ASKING AND ANSWERING SOCIOLOGICAL QUESTIONS

Learning Objectives

- Learn the steps of the research process. Name the different types of questions sociologists address in their research
- Contrast Park's and Ogburn's visions of sociology as a science.

Learning Objectives

- Familiarize yourself with the methods available to sociological researchers and recognize the advantages and disadvantages of each.

- Understand how research methods generate controversies and ethical dilemmas for sociologists

Today's Class

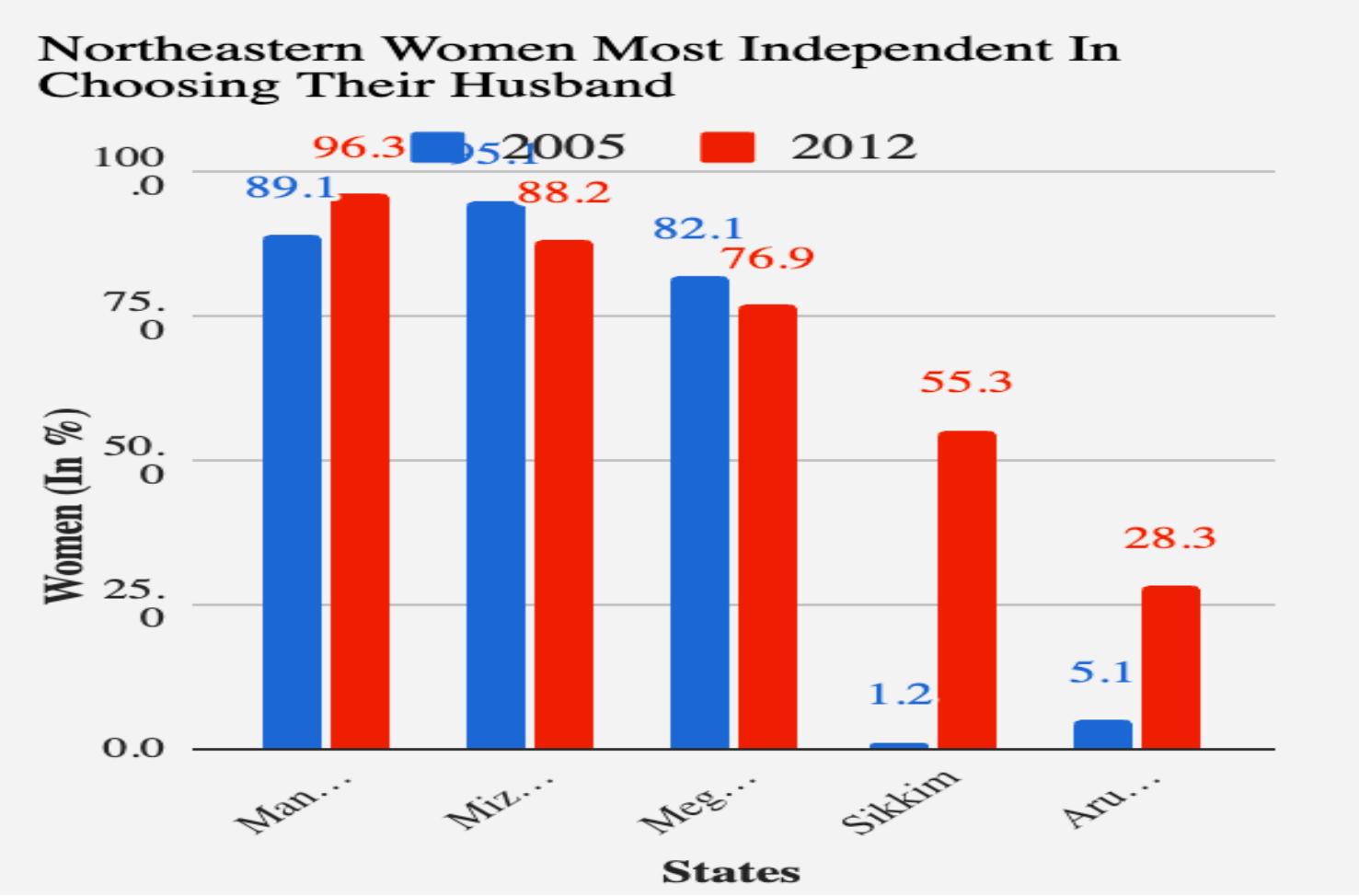
- **Asking and Answering Sociological Questions: Research Methods (contd)**
- Familiarize yourself with the methods available to sociological researchers and know the advantages and disadvantages of each

- **Role of Statistics**

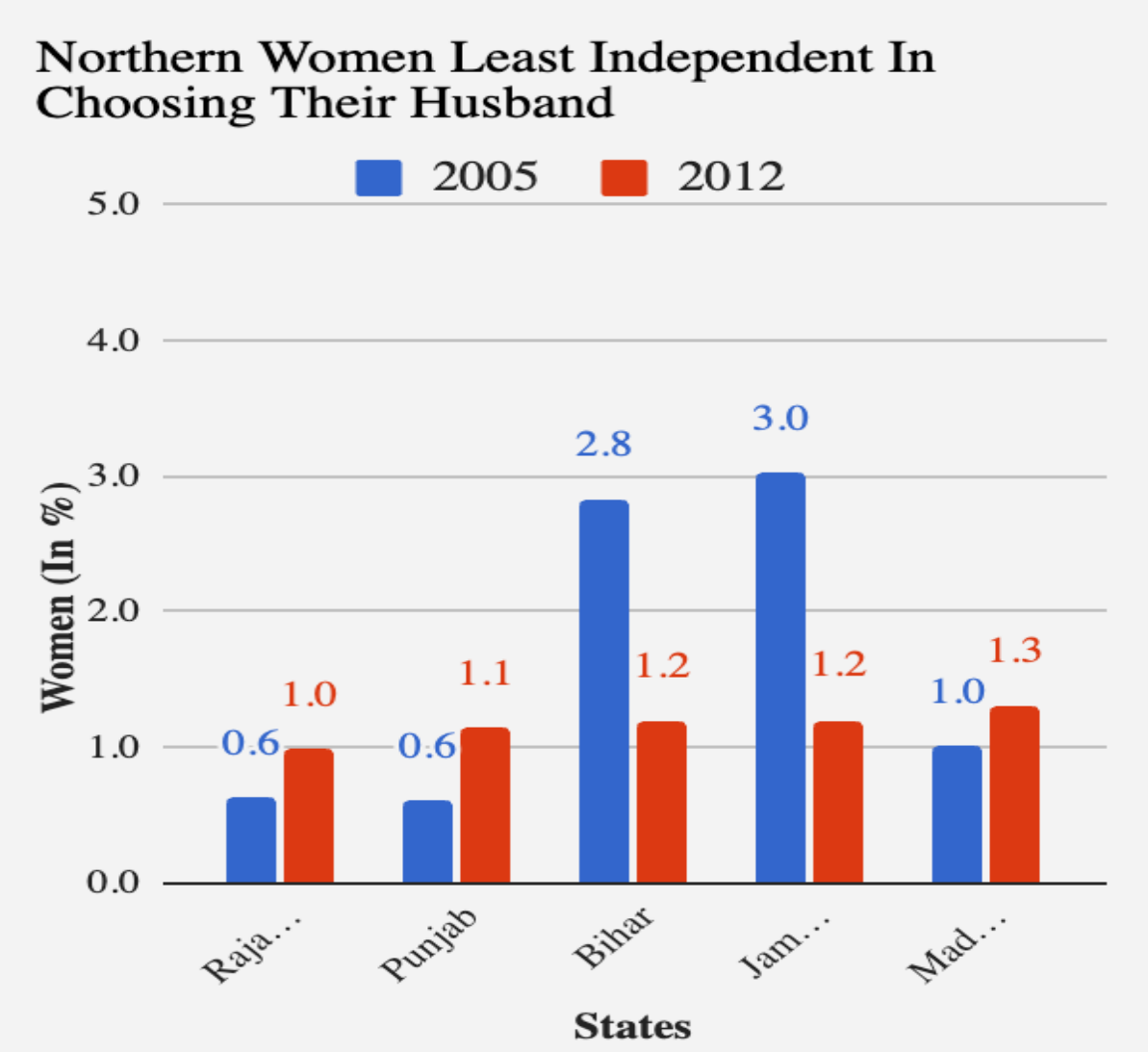
- **Unanswered Questions**
- Understand how research methods generate controversies and ethical dilemmas for sociologists.

- **Sample Review Questions**

Example: Data from IHDS 2005 & 2012



Example: Data from IHDS 2005 & 2012



Advantages of Surveys

- Responses can be more easily quantified and analyzed than material from most other research methods.
- Large numbers of people can be studied.
- Given sufficient funds, researchers can employ a specialized agency to collect responses.

Disadvantages of Surveys

- Because most survey results are shallow, even dubiously accurate findings can appear to be precise.
- Surveys get high levels of nonresponse.
- Some published studies are based on results derived from partial samples.
- People often experience survey research as intrusive and time-consuming.

Experiments

- **Experiment**: A research method by which variables can be analyzed in a controlled and systematic way, either in an artificial situation constructed by the researcher or in a naturally occurring setting.
- In a typical experiment, people are randomly assigned to two groups:
  - The *experimental* group receives some special attention based on the researcher's theory. The *control* group does not receive this attention.
  - Subjects usually do not know to which group they have been assigned.

Example: Experiment in a Controlled Setting, Ethical Issue

- Philip Zimbardo's experiment on prisons and prison guards at Stanford University in the early 1970s
- How would role-playing impact changes in attitude & behavior?
- Students randomly assigned to play the role of prison-guards & prisoners.
- https://www.prisonexp.org/

Example: Natural Experiment

- When inmates leave prison, are they less likely to commit crime if they move to a new neighborhood?

- Sociologist David Kirk explored this question using Hurricane Katrina as a natural experiment. Kirk specifically looked at ex-prisoners from five parishes (neighborhoods) ravaged by Katrina

- Kirk compared recidivism rates of people from these neighborhoods who were released from prison pre-Katrina to recidivism rates of people from these neighborhoods who were released post-Katrina.

Advantages of Experiments

- Researchers can test a hypothesis under highly controlled conditions established by the researcher.

Steve Dietl/Coup D'Etat/Sandbar/Abandon/flc/Kobal/Shutterstock

Disadvantages of Experiments

- It is difficult to generalize the results of laboratory experiments to the larger society.
- Researchers can bring only small groups into a laboratory setting.
- People know they are being studied and may behave unnaturally.

Exercise: Which method?

- How does social class have a role in what type of school a person goes to?
- What are the barriers young single women face in trying to rent a room in tier 2 cities?
- Do employers discriminate mothers with young children in hiring processes?

Table 2.1
Three of the Main Methods Used in Sociological Research

RESEARCH METHOD	STRENGTHS	LIMITATIONS
Ethnography	Usually generates richer and more in-depth information than other methods.	Can be used to study only relatively small groups or communities.
	Ethnography can provide a broader understanding of social processes.	Findings might apply only to groups or communities studied; not easy to generalize on the basis of a single fieldwork study.
Surveys	Make possible the efficient collection of data on large numbers of individuals.	Material gathered may be superficial; if questionnaire is highly standardized, important differences among respondents' viewpoints may be glossed over.
	Allow for precise comparisons to be made among the answers of respondents.	Responses may be what people profess to believe rather than what they actually believe.
Experiments	Influence of specific variables can be controlled by the investigator.	Many aspects of social life cannot be brought into the laboratory.
	Are usually easier for subsequent researchers to repeat.	Responses of those studied may be affected by the experimental situation.

Comparative Historical Research

- **Comparative research**: Research that compares one set of findings on one society with the same type of findings on other societies.
- Most comparative work is quantitative because a consistent metric is required to document whether behaviors and attitudes change over time and place.

ROLE OF STATISTICS

Statistical Terms (1 of 2)

- **Measures of central tendency**: The ways of calculating averages.
- **Correlation coefficients**: The measure of the degree of correlation between variables.
- **Mean**: A statistical measure of central tendency, or average, based on dividing a total by the number of individual cases.

Statistical Terms (2 of 2)

- **Mode**: The number that appears most often in a given set of data. This can sometimes be a helpful way of portraying central tendency.
- **Median**: The number that falls halfway in a range of numbers; a way of calculating central tendency that is sometimes more useful than calculating a mean.
- **Standard deviation**: A way of calculating the spread of a group of numbers.

Role of Statistics in Scientific Inquiry

- **Research** is a disciplined inquiry to answer questions, examine ideas, and test theories
- **Statistics** are mathematical tools used to organize summarize, and manipulate data
- **Quantitative research** collects and uses information in the form of numbers
- **Data** refers to information that is collected in the form of numbers

Key Steps through this process

- **Theory** is an explanation of the relationships among social phenomena
- **Hypotheses** are precise and specific statements about the relationship between phenomena
- **Observations** are collected information used to test hypotheses
- **Empirical generalizations** are conclusions based on the analysis of collected observations that evaluate hypotheses and assess theory

Variables

- Theories & hypotheses often stated in terms of the relationships between variables
- **Variables**: traits that can change values from case to case
- Examples:
  - Age
  - Gender
  - Caste
  - Social class

Case

- **Case**: entity from which data are gathered
  - Examples
    - People
    - Groups
    - Countries & States

Where could data come from?

- Experiments
- Observational studies
- Surveys
- Archives
- Official records (university records, store receipts, etc.)
- Other sources

Important Questions to ask about Data

- Source of funding?
- Who are the researchers who gathered the data?
- Who were studied, how selected, and how many?
- What was the setting in which the measurements were taken?
- Are there differences in the groups being compared, in addition to the factor of interest?

The Role Of Statistics: Example

- Describe the age of students in this class
- Identify the following:
  - Variable
  - Data
  - Cases
  - Appropriate statistics

The Role Of Statistics: Example

- **Variable** : **age**
- **Data**: **actual ages** (or scores on the variable age): 18, 22, 23, etc.
- **Cases** : the **students**

- **Appropriate statistics** would include:
  - **average** - average age of students in this class is ? years
  - **percentage** - xx% of students are older than 25

Statistics provides methods for:

- **Design**: Plan for how to collect data for a research study in order to investigate questions of interest to us
- **Description**: Summarizing the data obtained in the study
- **Inference**: Making predictions based on the data, to enable us to deal with uncertainty in an objective manner.

Why we need to be careful while interpreting statistics

- How statistics can be misleading - Mark Liddell

https://www.youtube.com/watch?v=sxYrzzy3cq8

Two Main Types of Statistics

- a) Descriptive: Summarizing the data obtained from the study; Summarizing & exploring data

  Descriptive statistics = **Summary** statistics

- b) Inferential: Making predictions from the data obtained; Inferring from a sample to a population

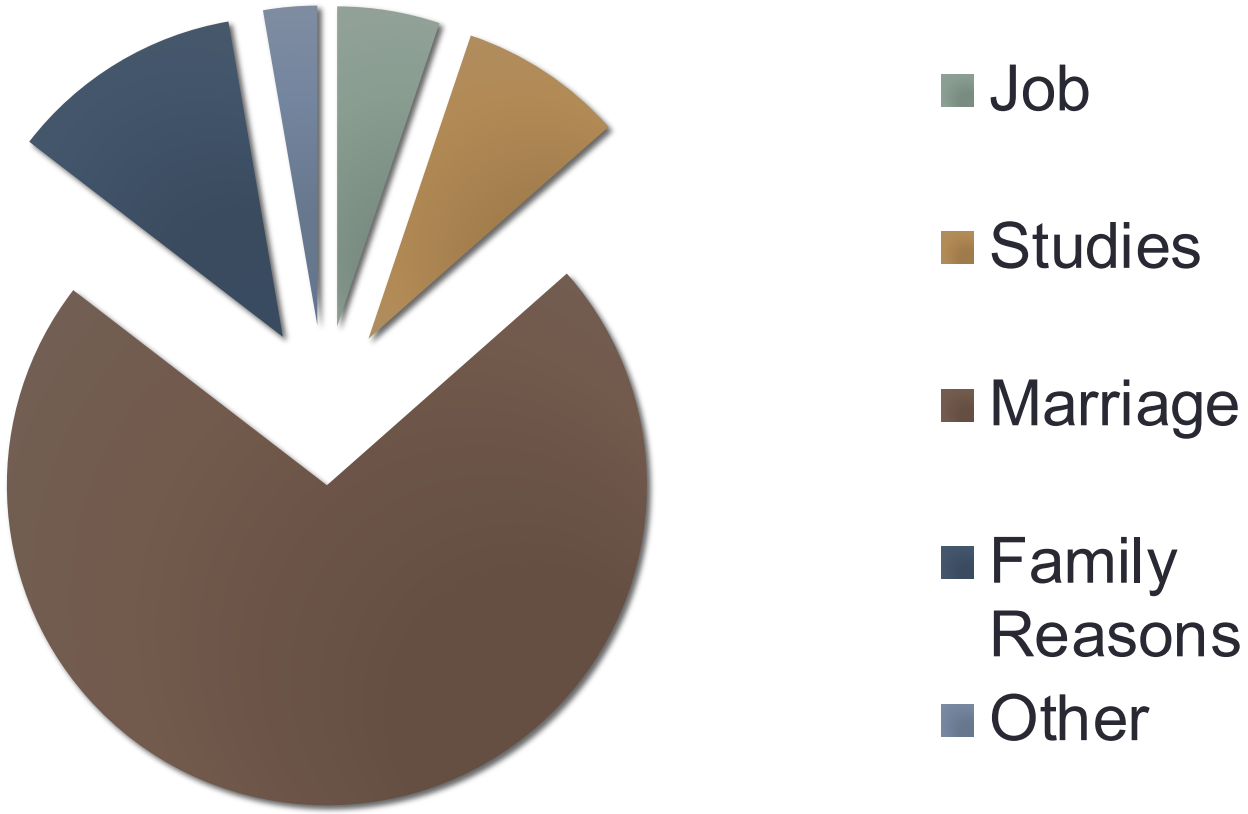
Description

- **Univariate descriptive** statistics describe or summarize variables one at a time. Includes
  - Percentages, averages, and various charts and graphs
  - Example: On the average, students are 20.3 years of age

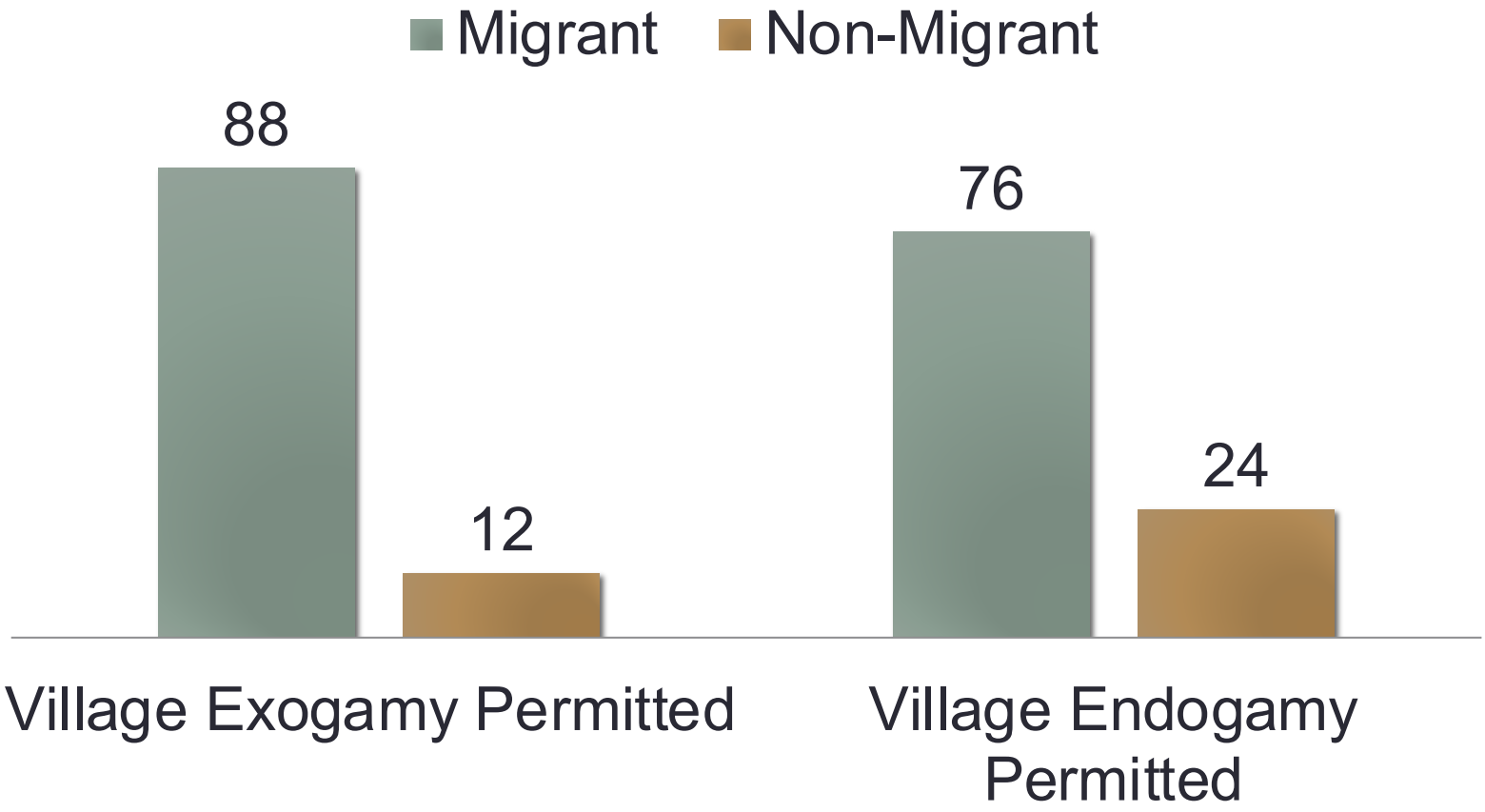
- **Bivariate descriptive** statistics describe or summarize the relationship between two variables

- **Multivariate descriptive** statistics describe or summarize the relationship among three or more variables

Reasons for long-term migration (rural females), IHDS 2



Distribution of migrant women by whether village endogamy is permitted in their caste/community



Raw Data: Complete listing of measurements

	A	B	C	D	E	F	G
1	id	depress	srh	illness	arthritis	hypertens	afb
2	102005	2.83	4	0	0	0	22
3	102052	3.61	4	2	0	0	22
4	106003	1.39	4	1	1	0	20
5	107002	2.94	4	3	0	1	23
6	108020	1.79	5	1	1	0	30
7	115151	2.49	3	1	1	0	22
8	115203	3.37	5	1	0	0	24
9	116012	3.04	5	0	0	0	26
10	116081	2.77	5	0	0	0	26
11	116116	2.89	3	4	1	1	25
12	116132	1.95	5	0	0	0	21
13	116157	1.39	5	2	1	0	22
14	116203	2.48	4	4	0	0	22
15	116255	3.33	5	2	0	0	21
16	116327	1.79	5	0	0	0	24
17	116360	2.20	5	0	0	0	21
18	116362	2.94	4	0	0	0	21
19	118004	1.95	4	2	0	1	23
20	118012	3.37	3	2	0	0	23
21	118043	1.95	5	0	0	0	31
22	118054	3.14	4	1	0	1	27
23	119004	2.08	5	1	0	0	22
24	120020	3.74	3	1	0	0	21

Descriptive Statistics

- Raw data gives too much information & can be overwhelming
- Descriptive statistics **summarize** information in the data set
- Goal is to **explore** data & **reduce** them to simpler & more understandable terms
- Summary **graphs, tables,** and **numbers** (e.g., averages & percentages) are easier to understand

Inferential Statistics

Inferential Statistics provide predictions about a population, based on data from a sample of that population. Generalizes from a sample to a population:

- **Population** includes ***all*** cases in which the research is interested

- **Samples** include carefully chosen ***subsets*** of the population

Inferential Statistics

- **Population** is the total set of *subjects* (units, respondents, participants) of interest in a study
- **Sample** is the subset of the population
- Our ultimate goal is to **learn about populations**, BUT:
- **Realistic** to study only samples from the populations of interest

- Inferential statistics provide **predictions** about characteristics of a **population** based on information available in a **sample**

- Using **properly chosen samples**, we can predict properties of populations, even if samples are small in size relative to populations

Parameter & Statistic

- A **parameter** is a numerical summary of the **population**
- A **statistic** is a numerical summary of the **sample** data
- We use **known sample statistics** to make inferences about **unknown population parameters**

Examples: Parameter & Statistic

- **Parameter**

% of *all* adult Indians who have a PhD

% of *all* adult residents of West Bengal who approve of the chief minister

- **Statistic**

% of a sample of 300 adult Indians who have a PhD

% of 10,000 adult residents of West Bengal who approve of the chief minister

Exercising Caution while Generalizing from Samples to Populations

- Oftentimes researchers could try to generalize results to a larger population, than one to which sample results can be statistically extended to

- Example: A study of final year female B. Tech Students at IIT Kanpur **can not** be generalized to the population of all female students in IITs

UNANSWERED QUESTIONS

Can Sociology Identify Causes and Effects?

- It can be hard to understand an association in which one social context produces a certain effect.
- For example, does living in a poor neighborhood make one more likely to be unemployed or obese, or does being unemployed or obese make one more likely to live in a poor neighborhood?

Correlation & Causation

- Understanding Cause and Effect of Social Context
  - Correlation is not the same as causation
  - Variables may be related to each other but not responsible for change in another

Month	Ice Cream Sales	Deaths by Drowning
May	150	20
June	200	25
July	250	30
August	200	25

How Can Social Research Avoid Exploitation?

- Researchers must consider whether research poses risks to subjects that are greater than the risks those subjects face in their everyday lives.
- For example, researchers in areas with high crime rates may risk getting themselves or their subjects arrested as a result of their participation or writings.

Can We Really Study Human Social Life in a Scientific Way?

- Unlike natural phenomena and animals, humans are self-aware beings who confer sense and purpose to what they do.
- **Empirical investigation**: Factual inquiries carried out in any area of sociological study.
  - Pro: Sociologists can pose questions directly to their subjects.
  - Con: People who are aware that their activities are being scrutinized may not behave normally.

Can We Really Study Human Social Life in a Scientific Way?

- Can we really study human social life in a **scientific** way?
  - However, sociology is not equivalent to a natural science.
    - Humans are self-aware beings who confer sense and purpose on what they do. It is important to grasp the meaning that people apply to their own behavior.
    - The investigator is a crucial part of the social world he/she studies; cannot be divorced from it.

Can We Really Study Human Social Life in a Scientific Way?

- Can we really study human social life in a **scientific** way?
  - Sociology is a science guided by a theoretical approach and based on empirical investigation
  - Facts and data are gathered systematically.
  - Open to criticism and revision

  So the answer is YES.