**Eco-Hc-3036: Statistical Methods for Economics**

**Unit:-5 Sampling**

**Class:-4th**

Semester:-III (H) Date:-07/09/2022

Time: - 09:15am

# Systematic Sampling, Types, Advantages and Disadvantages

Systematic sampling is more or less a method that involves the selection of various elements that are ordered from a sampling frame and taking this statistical procedure starts from the random selection of elements that belongs to a list and then every sampling interval from the frame is selected and this method of sampling can only be applied if at all the given population is homogeneous as these sample units are systematically distributed over the population.

This is a method where probability sampling is performed by randomly selecting sample members from the mass population at a fixed interval. This periodic interval is better termed as the sampling interval, and it can be calculated by ascertaining the required [**sample size**](https://www.wallstreetmojo.com/sample-size-formula/) and dividing the same by the size of the population.

### Types of Systematic Sampling

#### Linear

### This termed linear since it follows a very linear path and tends to stop at the end with respect to a particular population. In this type of sampling, any sampleis not repeated in the end. A linear systematic sample is selected by arranging the total population and classifying the same in a sequence, selecting the ‘n’ or the sample size, calculating the sampling interval (K= N/n), randomly selecting a number from 1 to K, adding ‘K’ (sampling interval) to the randomly chosen number for adding the next member to the sample and repeating this process for adding the remaining members from the sample.

#### Circular

In this type of sampling, it is seen that the sample starts from a point where it has ended. This means the sample restarts from the point where it has actually ended. In this type of statistical sampling method, the elements are arranged in a circular fashion. There are particularly two ways to form a sample in this type of statistical sampling method. If K= 3, then the samples will be the ad, be, ca, db and ec whereas, if K=4, then the samples are ae, ba, cb, dc, and ed.

### Advantages of Systematic Sampling

#### 1 – Quick

This is a quick method; i.e., it can save statisticians a lot of their time. It becomes really easy for researchers and analysts to choose a sample size with the help of this approach since it is really quick. There is a negligible need to number each and every member from the sample, and this also helps in the faster and simpler representation of a particular population.

#### 2 – Appropriateness and Efficiency

The results obtained from systematic sampling are appropriate as well. As compared to other statistical methods, the results derived from the statistical method are highly efficient and appropriate.

#### 3 – Low Risk of Data Manipulation

The probabilities of data manipulation are really low as compared to other statistical methods.

#### 4 – Simplicity

This method is really simple. This is one of the main reasons why analysts and researchers prefer to go for this method instead of any other method. The simplicity of this method has made it quite popular amongst analysts and researchers.

#### 5 – Minimal Risks

The amount of risk involved in the systematic sampling method is the bare minimum.

### Disadvantages of Systematic Sampling

This becomes difficult when the population size cannot be estimated. This even compromises the effectiveness of systematic sampling in various areas, such as field research on animals. There is also a possibility of data manipulation and business since the researcher gets to choose the sampling interval.