M.Com Sem-II

Research Methodology for business

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Research Methodology for Business

- Module-I Introduction to Research
- Module-II Research Process
- Module-III Data Processing and Statistical Analysis
- Module-IV Research Reporting and Modern Practices in Research

Objectives

- 1. To enhance the abilities of learners to undertake research in business & social sciences
- 2. To enable the learners to understand, develop and apply the fundamental skills in formulating research problems
- 3. To enable the learners in understanding and developing the most appropriate methodology for their research
- 4. To make the learners familiar with the basic statistical tools and techniques applicable for research

Module-I

- Features and Importance of research in business, Objectives and Types of research- Basic, Applied, Descriptive, Analytical and Empirical Research.
- Formulation of research problem, Research Design, significance of Review of Literature
- Hypothesis: Formulation, Sources, Importance and Types
- Sampling: Significance, Methods, Factors determining sample size

Module-I:
Introduction to Research

" Research is the systematic process of collecting and analysing data in order to increase our understanding of the phenomenon about which we are interested"

"A scientific undertaking which , by means of logical and systematic technique aims to:

- Discover new facts or verify and test old fact
- Analyse their sequences, interrelationship and causal explanations
- Develop new scientific tools and theories."— P.V.Young

“Scientific research consist of obtaining information through empirical observation that can be used for systematic development of logically related propositions attempting to establish causal relation among variables” ”

--- James Blak

Objective of research

- The main objective of research is to find out answers to the questions through the application of systematic and scientific way.
- To find the solution to the problem.
- To verify and test existing laws/ theories
- To obtain information
- To extend knowledge
- To establish generalisation and general laws
- To predict events
- To analyse the inter-relationship
- To devlop new tools, concepts and theories
- To develop innovative ideas.

Characteristics/features of Research

- Scientific Method
- Objectives & Logical
- Applied & Basic Research
- Empirical nature of Research
- Generaliasation

Characteristics/features of Research

- Controlled nature of basic research
- Development of principle & theories
- Multipurpose activity
- Quantitative & Qualitative Research
- Rsearch – a process

Importance of Research in Business

- Product Development
- Reductions in cost
- Marketing mix decision
  - Product, pricing, promotion mix,Place
- Customer relationship
- Dealer relationship

Importance of Research in Business

- Corporate Image
- Competitive advantage
- HR Plans & Policies
- Financial Management
- Market Expansion

Need of Research in Business

- Consumer Research

  To find needs of customers

  To find buying behaviours

  Taste and preferences

  To analyse recent trends in the market.

Need of Research in Business

Human Resource Management

Recruitment and Selection

Training

Compensation and benefits

Motivation and development

Need of Research in Business

- To gain Competitive advantage
- To solve management problems
- To decide strategies for future
- To reduce operational cost
- To increase profit
- To avoid future business problems
- To understand consumer behaviours

Types of Research

Basic Research/Fundamental Research
Applied Research
Descriptive Research
Analytical Research
Quantitative research
Qualitative Research
Empirical Research

Types of Research

- Basic research:

Fundamental research Which is also known as basic or pure research is undertaken for the sake of knowledge without any intention to apply in practice.

- It is called pure Research
- To extend knowledge
- No commercial angle
- Carried out by universities and Institutions funded by Govt.
- It generates new principles and Theories

It is undertaken out of intellectual curiosity and not necessarily problem oriented.

Ex: Maslow's hierarchy of needs theory

Types of Research

- Applied Research:

"Action Research is a process for studying problems scientifically in order to guide, correct and evaluate their decision and action is called action or applied research"

Applied or action research is carried out to find the solution to the real life problem requiring an action or policy decision.

It is used to improve Human condition

Ex: 1. To improve the result of examination in Institution

2. To find the causes of poor sales of a product

3. To improve the Job satisfaction level

- Descriptive Research:

It is a fact finding investigation which is aimed at describing the characteristics of individual, situation.

It describe the state of affairs as it exist at present.

It can describe Who, What, Where, When & How .

The researcher has no control over the variables / events, he can only report what has happened or happening.

Ex: 1. Pattern of Buying behaviour of customers.

2. Details of Absenteeism in organisation

Analytical research:

It is primarily concerned with the testing of hypothesis.

It helps to understand cause-effect relationships between variables.

Analysing the facts or information already available.

Researcher needs to make critical evaluation of facts to arrive at conclusion.

A Research may conducted to find out the relation between advertising and sales.

It provide recommendations for improvement.

- Quantitative and Qualitative research:
  - Quantitative research is employed for measuring the quantity or amount of particular phenomena by the use of statistical analysis.

  Ex: To find numbers of unemployed engineering graduates.

  - Qualitative Research is non-quantitative type of analysis aimed to find out the quality of particular phenomenon

    Ex: Why student behave in certain manner.

- Empirical Research:

  It is data based research which depends on experience or observation or survey.

  Researcher first set the hypothesis and then collect the data to prove or disprove the hypothesis.

  This type of research coming up with the conclusion

Steps in Formulation of Research Problem

- Statement of the problem
- Understanding Nature of the problem
- Surveying the relevant literature
- Discussion with experienced persons
- Rephrasing the research problem
- Definition of concepts
- Delimiting the scope of study

Research design

Research Design:

RD is the plan, structure and strategy and strategy of investigation concieved so as to obtain answer to research questions.

--Kerlinger

Research Design is the blue print for the collections, measurement and analysis of data.

Bernard Philps

Research design is defined as “a logical and systematic plan prepared for directing a research study. It specifies the objectives of the Study, methodology and techniques to be adopted to achieve the objectives.

Research design

Research design includes:

- A clear statement of research problem.
- The objective of the research.
- The period required for research study.
- Sources of collecting data.
- Techniques / methods of collecting data.
- The universe of research study.
- The sample size
- The area of research to be conducted.
- Methods of data processing
- Resources required to conduct the research.

Need & Importance of Research design

➢ Guidelines to researcher:

- When to start and complete the research work?
- What data to be collected and from where?
- How the data to be collected?

➢ Organising Resources:

- Funds required
- Equipment's /instruments and materials required to conduct the research.
- Manpower to collect the data.

Need & Importance of Research design

- Direction to research Staff:
  - Sources of data
  - Technique for collecting data
  - Area of research to be conducted
  - Resources to be utilised
  - Time frame of research work
- Selection of technique:

Data Collection:

- Interview or survey method
- observation
- Experimentation

Need & Importance of Research design

Data Analysis:

- Measures of central tendency
- Dispersion
- Time series
- Correlation and Regression etc.

➢ Collection of relevant data:

- Area of research
- Universe of research
- Sample size

➢ Objectives of research:

- RD helps to achieve objective because
- - collection of right data at right time, sources
- - proper techniques for analysis.

Need & Importance of Research design

- Monitoring of expenditure:
- RD helps to monitor expenditure
- Help to use the resources / funds for research activity
- Proper control on fund in respect of research activity.
- Execution of research work:
- Timely execution of research work
- RD indicates start and completion time.
- To achieve the objective in time.
- Decision making:
- Proper collection of data
- Suitable data analysis techniques

Essential/guidelines of good RD

- Focus on objectives
- Flexibility
- Pilot study
- Acceptance
- Suitability
- Simplicity

Cost effective

Ease in implementation

Training to research staff

Selection of right technique/methods

Hypothesis:

1. A hypothesis is a proposition- a tentative assumption which a researcher wants to test for its logical or empirical consequences.

Working hypothesis are more useful when stated in precise and defined terms.

2. "An unapproved theory, proposition , supposition etc. tentatively accepted to explain certain facts or to provide a basis for further investigation, argument.

Hypothesis:

3. “ a propositions which can be put to a test to determine its validity ’’

4. A tentative statement about something, the validity of which is usually unknown.

5.Hypothesis is proposition that is stated is a testable form and that predicts a particular relationship between two or more variable.

EXAMPLES OF HYPOTHESIS

- Health Education programmes influence the number of people who smoke.
- Newspapers affect people's voting pattern.
- Attendance at lectures influences exam marks.
- Diet influences intelligence.

Examples:

1. Drug company has new drug, wishes to compare it with current standard treatment

2. Federal regulators tell company that they must demonstrate that new drug is better than current treatment to receive approval

3.Firm runs clinical trial where some patients receive new drug, and others receive standard treatment

Testing Hypotheses

If the water faucet is opened, then the amount of water flowing will increase.

If a prisoner learns a work skill while in jail, then he is less likely to commit a crime when he is released.

If I raise the temperature of a cup of water, then the amount of sugar that can be dissolved in it will be increased.

Characteristics of a good hypothesis

- Empirically Testable
- Conceptual clarity
- Specific
- Related to available technique
- Theoretical relevance
- Consistency
- Objectivity
- Consider all pertinent area of problem.

Significance of hypothesis

- Provide definite focus
- Specific sources of data
- Collection of relevant Data
- Enhance objectivity
- Suggest the type of research
- Technique and analysis
- Development of theory

Types of hypothesis

Based on functions

1. Descriptive hypothesis
2. Relational hypothesis
3. Casual hypothesis

Based on nature

1. Working hypothesis
2. Null hypothesis
3. Statistical hypothesis

Based on level of abstraction

1. Common sense hypothesis.
2. Complex hyp
3. Analytical hyp

- Descriptive hypothesis:

Describe the characteristics such as rate , size , distribution of variable.

The variable may be individual, organisation,event

e.g The rate of poverty is more in rural areas than that of urban areas.

- Relational hypothesis:

Describes the relation between two variables.

Ex. Educated people spend more on clothing than uneducated people

- Causal hypothesis:

Change in one variable leads to an effect on other variable.

Ex Increase in the female literacy results in lower birth rate.

Types of hypothesis

Based on level of abstraction

- **Common sense hypothesis**

At lowest level of abstraction, hyp that state the exsistence of empirical uniformities.

Represent scientific examination of common sense proposition.

e.g " well paid employees are motivated than less paid employees"

"Disciplined workers are more loyal to their organization"

➢ Complex hypothesis:

At higher level of abstraction are some hyp that are concerned with complex ideal type.

These hyp aim at testing the existence of logically derived relationship between empirical uniformities.

➢ Analytical hypothesis:

At the highest level of abstraction are some hyp that are concerned with the relation of analytic variables.

Sources of hypothesis

- General culture of the society
- Study of deviant cases
- Review of literature
- Pilot study
- Intuition
- Consultation
- Observation
- Extension of investigation

Sample Design

SAMPLING:

Meaning:

"a smaller representation of a larger whole"

- **The process of obtaining information from a subset (sample) of a larger group (population)**
- **The results for the sample are then used to make estimates of the larger group**
- **Faster and cheaper than asking the entire population**

- **Two keys**

  1. **Selecting the right people**

     - **Have to be selected scientifically so that they are representative of the population**

  2. **Selecting the right number of the right people**

     - **To minimize sampling errors I.e. choosing the wrong people by chance**

Population/Universe: It refers to any group of people or objects that forms the subject of the study in a particular survey.

The entire group of people of interest from whom the researcher needs to obtain information.

e.g students of M.Com, all doctors, all professors.

Sample: contacting a portion of the population (e.g., 10% or 25%) It is subset of the population.

- best with a very large population (n)
- easiest with a homogeneous population

Census : the entire population

Sample size: The no. of elements from whom information is obtained is called sample size.

Sampling unit:

It is the type of element in sample.

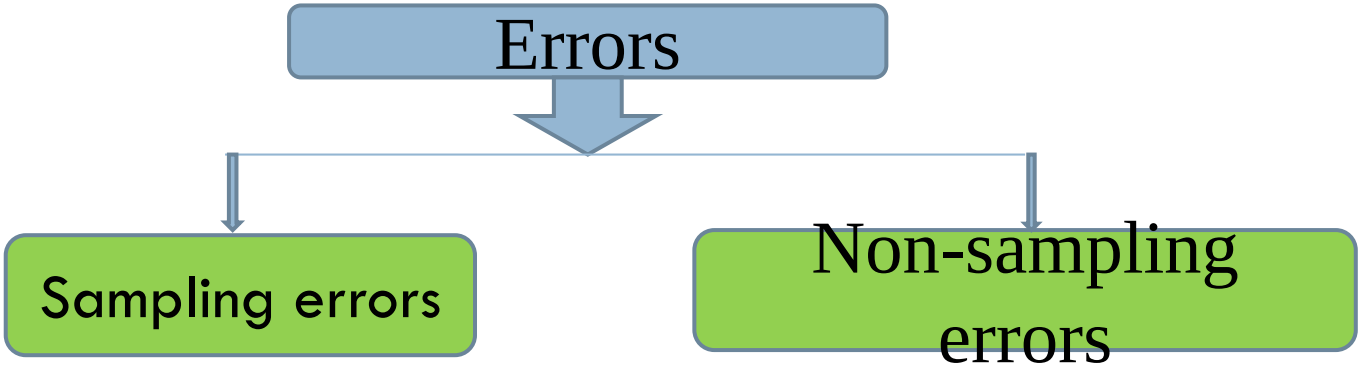
e.g Bank, college, building, flat etc.

Sampling frame:

A list of identifying each element in the study population is called sampling frame.

Ex: employee register, voter list, telephone directory etc.

Types of errors



- Arises when sample is not representative of population
- It is difference between sample mean and population mean
- Reduces with increase in sample size

- Incomplete coverage of population
- Wrong information given by respondent
- Transferring data into spreadsheet
- At the time coding, tabulation

Significance of Sampling (Advantages)

- Convenience
- Time saving
- Motivation to Research staff
- Quick Results/overcomes Complexities
- Detailed information

Economical

Suitability

Optimum utilization of Resources

Quality Research work

Disadvantages

- Accuracy of Result
- Misleading Conclusion
- Sample Selection
- Data requirement
- Large sample

Characteristics of good sampling

- Representative
- Focus on objective
- Sample size
- Flexibility
- Sampling technique
- Proper sampling frame

Characteristics of good sampling

Proper sampling plan

- Sampling Unit
- Sampling frame
- Sampling tech
- Time for data collection
- Sources and methods of data collections

Characteristics of good sampling

Proper Sampling Frame

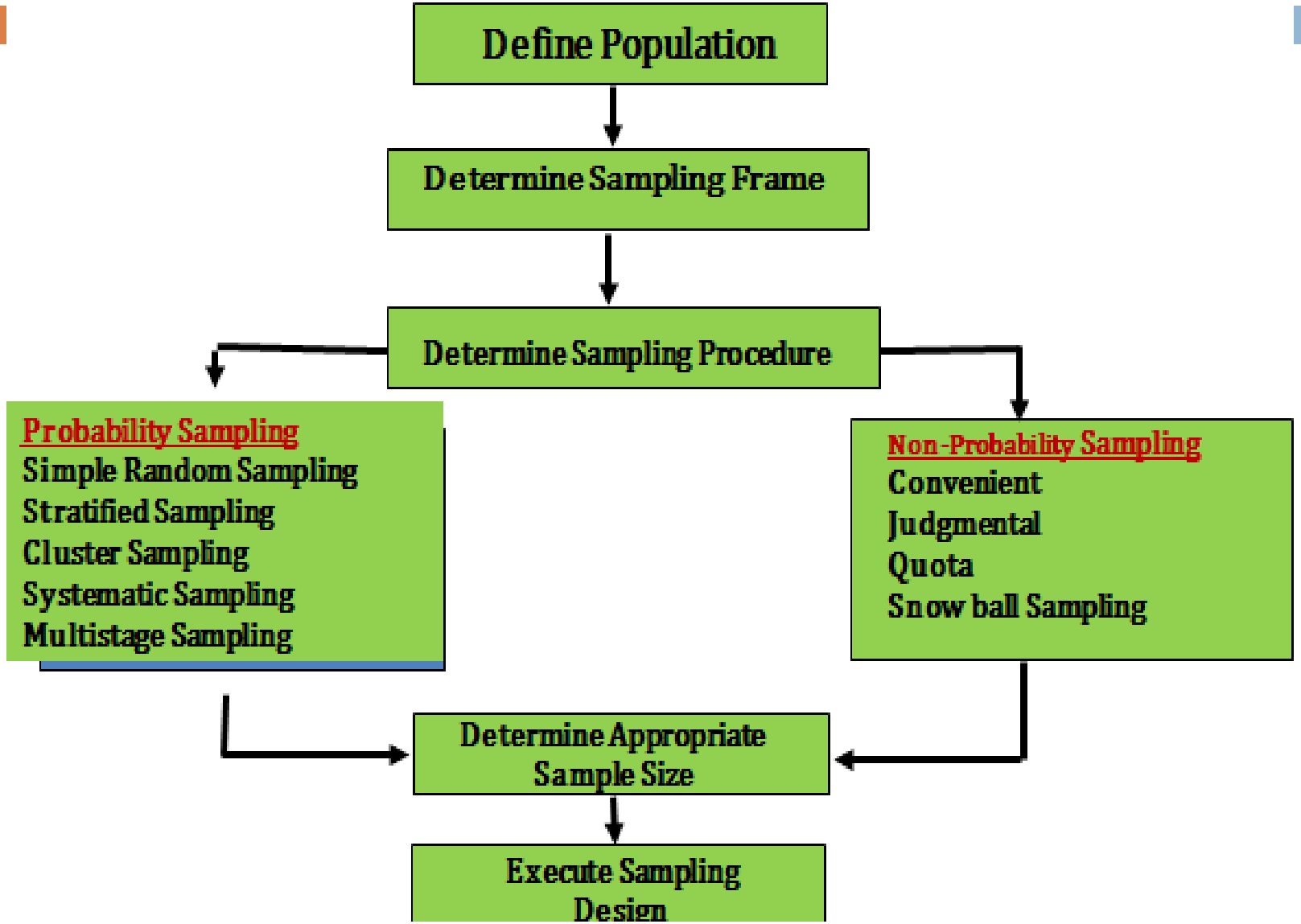
While selecting sampling frame following care must be taken:

- Adequate coverage of the universe
- Representativeness of the universe
- Updated version of sampling frame

Geographical Area:

Economy

SAMPLING DESIGN PROCESS



Stages in Sample Design

- **Define the population:** **It is said to be completely defined if it consist-**

- **Elements**
- **Sampling Units**
- **Extent**
- **Time**

For ex:

- **Elements :The Car**
- **Sampling Units :Showrooms**
- **Extent :Mumbai,Thane, Borivali(around Mumbai)**

Stages in Sample Design

- **Identify the Sampling frame: Should consist of almost all the sampling units.**

  Ex: Census reports

  Electoral Registration

  Lists of members of

  Professional bodies etc.

- **Specify the sampling Unit:**
- **Specify the sampling method**
- **Determine the sample size**
- **Select the sample**

SAMPLING

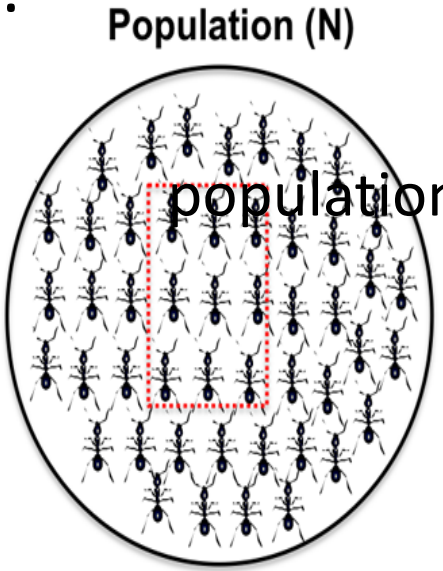
Sampling Methods

By

Prof A.O.Khadse

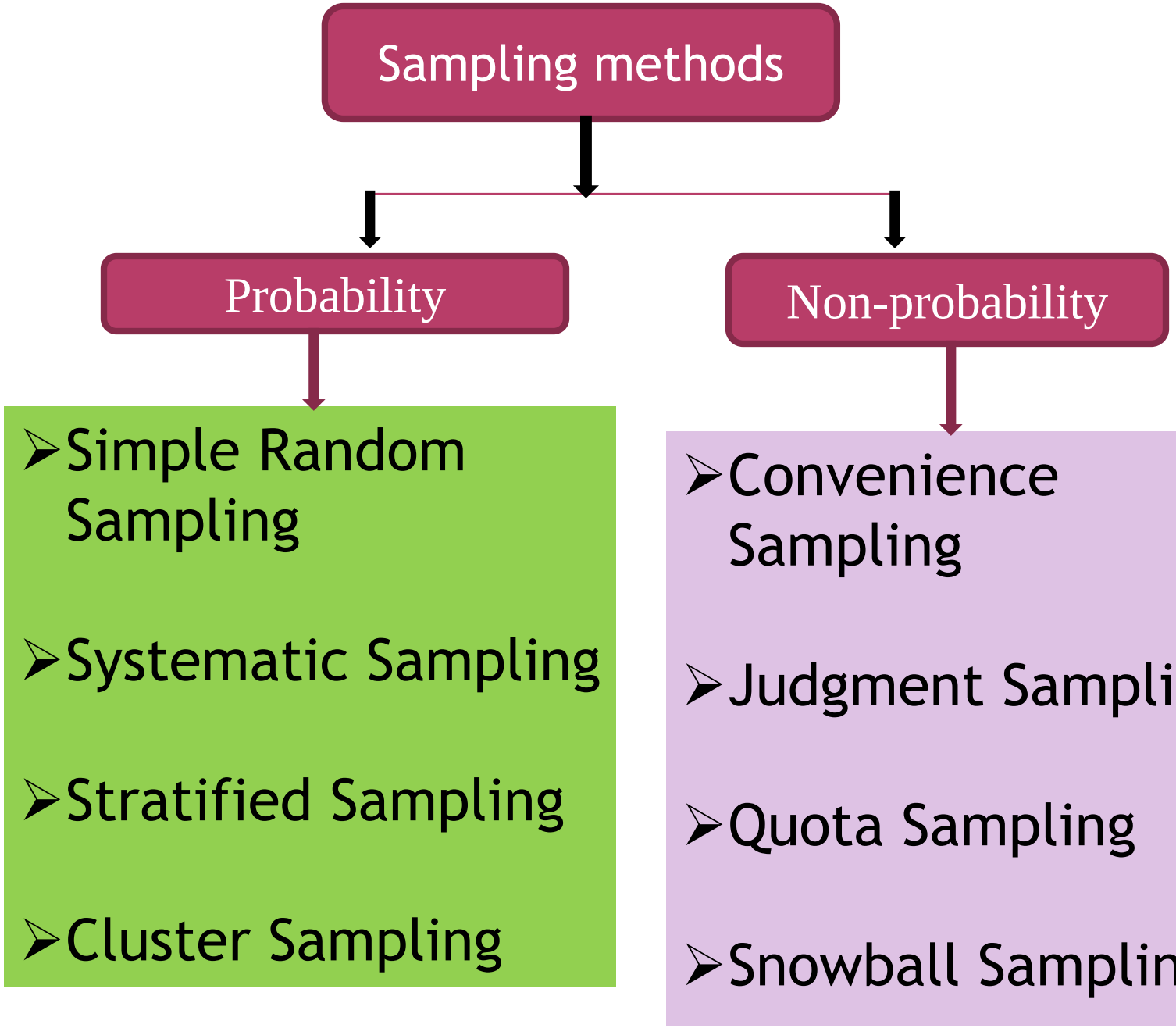
INTRODUCTION

Sampling is the process of selecting observations (a sample) to provide an adequate description and inferences of the population.



- Sample
  - It is a unit that is selected from population
  - Represents the whole population
  - Purpose to draw the inference
- Why Sample???
- Sampling Frame

  Listing of population from which a sample is chosen


Sampling methods
Probability
Non-probability
Simple Random Sampling
Systematic Sampling
Stratified Sampling
Cluster Sampling
Convenience Sampling
Judgment Sampling
Quota Sampling
Snowball Sampling

PROBABILITY SAMPLING

- The probability or chance of every unit in the population being included in the sample is known.
- Selection of the specific units in the sample depends entirely on chance

SIMPLE RANDOM SAMPLING

- SRSWR
- SRSWOR
- All subsets of the frame are given an equal probability.

Methods:

- Lottery method
- Random number

SIMPLE RANDOM SAMPLING

Advantages:

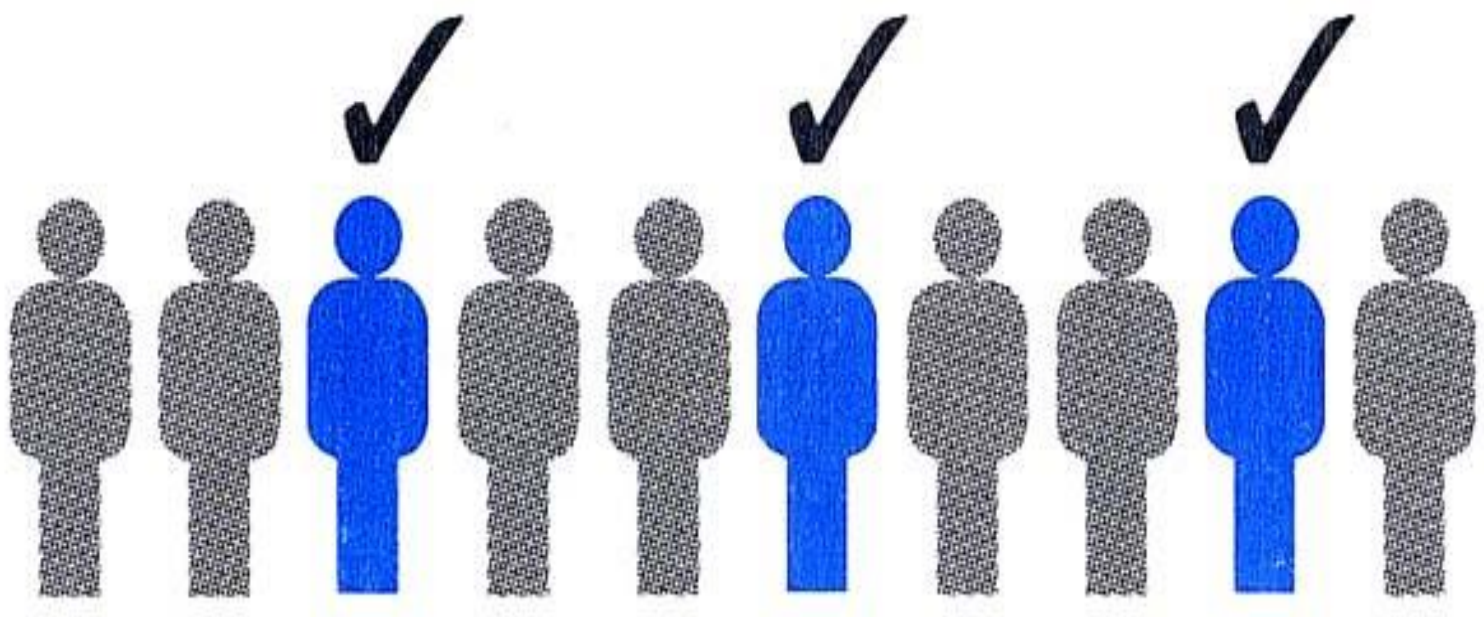
- Minimal knowledge of population needed
- Easy to analyze data

Disadvantages:

- Low frequency of use
- Does not use researchers' expertise
- Larger risk of random error

SYSTEMATIC RANDOM SAMPLING

- Order all units in the sampling frame
- Then every nth number on the list is selected
- N= Sampling Interval



SYSTEMATIC R.S

For example:
For selecting a sample size of 50 out of 1000, the procedure is as follows:

- **Find fraction k=N/k**
  1000/50 = 20

- **Select any number between 1 to 20 say 10**

- **The sample 10, 10+20, 30+20, - - - -**

SYSTEMATIC RANDOM SAMPLING

Advantages:

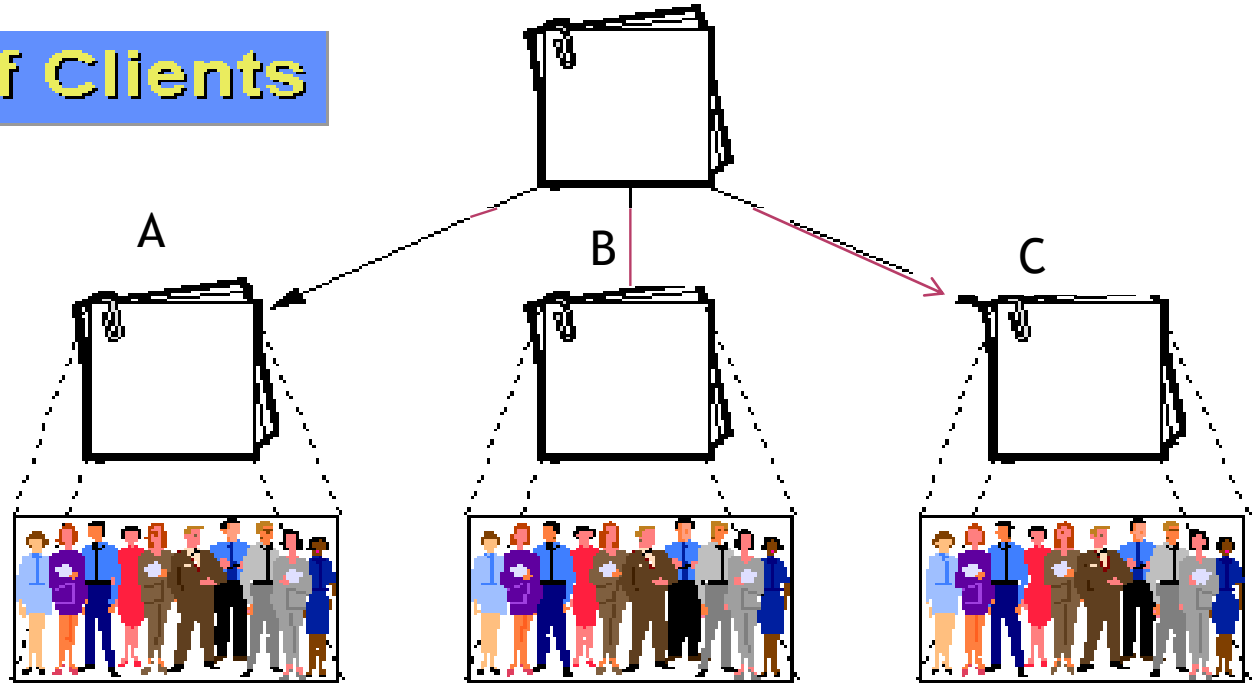
- Moderate cost; moderate usage
- Simple to draw sample
- Easy to verify

Disadvantages:

- Periodic ordering required

STRATIFIED RANDOM SAMPLING

- Population is divided into two or more groups called strata
- Subsamples are randomly selected from each strata



STRATIFIED RANDOM SAMPLING

Advantages:

- Assures representation of all groups in sample population
- Characteristics of each stratum can be estimated and comparisons made

Disadvantages:

- Requires accurate information on proportions of each stratum
- Stratified lists costly to prepare

TYPES OF STRATIFIED SAMPLING:

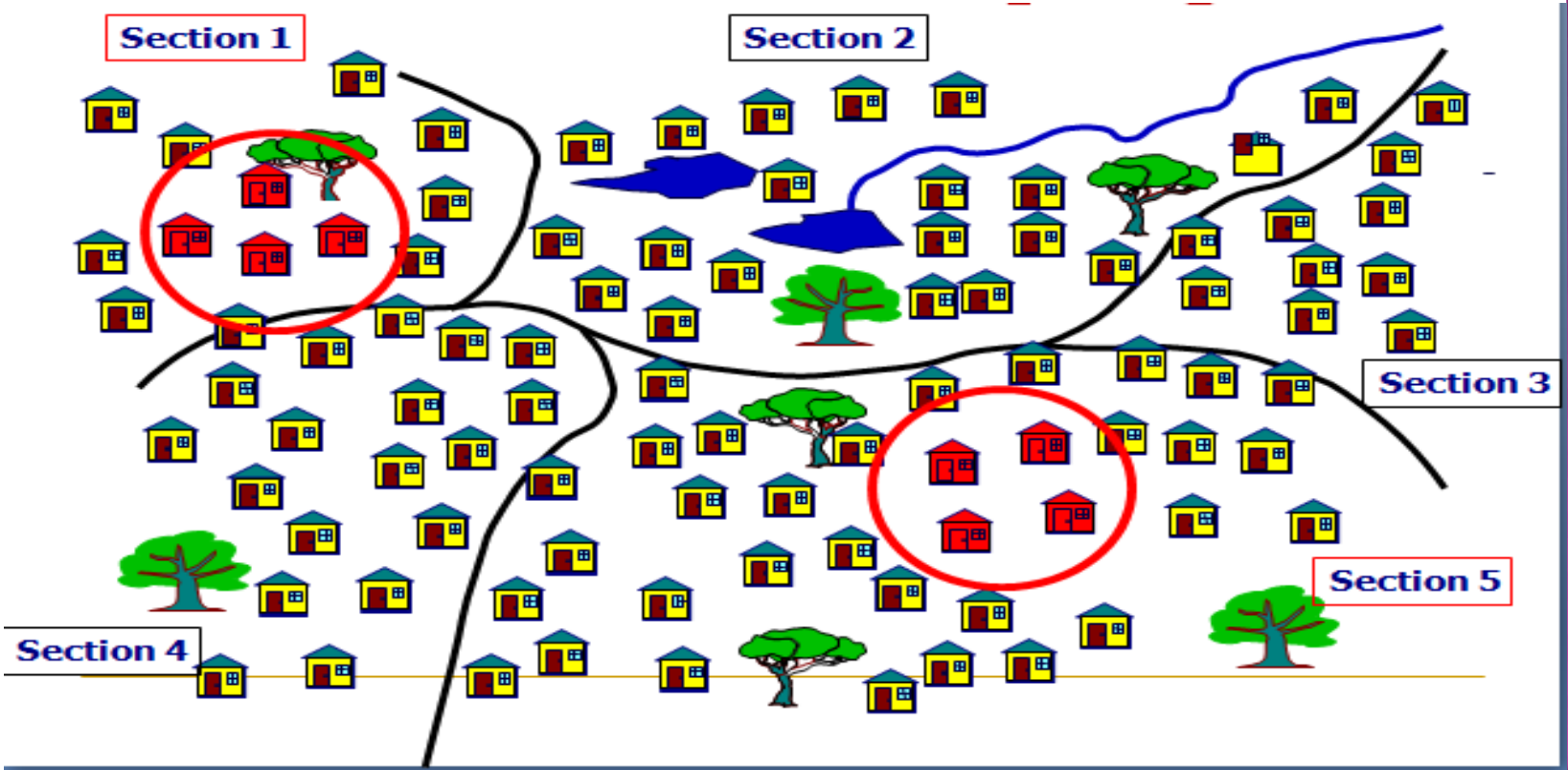
- Proportionate stratified sampling
- Disproportionate stratified sampling

i.e Income group

average monthly sales of cell phones in LARGE, MEDIUM AND SMALL STORE

CLUSTER SAMPLING

- The population is divided into subgroups (clusters) like families.
- A simple random sample is taken from each cluster



CLUSTER SAMPLING

Advantages:

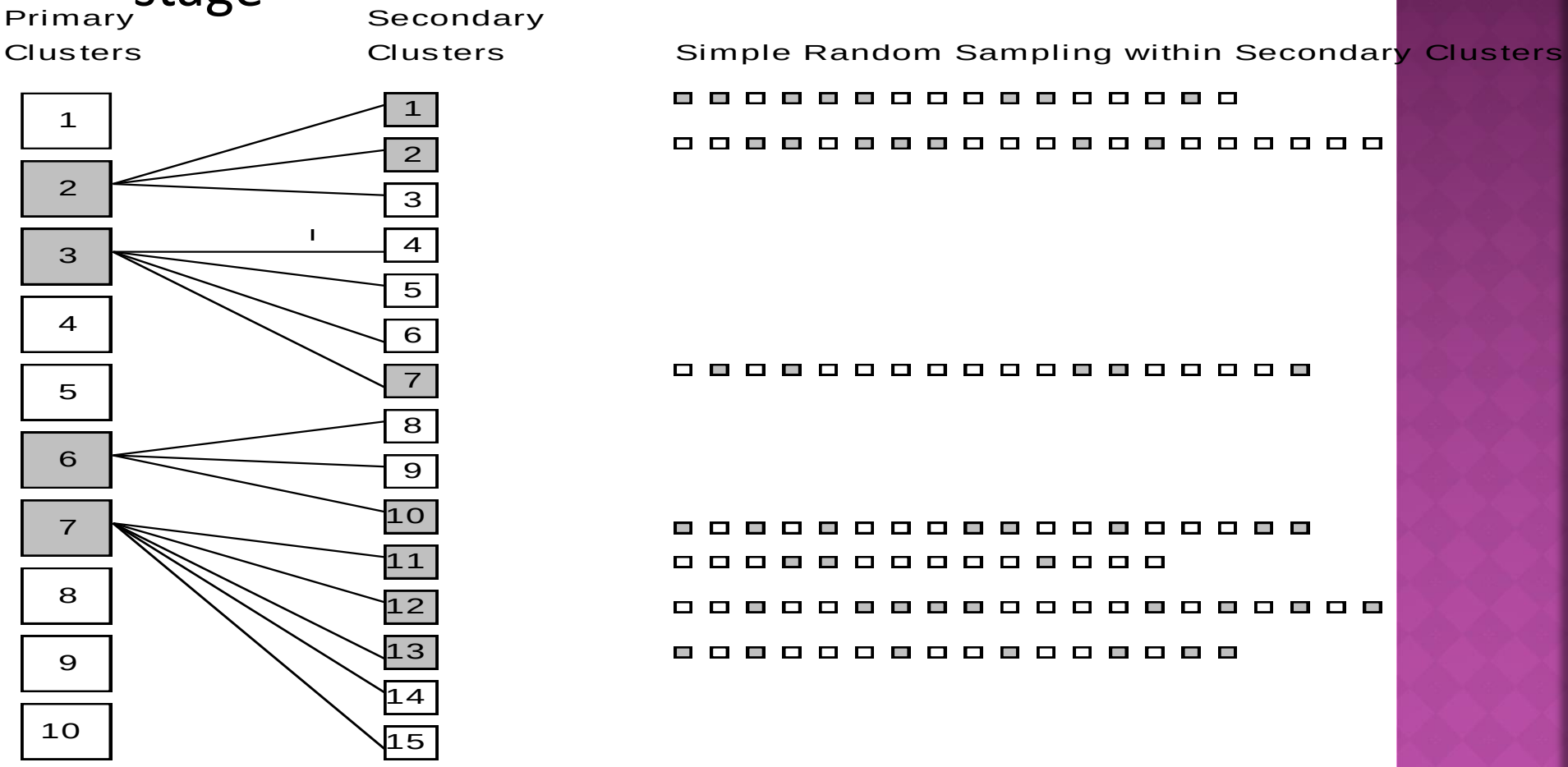
- Can estimate characteristics of both cluster and population

Disadvantages:

- The cost to reach an element to sample is very high
- Each stage in cluster sampling introduces sampling error—the more stages there are, the more error there tends to be

MULTISTAGE SAMPLING

- Carried out in stages
- Using smaller and smaller sampling units at each stage



MULTISTAGE SAMPLING

Advantages:

- More Accurate
- More Effective

Disadvantages:

- Costly
- Each stage in sampling introduces sampling error—the more stages there are, the more error there tends to be

NONPROBABILITY SAMPLES

NONPROBABILITY SAMPLES

- The probability of each case being selected from the total population is not known.
- Units of the sample are chosen on the basis of personal judgment or convenience.
- There are NO statistical techniques for measuring random sampling error in a non-probability sample.

NONPROBABILITY SAMPLES

- A. Convenience Sampling
- B. Quota Sampling
- C. Judgmental Sampling (Purposive Sampling)
- D. Snowball sampling

A. CONVENIENCE SAMPLING

- Convenience sampling involves choosing respondents at the convenience of the researcher.

Advantages

- Very low cost
- Extensively used/understood

Disadvantages

- Variability and bias cannot be measured or controlled
- Projecting data beyond sample not justified
- Restriction of Generalization.

EXAMPLE:

- People interviewed in a shopping centre for their political opinion for TV programme.

- Monitoring the price level in a grossary shop with the objective of inferring the trends in inflation in the economy.

B. QUOTA SAMPLING

- The population is first segmented into mutually exclusive sub-groups, just as in stratified sampling.

Advantages

- Used when research budget is limited
- Very extensively used/understood
- No need for list of population elements

Disadvantages

- Variability and bias cannot be measured/controlled
- Time Consuming
- Projecting data beyond sample not justified

C. JUDGEMENTAL SAMPLING

- Researcher employs his or her own "expert" judgment about.

Advantages

- There is a assurance of Quality response
- Meet the specific objective.

Disadvantages

- Bias selection of sample may occur
- Time consuming process.

D. SNOWBALL SAMPLING

- The research starts with a key person and introduce the next one to become a chain

Advantages

- Low cost
- Useful in specific circumstances & for locating rare populations

Disadvantages

- Not independent
- Projecting data beyond sample not justified

FACTORS DETERMINING SAMPLE SIZE

- Area of Research
- Availability of funds
- Availability of Manpower
- Time frame
- Nature of Research
- Method of Sampling
- Method of data collection
- Judgment of Researcher
- Accuracy