step 3: Preliminary Data Analysis - The third stage in a case study is systematically analysing the preliminary data collected from the case. This will help the researcher to raise more important questions relating to the research as well as to form relevant hypothesis.

Step 4: Thorough study of the case - After identifying the important questions and constructing the hypothesis the researcher conducts a thorough study of the case. Here, he/she uses the method of prolonged observation and formal as well as informal interviews. The researcher keeps on investigating until he/she finds satisfactory answers to the problem and can draw a clear picture of the investigation.

Step 5: Follow-Up Investigation- In order to ensure the reliability of the data so far collected, the researcher repeats the process of observation and interview and reaises questions whenever and wherever necessary. This follow -up helps him/her to arrive at reliable and valid conclusions.

Step 6: Generalization of the findings-Through the conclusion of the case study, the researcher ensures a generalization of the data collected and analysed. Through this generalization he/she can draw a clear picture of the investigation and extend this understanding to arrive at a conclusion.

14.3.4 Advantages of Case Study Method

- Case study method is an intensive investigation and exploration of a unit through which a researcher can understand an event deeply and thoroughly.
- Case studies expose the researcher to real life situations which is otherwise difficult. That's why we can say that case study simplifies complex concept.
- Through case study the continuous analysis of the life of a social unit can be conducted in order to dig-out the facts.
- It is a very important tool of hypothesis formulation in a research area.
- Case study helps the researcher to make comparison about the different types of facts collected during the study.
- Case study improves analytical thinking, communication skill, tolerance, capability and logical mindset of a researcher.
- It increases the researcher knowledge about a particular social phenomenon
- Case study method is a comprehensive method of data collection in research. It is an inclusive study that enables the researcher to understand a broad range of topics.
- Case study method helps the researcher to develop a questionnaire and interview schedule.

14.3.5 Disadvantages of Case Study Method

- It is difficult to find appropriate case studies for all types of research.
- Case study has limited representatives because it focuses on

single units as a whole. That is why generalization through case study may not always be correct.

- Due to his/her deep connection with the participants, the researcher may develop subjectivity while conducting a case study.
- Case study is not an easy and simple method of research. It is very difficult for a lay-man to conduct a case study.
- Case study is a time consuming instrument of data collection. Hence it may not be the best medium for short term research
- As it is a narrow study, discrimination and biased can occur while investigating a social unit.
- In case study method, there is a huge possibility of memory and judgement errors both on the part of the participants and the observer.
- It is very difficult to draw a definite cause/effect from case studies.



CHECK YOUR PROGRESS

Q 1: Who introduced the method of case study in research?

Q 2: Mention any two objectives of case study

14.4 FOCUS GROUP: MEANING AND DEFINITION

In simple terms, a focus group is a small group of six to ten people who are led through an open discussion by a skilled moderator. The main goal of the moderator is to carry forward an open and spontaneous discussion among the participants so that all the participants can express maximum number of ideas and opinions.

A focus group discussion is a good way to gather people from similar experiences and backgrounds and discuss a specific topic of interest. This kind of interviews were originally called "Focussed interviews" or "Group-

depth interviews". This technique of interview was developed after World War II. Since then it has become an important method of data collection in social science.

According to Kruger, "Focus group discussion is a carefully planned discussion design to obtain perception on a defined area of interest in a permissive, non-threatening environment."

Focus group discussions are defined as semi structured group discussions, which yield qualitative data on the community level by facilitating interaction between participants.

14.4.1 Characteristics of Focus Group

- A focus group discussion usually consist of six to ten participants.
- The moderator engages the participants in small talks and gradually builds rapport amongst them.
- The moderator does not join the conversation between the participants.
- In a focus group interview, the participants should talk no more than about an hour.
- Recording the focus group discussion is a must
- In a focus group discussion small issues should be discussed and bigger issues must be avoided.
- The moderator should always maintain impartiality particularly in facial expression and verbal comments.
- In a focus group discussion the participants are always explained the purpose and outcome of the discussion.
- Focus group discussion is a voluntary process where conversation flows among the participants.
- This type of discussion is relaxed, comfortable and often enjoyable for participants as they share their ideas and perception.

14.4.2 What Focus Groups Can and Cannot Tell You

As a method of data collection, focus group can be fun and useful but often an inexperienced moderator may be led astray by focus group discussion because opinions of the participants can often be misleading and subjective. Therefore if a researcher strictly relies on such a discussion as a research strategy, then he/she should have a clear idea about what focus groups can and can not tell him/her. These can be pointed out as follws-

What focus groups can tell you?

- Give an idea on how some people think or feel about a certain issue.
- Give an insight on why people held certain opinions
- Help improve the research planning and research design
- Gives a scope for evaluating the problem at hand
- Gives an insight for developing the research strategy

What focus groups cannot tell you?

- Valid information about individual
- A definite information about how things have changed over time with regards to a particular issue.
- Information that the researcher can applied generally to other groups of people as well
- Can not provide random samples for the study.

14.4.3 Steps for conducting a Focus Group Discussion

Generally there are four distinct step used to conduct focus group discussion. These are-

- Question designing
- Selection and preparation of participants
- Organizing the interview
- Analyzing the data

These are discussed in some detail as below:

Question designing: The first and foremost task of the researcher

or moderator in a focus group discussion is to design the questions to be addressed during the discussion. Generally eight to twelve questions are prepared by the researcher. The questions should be simple, short, open-ended and to the point because the participants wont have a chance to see the questions. Generally three types of questions are used in focus group discussion- engagement questions (introduction of participants to make them comfortable with the topic of discussion), exploratory questions (in order to gather as much information as possible) and finally exit questions (to verify whether anything important was left out during the Discussion).

Selection and preparation of participants: Ideally in a focus group discussion the participants do not know each other but should have a common background and must be comfortable with one another. So we can say that in order to get maximum information out of a focus group, the researcher should select a homogenous group of participants. In this regard some important criteria's that are focussed on are gender, age, position in society, economic background etc. On the basis of these criteria's the researcher includes or excludes individual.

The selection process is arranged using a number of ways such as- i) Nomination (individuals with knowledge about the research area nominate people who they think would make good participants),ii) Random selection (participants from a large but defined group can be randomly selected until the researcher attains the desired number of required participants), iii) All members of a group (in some cases all members of an existing group can participate in a focus group discussion, for instance the owners of an MNC), iv) Similar position (here the researcher selects people on the basis of their roll, position, job title or condition), v) Voluntary participants (in case where the selection criteria is broad)

After selecting the focus group, the researcher must contact all the participants and conform their interest and availability. On the basis of that he/she should organize the time and location of the

focus group discussion and inform everyone concerned. The participants should also be informed about the duration of the interview and the issues to be discussed. Efforts should be made to make them feel easy and comfortable.

Organizing the Interview: An ideal focus group is conducted by a moderator with the help of an assistant moderator. Generally, the researcher plays the role of the moderator and carries forward the different discussion in the focus group. The assistant moderator takes notes and records the entire focus group discussion. The first thing a moderator should do in the beginning of the discussion is to take consent of all participants. He/she should create a friendly and easy environment for all the participants to open-up and put forward their views. He also addresses the purpose of the discussion, sets ground rules and tries to adequately cover all issues within the time limit of the focus group. After the participants leave, the moderator and assistant moderator checks the notes and recording device used label them along with date, time and name of the group.

Analysing the data: Analysing the data gathered is the most important and critical job for the moderator. At first all information gathered from the participants must be boiled down to select the one's useful and essential for the research. The researcher then may use different methods to analyse that information such as: labelling them under different columns, identifying categories and sub-categories of issues or summarizing different view point on the same issue. One's these findings are systematically organized they are ready for presentation.

14.4.4 Significance of Focus Group Discussion

Focus group discussions are often used as a tool of research so that the researcher can familiarise himself or herself with the situation at hand. The most important objective of a focus group is to find solution to different problems through flows of voluntary discussion. Group attitudes and believes can also be

investigated through such a discussion which is difficult to achieve through any other technique of data collection.

Generally, a researcher employs the use of focus group discussion in the beginning of studying the problem. This helps him/her to generate ideas at the exploratory stage of the study. Moreover, focus groups are very useful when the researcher aims to investigate complex ideas and behaviours. The open-ended questioning of a focus group helps the researcher to arrive at the depth of the problem. At the same time the different opinions of the participants can help the researcher to explore differences and commonalities about the situation.

Focus group discussion can help the researcher to develop the framework for conducting further research. His understanding of quantitative data will also depend through analysis of the results of these discussions. However, the researcher must always be aware that the participants might not be entirely honest and truthful about their opinions. At the same time misinterpretation and biased findings can be very damaging for further research. Therefore, the results of focus group discussion can be most fruitful only when the researcher is experienced, intuitive and does not take the opinions of the participants for granted.

14.4.5 Advantages of Focus Group Discussion

- The researcher can take advantage of the fact that people naturally interact and are influenced by others
- During the discussion participants often agree or disagree with others and thus create more energy and more data.
- Focus group discussion can provide more scope to understand perceptions, attitudes and experiences of the research subjects.
- Data can be provided more quickly and at lower cost than individual interviews
- The researcher can directly interact with the respondent as well as gain information from non-verbal responses during the

interview

- This type of interview is very flexible in nature and can involve a wide range of individuals, settings and topics.
- The data analysis process is very easy to conduct and results can be easily understood.

14.4.6 Disadvantages of Focus Group Discussion

- Focus group discussions are more difficult to manage than one on one interviews. Therefore the interviewer must be an experienced person
- The discussion may be inhabited by unexpected conflict, power struggle and other group dynamics among the participants.
- One or two person may dominate the whole discussion while ignoring or intimidating the other participants.
- Focus group discussion require trained moderator who knows about group dynamics otherwise he/she may knowingly or unknowingly misinterpret the responses of the participants
- The participants may not always be honest or sure about their responses about a particular issue.



CHECK YOUR PROGRESS

Q 3: What is meant by focus group? Answer in about 60 words.

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Q 4: What does a focus group describe? Answer in about 50 words.

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14.4 LET US SUM UP

- Case study method of research is an intensive study of a phenomenon.
- An English philosopher Frederic Leplay introduced this method which was adopted by social researcher like Herbert Spencer, Healey, Mitchell etc.
- Case study is not a method of data collection but is a research strategy or an empirical enquiry that uses multiple evidential sources.
- It involves qualitative methods of research and presents a holistic account about a particular phenomenon.
- The first and foremost objective of case study method is to analyse the behavioural patterns of a single unit and its relations with the environment.
- Case study explores, explains and describes a particular situation.
- It studies the units in totality and not some specific aspects or variables of the units.
- In this method the case is the core or centre of enquiry.
- For different purposes of evaluation, researchers opt for different types of case study methods such as Intrinsic Case study, Instrumental Case study, Pilot case study, Cumulative Case study, Illustrative Case study, Historical case study, Situational case study etc.
- Case studies help the researcher to connect with his/her research problem. These are in-depth analysis that makes the researcher simplify and understand the background of a particular case.
- Case study method allows the exploration, simplification and understanding of complex issues.
- Focus group discussion is a form of interview that occurs in a group setting and can reveal detailed information and deep insight about a particular situation.
- A focus group discussion is a good way to gather people from similar experiences and backgrounds and discuss a specific topic of interest

Generally, there are four step used for conducting focus group discussion. These are- Question designing, Selection and preparation of participants, Organising the Interview, Analysing the data.

- Focus group discussions are often used as a tool of research so that the researcher can familiarise himself or herself with the situation at hand
- Focus group discussion can help the researcher to develop the framework for conducting further research.



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14.6 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: An English philosopher Frederic Leplay introduced the case study method.

Ans to Q No 2: Two objectives of case study are mentioned as below-

(1) The first and foremost objective of case study method is to analyse the behavioural patterns of a single unit and its relations with the environment.

(2) Another major objective of a case study is that it forms the basis for a detailed study in the future. So we can say that case study is a preliminary form of investigation.

Ans to Q No 3: A focus group is a small group of six to ten people who are led through an open discussion by a skilled moderator.

Ans to Q No 4: Focus group discussion can describes following:

- Give an idea on how some people think or feel about a certain issue.
- Give an insight on why people held certain opinions
- Help improve the research planning and research design
- Gives a scope for evaluating the problem at hand
- Gives an insight for developing the research strategy.



14.7 MODEL QUESTIONS

Short Questions (Answer each question in around 150 words).

Q 1: State the meaning of Pilot Case study.

Q 2: Why is case study an important technique of collecting data for research?

Q 3: Explain the concept of focus group discussion.

Q **4:** Explain the process of designing question for focus group discussion with example.

Q 5: What are the essential qualities for a good moderator?

Long Questions. (Answer each question in around 300-500 words)

Q 1: Discuss the various steps of case studies which are important in research.

Q 2: Explain the Significance of case study in research.

Q 3: Discuss the advantage and disadvantages of case study.

Q 4: Briefly discuss the step for conducting focus group discussion.

Q 5: Discuss the significance of focus group discussion.

Q 6: Discuss the advantages and disadvantages of focus group discussion?

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