
  
**The University of Georgia**  
 Department of Political Science  
 POLS 2000 Introduction to Political Science


Statistical Sampling and Why it Matters

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- Informal Methods of Sampling
  - e.g., Measuring Public Opinion
    - 'Man-in-the-Street' Interviews
    - Call-in Survey or Web Survey
    - Interview & Count Protestors
    - Letters to Editor
    - Interest Group Leaders
    - Focus Groups
    - Constituent Mail

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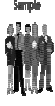
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- What's Wrong With These Methods?
  - Cannot Generalize to a Population
  - Possible Solution: Poll the Population
  - Why Sample?
    - Time
    - Cost


Population





Sample



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- The Kinsey Studies
  - *Sexual Behavior in the Human Male* (1948)
    - '5,300 White Males'
    - 1,400 Sex Offenders
    - 'Several Hundred' Male Prostitutes
    - 300+ Abused Children
  - *Sexual Behavior in the Human Female* (1953)
  - Problem with Method?

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- The Hite Report
  - 70% Women Married  
5+ Years Having Affair
- 100,000 Questionnaires
  - Women's Groups & Requests
- 4,500 Returned  
(Response Rate = 4.5%)
- Problem with Method?



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- Short History of Sampling  
in Political Science
- Literary Digest Poll
  - What Went Wrong?
- Gallup's Quota Sampling
  - What Went Wrong?



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- Why is Sampling Important?
  - We Seek to Make Generalizations  
About Population Based on Sample
  - To Generalize Requires Random  
Selection
  - Random Selection Requires Sampling

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- Sampling: Some Important Concepts
  - Population
  - Sample
  - Sampling Frame
  - Element (Respondent)


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- A Few More Important Concepts
  - Variable
  - Parameter
  - Statistic

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- Two Methods of Sampling
  - Nonprobability
  - Probability

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- Nonprobability Sampling
  - Convenience Sample
  - Purposive (Judgmental) Sample
  - Snowball Sample
  - Quota Sample

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- Nonprobability Sampling, Cont.
  - Problems
    - Potential for Bias
    - No Estimate of Accuracy

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- Probability Sampling
  - Simple Random Sample (SRS)

Appendix C  
Table of Random Numbers

10480	15011	01536
22388	46573	25595
24130	48360	22527
42167	93093	09243
37570	39975	81837
77921	06907	11008
99562	72905	56420
96301	91977	05463
89579	14342	63681
85475	36857	53342
28918	69578	88231
63653	40961	48235
09429	93969	52636

The sample

30	87
70	21
82	61
78	75
18	53



- Probability Sampling, Cont.
  - Systematic Sample

Random start

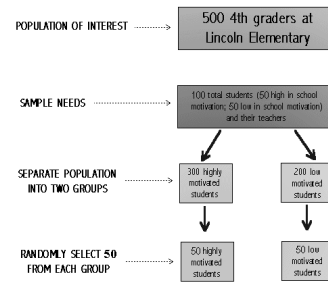
The sample

3	13
23	33
43	53
63	73
83	93



- Probability Sampling, Cont.
- Stratified Sample

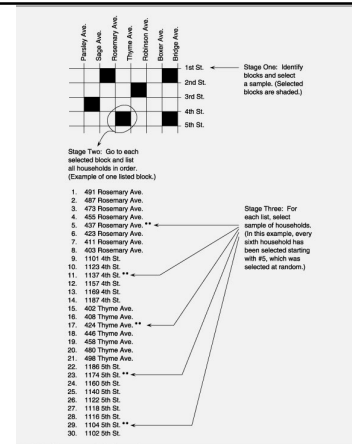
STRATIFIED RANDOM SAMPLING PROCEDURE



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- Probability Sampling, Cont.
- Multistage Cluster Sample



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- Probability Sampling, Cont.
  - RDD
  - e.g., *Washington Post*
    - 'Who is eligible'

*"For the standard national poll, respondents must be aged 18 or over, live in the continental United States, and have a home phone. Currently, all Post interviews are conducted in English, except on special projects."*

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- *Washington Post* RDD Polls, Cont.
  - 'Creating a Sample'

*"Telephone exchanges are stratified prior to sampling based on: Census state and county; area code; prefix; and working block. Blocks of telephone numbers with more than 1 residential directory listing are defined as working blocks; others are removed. A systematic random sample of working blocks is then selected from the stratified database, and a random two-digit suffix selected for each working block. The final sample is matched against a list of known business phone numbers which are then flagged. It is also screened for non-working numbers using a non-ringing auto-dialer."*

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- *Washington Post* RDD Polls, Cont.
  - 'In-House Selection Method'

*"Respondents are selected using the "at home, last birthday" method, stratified by sex. This means that in 75 percent of the cases, interviewers will ask to speak to the male currently at home who last had a birthday, and in 25 percent, they will ask to speak to the parallel female. This design is intended to adjust for the fact that women are more likely to pick up the phone in most households."*

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- Probability Sampling, Cont.
  - EPSEM
    - Removes Potential Bias
    - Estimates of Accuracy

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Theory and Logic of Probability Sampling

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Theory and Logic of Probability Sampling

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Probability Sampling, Continued

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- Why Sampling Distribution Matters
  - Sampling Error
  - Margin of Error
  - Confidence Level/Interval

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- Error in Surveys, Cont.
  - Two Types of Survey Error
    - Sampling Error
    - Nonsampling Error, e.g.,
      - Random Measurement Error
      - Systematic Measurement Error
      - Nonresponse
      - Processing Error

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- Evaluating Sample & Method in Opinion Polls
  - Sample Design
    - Population
    - Sampling Frame
    - Method, Locations, Dates
  - Sample Size
    - Margin of Error
    - Response Rate
      - Contacts, Noncontacts, Refusals

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- Conclusion
  - Because of Probability Sampling We *Can* Make Inferences from Sample to Population

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