



Introduction

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Recap

Researching Crime & Justice

Session 7 - Theory

Sampling

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Learning Aims

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Recap

- Introduce the concept of sampling
 - A crucial part of the research process
 - Will determine the external validity of the study
 - Should be clearly laid out in a research proposal
- Illustrate how there is not just one way of sampling
 - Lots of different sampling methods
 - Each with their pros and cons
- Review the practical constraints affecting sampling
 - Ethical, logistical, access, resource constraints
 - An area where being creative tends to pay off
 - In many ways, more of an art than a science

Session Structure

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Recap

- Lecture
 - Introduce the main features of the sampling process
 - Review the main sampling methods used in social research
 - Review the types of errors associated to sampling
- ‘Sampling in practice’ and exercise
 - Design a series of sampling strategies to explore specific research questions
 - Gain practical knowledge of the various constraints affecting sampling design in the real world

Sampling in the Research Process

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- ① Literature Review
- ② Research Question
- ③ Sampling
- ④ Data Collection
- ⑤ Data Analysis
- ⑥ Interpretation of findings and write up



Sampling in the Research Process

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- ③ **Sampling**
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Population

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- Population (aka universe): the group of cases (normally people) to which the findings of the study are to be generalised



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Recap

- Population (aka universe): the group of cases (normally people) to which the findings of the study are to be generalised
- Question: Identify the populations in the following research questions
 - What was the rate of burglary victimisation amongst university students in Leeds in 2020?
 - Was sentencing in the Crown Court in 2020 more consistent than what it was in 2000?



Why Sampling?

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- Ideally we should analyse the entire population of interest
- However, this is often impossible for practical reasons (too costly/time consuming to collect/analyse)
- We often rely on a smaller group of members of the population, the sample
- The goal of the sampling process is for our sample to be as representative as possible of the wider population



Sampling Process

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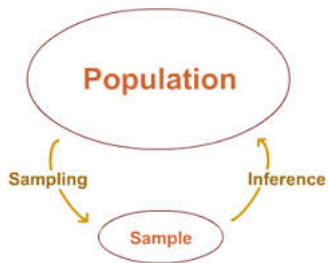
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- To carry out the sampling of individual cases we can use different methods
- Two main families, probability and non-probability sampling
- Roughly, probability sampling methods require a sampling frame and random selection, while non-probability methods do not
- Question: What do we mean by a sampling frame (can you think of examples) and by random selection?



Non-Probability Sampling

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- Convenience (aka availability) sampling
 - Take the most easily accessible individuals
 - Question: Can you provide examples of convenience sampling?

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Recap

- Convenience (aka availability) sampling
 - Take the most easily accessible individuals
 - Question: Can you provide examples of convenience sampling?
- Snowball sampling
 - researcher makes initial contact with a small group
 - these participants introduce others in their network
- Question: Do you think these methods will tend to generate representative samples? Why?
- Question: In which instances can they become useful?

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 - Take the most easily accessible individuals
 - Question: Can you provide examples of convenience sampling?
- Snowball sampling
 - researcher makes initial contact with a small group
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- Question: Do you think these methods will tend to generate representative samples? Why?
- Question: In which instances can they become useful?
 - Convenience sampling useful when piloting a research instrument
 - or to collect data that is too good to miss
 - Snowball sampling useful to approach difficult to contact populations, e.g. heroin addicts, members of vigilantes organisations



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- Purposive (aka theoretical) sampling
 - the selection of units to be investigated is based on the researcher's judgement
 - used in grounded theory, as part of the iterative process 'data collection - data analysis'
 - prone to selection bias given the subjectivity of the researcher

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Recap

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 - the selection of units to be investigated is based on the researcher's judgement
 - used in grounded theory, as part of the iterative process 'data collection - data analysis'
 - prone to selection bias given the subjectivity of the researcher
- Quota sampling
 - one or various individual characteristics (e.g. gender, ethnicity) are selected
 - so we can set a 'quota' of participants who belong to that group in our sample
 - this sample quota will be proportional to the distribution of individuals within that group in the population
 - often used in market research and opinion polls
 - Question: Do you think quota sampling will always produce representative samples? Why?

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- Often external validity is low
- Nonetheless they can be useful when:
 - piloting a data collection tool (e.g. a questionnaire, or an interview scheme)
 - exploring a new area instead of testing a theory
 - when you do not seek to generalise to a specific population
 - no sampling frame is available
- For all of the above, we tend to use them for qualitative research



Probability Sampling

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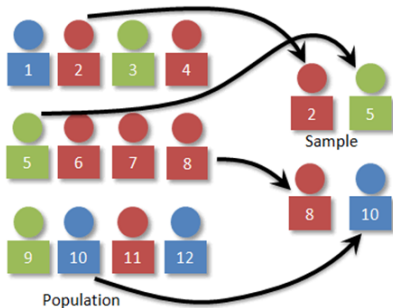
Types of Errors

Recap

- Based on random selection, which reduces the possibility of selection bias,
- and allows carrying out statistical inference
 - measures of uncertainty (e.g. confidence intervals)
 - hypotheses testing (e.g. t-tests)
- Simple random sampling is the gold standard
- For a given budget, we can gain efficiency using other designs

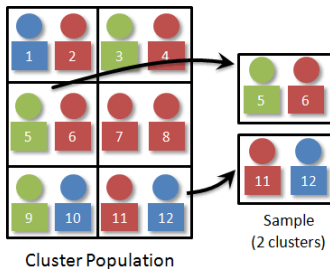
Simple Random Sampling

- 1 Find a sampling frame of the population
- 2 Number each individual in there
- 3 Pick numbers at random and select the matching individuals



Cluster Sampling

- 1 Find a sampling frame of clusters within which individuals can be located and number those clusters
- 2 Select different clusters at random
- 3 Select all units of interest within the cluster



Question: Why would we want to use this method? Any disadvantages compared to Simple Random Sampling?



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- How big does the sample need to be?
 - This is often difficult to answer
 - We use power/sample size calculations to provide an exact number

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Recap

- How big does the sample need to be?
 - This is often difficult to answer
 - We use power/sample size calculations to provide an exact number
- Alternatively we can consider the following principles
 - The bigger the better
 - Diminishing returns in precision for every additional observation
 - Absolute size matters more than relative size
 - Heterogeneity of the population
 - The target sample size should account for non-response
 - Kind of analyses to be carried out
 - As a rule of thumb, for your dissertations, you are not expected to exceed the sample size of similar studies in the literature



Types of errors

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- Sampling error
 - Aka uncertainty or margin of error
 - Unavoidable difference between sample and population
 - Related to the concepts of reliability, precision, random errors
 - The bigger the sample size the smaller the sampling error



Types of errors

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Recap

- Sampling error
 - Aka uncertainty or margin of error
 - Unavoidable difference between sample and population
 - Related to the concepts of reliability, precision, random errors
 - The bigger the sample size the smaller the sampling error
- Selection bias
 - Related to the concept of validity, bias, systematic errors
 - Expanding the sample size does not necessarily help
 - Often takes place as a result of using non-probability sampling
 - Coverage error, as a result of using an inadequate sampling frame
 - Non-response, selected individuals who are unable or refuse to participate

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- In this lecture we have covered
 - Why we sample
 - The main features of a sampling design
 - Pros and cons of different sampling methods
 - Types of errors
- One of the most important parts of the module
 - Transversal subject in the research process
 - To be considered in any research plan, regardless of the subject of study or the data analysis methods to be used