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Collection of Data

CENSUS AND SAMPLE SURVEYS Census or Complete Enumeration A survey, which includes every element of the population, is known as Census or the Method of Complete Enumeration. If certain agencies are interested in studying the total population in India, they have to obtain information from all the households in rural and urban India. It is carried out every ten years. A house-to-house enquiry is carried out, covering all households in India. Demographic data on birth and death rates, literacy, employment, life expectancy, size and composition of population, etc., are collected and published by the Registrar General of India. The last Census of India was held in 2011.

According to the Census 2011, population of India was 121.09 crore, which was 102.87 crore in 2001. Census 1901 indicated that the population of the country was 23.83 crore. Since then, in a period of 110 years, the population of the country has increased by more than 97 crore. The average annual growth rate of population which was 2.2 per cent per year in the decade 1971-81 came down to 1.97 per cent in 1991-2001 and 1.64 per cent during 2001-2011.

Population and Sample Population or the Universe in statistics means totality of the items under study. Thus, the Population or the Universe is a group to which the results of the study are intended to apply. A population is always all the individuals/items who possess certain characteristics (or a set of characteristics), according to the purpose of the survey. The first task in selecting a sample is to identify the population. Once the population is identified, the researcher selects a method of studying it. If the researcher finds that survey of the whole population is not possible, then he/ she may decide to select a Representative Sample. A sample refers to a group or section of the population from which information is to be obtained. A good sample (representative sample) is generally smaller than the population and is capable of providing reasonably accurate information about the population at a much lower cost and shorter time.

Suppose you want to study the average income of people in a certain region. According to the Census method, you would be required to find out the income of every individual in the region, add them up and divide by number of individuals to get the average income of people in the region. This method would require huge expenditure, as a large number of enumerators have to be employed. Alternatively, you select a representative sample, of a few individuals, from the region and find out their income. The average income of the

selected group of individuals is used as an estimate of average income of the individuals of the entire region.

Example

- Research problem: To study the economic condition of agricultural labourers in Churachandpur district of Manipur.
- Population: All agricultural labourers in Churachandpur district.
- Sample: Ten per cent of the agricultural labourers in Churachandpur district.

Most of the surveys are sample surveys. These are preferred in statistics because of a number of reasons. A sample can provide reasonably reliable and accurate information at a lower cost and shorter time. As samples are smaller than population, more detailed information can be collected by conducting intensive enquiries. As we need a smaller team of enumerators, it is easier to train them and supervise their work more effectively.

Now the question is how do you do the sampling? There are two main types of sampling, random and non-random.

The following description will make their distinction clear.

Random Sampling As the name suggests, random sampling is one where the individual units from the population (samples) are selected at random. The government wants to determine the impact of the rise in petrol price on the household budget of a particular locality. For this, a representative (random) sample of 30 households has to be taken and studied. The names of all 300 households of that area are written on paper and mixed, then 30 names to be interviewed are selected one by one.

In random sampling, every individual has an equal chance of being selected. In the above example, all 300 sampling units (also called sampling frame) of the population got an equal chance of being included in the sample of 30 units and hence the sample, such drawn, is a random sample. This is also called lottery method. Nowadays computer programmers' are used to select random samples.

Non-Random Sampling There may be a situation that you have to select 10 out of 100 households in a locality. You have to decide which household to select and which to reject. You may select the households conveniently situated or the households known to you or your friend. In this case, you are using your judgments (bias) in selecting 10 households. This way of selecting 10 out of 100 households is not a random selection. In a non-random sampling method all the units of the population do not have an equal chance of being selected and convenience or judgments of the investigator plays an important role in selection of the sample. They are mainly selected on the basis of judgment, purpose, convenience or quota and are nonrandom samples