



What is Survey  
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Recap

# Researching Crime and Justice

## Workshop 3: Surveys, Questionnaires, and Limitations of Cross-Sectional Designs

Jose Pina-Sánchez



## Workshop Aims

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### Recap

- Introduce the first data collection method: surveys
- Identify the key stages in the implementation of a survey
- Identify good practices in the design of a questionnaire
- Compare pros and cons of different modes of data collection
- Identify the limitations of cross-sectional designs
- Introduce experimental designs



# 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



# 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



# What is Survey Research?

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## Recap

- The most common quantitative method in the Social Sciences
- Involve multiple subjects, responding to the same set(s) of predefined questions, amenable to be coded numerically
- Used to measure personal (demographic, social, economic, medical, etc.) characteristics, i.e. factual information
- But also behaviours, attitudes, beliefs and more



# History of Surveys

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## Recap

- The first census carried out in England and Wales was the Domesday Book (1086 AC)
- There are older census from ancient history
  - Babylonia (4000 BC)
  - Egypt (2500 BC)



# History of Surveys

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Recap

- The first census carried out in England and Wales was the Domesday Book (1086 AC)
- There are older census from ancient history
  - Babylonia (4000 BC)
  - Egypt (2500 BC)
- Modern social surveys first appeared in industrial England as a result of the growing concerns of working class life conditions
  - Booth's poverty maps (1886)
  - Rowntree (1901)



## Booth's Poverty Maps

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## Booth's Poverty Maps

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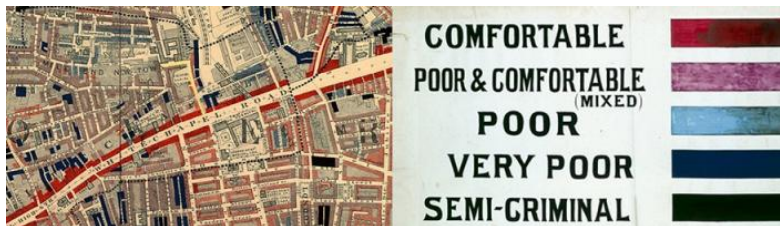
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Question: Notice something strange with the scale of poverty designed by Charles Booth?



## Present Day Surveys

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- Nowadays in the UK we have a wide array of national surveys covering different areas of policy interest
  - Labour Force Survey
  - Health Survey for England
  - British Social Attitudes Survey
  - The European Social Survey
  - The Crime Survey for England and Wales
  - The British Social Attitudes Survey
  - The Offending, Crime and Justice Survey
  - The Crown Court Sentencing Survey



## Exercise 1 - Steps in Conducting a Survey

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Recap

- Let's assume you end up conducting a survey for your dissertation
- In the next two slides I have provided you with a list of steps involved in doing so (from Bryman 2016)
- I have ordered them at random
- In groups of three discuss how would you order them?  
Note: there is more than one valid order that you could adopt



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Recap

- Develop questions
- Review literature / theories
- Formulate research question(s)
- Follow up non-respondents
- Consider whether a survey is appropriate
- Analyse data and interpret findings
- Pilot questions
- Revise questions
- Decide on sample size



# Exercise 1 - Steps in Conducting a Survey

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Recap

- Decide on mode of administration
- Decide upon a sample design
- Finalise questionnaire
- See whether a sampling frame is available
- Sample from population
- Administer questionnaire
- Consider what kind of population is needed
- Code responses and enter data into SPSS



# Steps in Conducting a Survey I

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Recap

- 1 Review literature / theories
- 2 Formulate research question(s)
- 3 Consider whether a survey is appropriate
- 4 Consider what kind of population is needed
- 5 See whether a sampling frame is available
- 6 Decide upon a sample design
- 7 Decide on sample size
- 8 Decide on mode of administration



## Steps in Conducting a Survey II

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Recap

- 9 Develop questions
- 10 Pilot questions
- 11 Revise questions
- 12 Finalise questionnaire
- 13 Sample from population
- 14 Administer questionnaire
- 15 Follow up non-respondents
- 16 Code responses and enter data into SPSS
- 17 Analyse data and interpret findings

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## Recap

- Questionnaires are the specific data collection tool used in survey research
- A list of questions, each of them providing a range of pre-defined answers and a coding system
- Unlike qualitative (unstructured) interviewing, questionnaires allow us to obtain comparable (standardised) information
- But to achieve that we need to design and conduct questionnaires carefully





# Good Practices in Questionnaire Design

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Recap

- The choice of words and phrases in a question is critical
  - Small wording differences can substantially affect the answers people provide
- We need to ensure:
  - the meaning of the question is clearly expressed
  - all respondents interpret the question the same way
- To help interviewees answer correctly provide precise instructions, e.g.
  - select only one answer
  - name all that apply
  - name your three favourite



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- Keep it as short as possible; i.e. include questions that you really need
  - The longer the questionnaire, the higher the level of interviewee fatigue (reduced engagement), which can derive in drop outs
  - Question: Why are interviewee drop outs a problem?



# Good Practices in Questionnaire Design

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Recap

- Keep it as short as possible; i.e. include questions that you really need
  - The longer the questionnaire, the higher the level of interviewee fatigue (reduced engagement), which can derive in drop outs
  - Question: Why are interviewee drop outs a problem?
- Convey the importance of both the project and the interviewee's participation with a short introduction
- Ensure confidentiality



## (Avoidable) Problems with Questionnaires

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Recap

- Leading questions:
- Unclear language: some questions are not understood the same way by different people
- Double-barrelled questions:
- Poorly defined answer options: when using closed questions they should be coherent, complete and mutually exclusive
- Interviewee fatigue: too many questions make the interviewee less engaged
- Asking too much from the interviewee



## (Avoidable) Problems with Questionnaires

- Leading questions: those that suggest the answer that the researcher is looking for
- Unclear language: some questions are not understood the same way by different people
- Double-barrelled questions:
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## (Avoidable) Problems with Questionnaires

- Leading questions: those that suggest the answer that the researcher is looking for  
*Do you agree with our incompetent Government on reviewing the outcome of the Brexit referendum?*
- Unclear language: some questions are not understood the same way by different people
- Double-barrelled questions:
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### Recap

- Leading questions: those that suggest the answer that the researcher is looking for  
*Do you agree with our incompetent Government on reviewing the outcome of the Brexit referendum?*
- Unclear language: some questions are not understood the same way by different people  
*Do you think it is not a good idea to do drugs?*
- Double-barrelled questions:
  - Poorly defined answer options: when using closed questions they should be coherent, complete and mutually exclusive
  - Interviewee fatigue: too many questions make the interviewee less engaged
  - Asking too much from the interviewee

## (Avoidable) Problems with Questionnaires

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### Recap

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*Do you agree with our incompetent Government on reviewing the outcome of the Brexit referendum?*
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- Double-barrelled questions: multiple questions embedded in the same one
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- Leading questions: those that suggest the answer that the researcher is looking for  
*Do you agree with our incompetent Government on reviewing the outcome of the Brexit referendum?*
- Unclear language: some questions are not understood the same way by different people  
*Do you think it is not a good idea to do drugs?*
- Double-barrelled questions: multiple questions embedded in the same one  
*Do you support longer sentences and the disregard of the European Convention on Human Rights regarding violent crimes?*
- Poorly defined answer options: when using closed questions they should be coherent, complete and mutually exclusive
- Interviewee fatigue: too many questions make the interviewee less engaged
- Asking too much from the interviewee

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## (Unavoidable?) Problems with Questionnaires

- Interviewer effects:
- Acquiescence bias:
- Social desirability bias:
- Recall errors:

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## (Unavoidable?) Problems with Questionnaires

- Interviewer effects: personal differences between interviewers can influence responses  
e.g. ethnicity, social class, gender
- Acquiescence bias:
- Social desirability bias:
- Recall errors:

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Recap

- Interviewer effects: personal differences between interviewers can influence responses  
e.g. ethnicity, social class, gender
- Acquiescence bias: tendency of respondents to agree with the questions, statements or assertions  
This is more common amongst less educated and less informed individuals
- Social desirability bias:
  
- Recall errors:



## (Unavoidable?) Problems with Questionnaires

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Recap

- Interviewer effects: personal differences between interviewers can influence responses  
e.g. ethnicity, social class, gender
- Acquiescence bias: tendency of respondents to agree with the questions, statements or assertions  
This is more common amongst less educated and less informed individuals
- Social desirability bias: tendency of respondents to answer in a way that makes them look more favourable to the researcher  
Respondents tend to understate alcohol and drug use, tax evasion and racial bias; while they tend to overstate church attendance, charitable contributions, and the likelihood that they will vote in an election
- Recall errors:



## (Unavoidable?) Problems with Questionnaires

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Recap

- Interviewer effects: personal differences between interviewers can influence responses  
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- Acquiescence bias: tendency of respondents to agree with the questions, statements or assertions  
This is more common amongst less educated and less informed individuals
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Respondents tend to understate alcohol and drug use, tax evasion and racial bias; while they tend to overstate church attendance, charitable contributions, and the likelihood that they will vote in an election
- Recall errors: very present in retrospective questions  
e.g. When did you become unemployed?



## Questionnaire Quiz

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- Which one do you prefer?
  - Do you agree that Scotland should be an independent country? Options: Agree or Disagree
  - Should Scotland be an independent country? Options: Yes or No

# Questionnaire Quiz

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Recap

- Which one do you prefer?
  - Do you agree that Scotland should be an independent country? Options: Agree or Disagree
  - Should Scotland be an independent country? Options: Yes or No
- Evaluate the following questions and answers (try to identify some of the issues listed in the previous slides)



# Questionnaire Quiz

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## Recap

- Which one do you prefer?
  - Do you agree that Scotland should be an independent country? Options: Agree or Disagree
  - Should Scotland be an independent country? Options: Yes or No
- Evaluate the following questions and answers (try to identify some of the issues listed in the previous slides)
  - Do you agree that there is less crime in the UK now than ten years ago? [Y/N]

## Questionnaire Quiz

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## Recap

- Which one do you prefer?
  - Do you agree that Scotland should be an independent country? Options: Agree or Disagree
  - Should Scotland be an independent country? Options: Yes or No
  
- Evaluate the following questions and answers (try to identify some of the issues listed in the previous slides)
  - Do you agree that there is less crime in the UK now than ten years ago? [Y/N]
  - Do you agree with the following statement? The police needs extra resources. [rating scale of agreement: 1-2-3-4-5-6]



## Questionnaire Quiz

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### Recap

- Which one do you prefer?
  - Do you agree that Scotland should be an independent country? Options: Agree or Disagree
  - Should Scotland be an independent country? Options: Yes or No
- Evaluate the following questions and answers (try to identify some of the issues listed in the previous slides)
  - Do you agree that there is less crime in the UK now than ten years ago? [Y/N]
  - Do you agree with the following statement? The police needs extra resources. [rating scale of agreement: 1-2-3-4-5-6]
  - How much of a problem is crime in Leeds to you? [open]



# Questionnaire Design Practice

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## Recap

- To get trained in the design of questionnaires a good strategy is to take many of them
- Register in [YouGov](#) and take a few questionnaires



# Questionnaire Design Practice

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Recap

- To get trained in the design of questionnaires a good strategy is to take many of them
- Register in [YouGov](#) and take a few questionnaires
- It is also considered good practice to use questions that have been approved for national surveys
- The UK Data Service [repository of questionnaires](#) is an incredibly useful resource



# Questionnaire Design Practice

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## Recap

- To get trained in the design of questionnaires a good strategy is to take many of them
- Register in YouGov and take a few questionnaires
- It is also considered good practice to use questions that have been approved for national surveys
- The UK Data Service repository of questionnaires is an incredibly useful resource
- Lastly, to enhance the formatting of your questionnaires, tools like Online Surveys, or Survey Monkey can also be very useful



## Exercise 2: Questionnaire Critique

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- Evaluate the questionnaire on ‘appraisal in the workplace’ (Gray, 2014: 359)



# Modes of Data Collection

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Recap

- Structured interview
  - Face-to-face
  - Telephone
- Self-completed questionnaire
  - Postal
  - Email
  - Web





# Structured Interviews

- Advantages:
  - Higher collaboration/engagement from the interviewee
  - Avoid acquiescence bias
  - Higher response rate
  - Can facilitate explanations for the interviewee when necessary

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- Advantages:
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  - Higher response rate
  - Can facilitate explanations for the interviewee when necessary
- Question: What do you think their disadvantages are?



# Structured Interviews

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Recap

- Advantages:
  - Higher collaboration/engagement from the interviewee
  - Avoid acquiescence bias
  - Higher response rate
  - Can facilitate explanations for the interviewee when necessary
- Question: What do you think their disadvantages are?
  - Expensive
  - Inadequate for highly sensitive topics
  - They can be prone to social desirability bias
  - Interviewer effects
- Question: How do you think face-to-face and phone interviews differ in relation to the above?

# Self-Completed Questionnaires

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- Advantages:
  - Cheaper and quicker to administer
  - Absence of interviewer effects
  - Convenient for respondents
  - Helps to ensure confidentiality of responses
- Question: What do you think their disadvantages are?



# Self-Completed Questionnaires

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Recap

- Advantages:
  - Cheaper and quicker to administer
  - Absence of interviewer effects
  - Convenient for respondents
  - Helps to ensure confidentiality of responses
- Question: What do you think their disadvantages are?
  - Cannot control administration of questionnaire
  - Who answers?
  - Respondent fatigue
  - Lower response rate
  - Overall lower data quality
- Question: In which ways do you think email questionnaires are better or worse than mail questionnaires?



# Validity and Reliability

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- When analysing the quality of the findings from a survey we should focus on three key elements:
  - the design of the sample
  - the questionnaire
  - and the mode of data collection
- Beyond that, be extra suspicious when presented with causal ‘evidence’ obtained from surveys



## Correlation $\neq$ Causation

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- Survey's strength lies in their 'external validity', their 'internal validity' is however questionable
- They allow us to take a snapshot of how the population looks like at one particular time
- We can detect and measure associations/correlations
- However, we should be very careful when ascribing causal relationships to them



## Correlation $\neq$ Causation

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- Survey's strength lies in their 'external validity', their 'internal validity' is however questionable
- They allow us to take a snapshot of how the population looks like at one particular time
- We can detect and measure associations/correlations
- However, we should be very careful when ascribing causal relationships to them
- Correlation is a necessary but not a sufficient condition for causation
- For  $X$  to cause  $Y$  both events need to be correlated,  $X$  needs to precede  $Y$  in time, and they need to be directly - not spuriously - connected



# Problems with Cross-Sectional Designs

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## Unidirectional Causality

$$X \longrightarrow Y$$

- It is incredibly common to see such causal mechanisms being inferred from simple correlations, e.g.
  - Male offenders receive harsher sentences than female offenders
  - Decentralised countries tend to control corruption more effectively
  - Police-citizen encounters managed with fairness (procedural justice) enhance public perceptions of police legitimacy



# Problems with Cross-Sectional Designs

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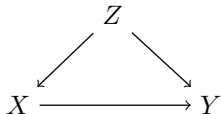
## Correlation is not Causation

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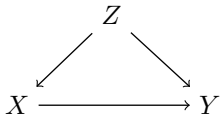
Recap

## Confounding Effects



# Problems with Cross-Sectional Designs

## Confounding Effects



- Question: Can you spot the confounding effect in the following relationships?
  - Sleeping with shoes on is strongly correlated with waking up with a headache
  - People wearing big shoes tend to have more car accidents
  - One glass of wine a day is good for your health

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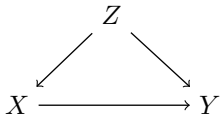
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# Problems with Cross-Sectional Designs

## Confounding Effects



- Question: Can you spot the confounding effect in the following relationships?
  - Sleeping with shoes on is strongly correlated with waking up with a headache
  - People wearing big shoes tend to have more car accidents
  - One glass of wine a day is good for your health
  - Male offenders receive harsher sentences than female offenders
  - Crime victimisation is lower for married than for single people
  - Decentralised countries tend to control corruption more effectively

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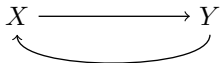
**Correlation is not Causation**

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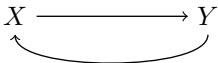
## Correlation is not Causation

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## Recap

## Reverse Causality



- Question: Can you think of potential reverse causal mechanisms present in the following relationships?
  - High personal income ( $X$ ) can buy better quality healthcare, which leads to better individual health ( $Y$ )
  - Police-citizen encounters managed with fairness (procedural justice,  $X$ ) enhance public perceptions of police legitimacy ( $Y$ )
  - Probability of a demonstration becoming violent ( $X$ ) affects the number of police officers allocated to control it ( $Y$ )



## Alternatives to Cross-Sectional Designs

- It is often impossible to disentangle these issues using cross-sectional data
  - Remember not to over-claim when you present your findings
  - And when presented with causal findings obtained using observational/survey data, be very suspicious

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## Alternatives to Cross-Sectional Designs

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- It is often impossible to disentangle these issues using cross-sectional data
  - Remember not to over-claim when you present your findings
  - And when presented with causal findings obtained using observational/survey data, be very suspicious
- We can try to overcome these issues using more complex designs
  - Longitudinal designs: involve following subjects across time
  - They allow us to shed light on the temporal order of associations
  - They are still affected by confounding factors
  - Experimental designs: involve comparing similar samples before and after...
    - subjects in one group receive an ‘intervention’ (treatment group) but not in the other (control group)
    - Considered the gold standard method to explore causal effects
    - Still affected by other important limitations





# The Logic Behind Experiments

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## Recap

- ① Take a representative sample from the population of interest
- ② Divide your sample in two groups selected at random (aka control and treatment groups)
- ③ Carry out an intervention (aka treatment) in one of the groups; ideally double-blinded
- ④ Compare the difference between the treatment and the control group



# The Logic Behind Experiments

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Recap

- 1 Take a representative sample from the population of interest
- 2 Divide your sample in two groups selected at random (aka control and treatment groups)
- 3 Carry out an intervention (aka treatment) in one of the groups; ideally double-blinded
- 4 Compare the difference between the treatment and the control group

Question: Why do you think groups are selected at random?

Question: Why the need for interventions to be 'double-blinded'?

# Pros and Cons of Experiments

- Advantages
  - The key strength is that randomisation removes confounding effects
  - In addition, since the intervention is controlled we can observe the causal direction and the specific effect of a particular factor
  - As a result, causal conclusions have high internal validity: we can infer causal effects from statistical correlations
  - That's why they are the cornerstone of the scientific method
- Question: What do you think their disadvantages are?

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# Pros and Cons of Experiments

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- Advantages

- The key strength is that randomisation removes confounding effects
- In addition, since the intervention is controlled we can observe the causal direction and the specific effect of a particular factor
- As a result, causal conclusions have high internal validity: we can infer causal effects from statistical correlations
- That's why they are the cornerstone of the scientific method

- Question: What do you think their disadvantages are?

- Findings from experiments can be 'unrepresentative' (low external validity) and/or 'artificial' (ecological validity)
  - Can only be used to test pre-established hypotheses, i.e. purely deductive
  - Cannot illustrate trajectories of change (missing non-linear effects, tipping points, etc.)
  - They are difficult to implement in the Social Sciences
- Question: Why do you think that is the case?



# Types of Experiments

- Controlled experiments & randomised controlled trials
  - Random groups
  - Precise and clearly defined interventions and outcome measures
  - Double-blinded
  - The former take place within a lab
  - The latter under real world conditions

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# Types of Experiments

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Recap

- Controlled experiments & randomised controlled trials
  - Random groups
  - Precise and clearly defined interventions and outcome measures
  - Double-blinded
  - The former take place within a lab
  - The latter under real world conditions
- Field experiments
  - Approximate the standards of controlled experiments
  - But often cannot meet all of them
  - An intervention is designed by the research team
  - Normally the control and treatment group are not identical
- Natural experiment (aka quasi-experiments)
  - For many questions, randomised experiments are not feasible
  - We then have to rely on observational studies
  - Researchers do not control the assignment of conditions to subjects
  - Involve comparisons in time or across areas



## Exercise 3a: Experiments

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Recap

- Identify the types of experiments used in each of the following three articles (abstracts in the next slides)
  - Olken (2007) ‘Monitoring corruption: Evidence from a ##### in Indonesia’. *Journal of Political Economy*, 115, 200-249
  - Pina-Sánchez and Linacre (2014) ‘Enhancing Consistency in Sentencing: Exploring the Effects of Guidelines in England and Wales’. *Journal of Quantitative Criminology*, 30, 731-748
  - Anderson et al. (2003) ‘Exposure to violent media: The effects of songs with violent lyrics on aggressive thoughts and feelings’. *Journal of Personality and Social Psychology*, 84, 960-971



## Abstract 1 (Olken, 2007)

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## Recap

This paper presents a randomized control trial experiment on reducing corruption in over 600 Indonesian village road projects. I find that increasing government audits from 4 percent of projects to 100 percent reduced missing expenditures, as measured by discrepancies between official project costs and an independent engineers' estimate of costs, by eight percentage points. By contrast, increasing grassroots participation in monitoring had little average impact, reducing missing expenditures only in situations with limited free-rider problems and limited elite capture. Overall, the results suggest that traditional top-down monitoring can play an important role in reducing corruption, even in a highly corrupt environment.





## Abstract 2 (Pina-Sánchez & Linacre, 2014)

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### Recap

#### **Abstract**

*Objectives* The development and application of methods to assess consistency in sentencing before and after the 2011 England and Wales assault guideline came into force.

*Methods* We use the Crown Court Sentencing Survey to compare the goodness of fit of two regression analyses of sentence length on a set of legal factors before and after the assault guideline came into force. We then monitor the dispersion of residuals from these regressions models across time. Finally, we compare the variance in sentence length of equivalent types of offences using exact matching.

*Results* We find that legal factors can explain a greater portion of variability in sentencing after the guideline was implemented. Furthermore, we detect that the unexplained variability in sentencing decreases steadily during 2011, while results from exact matching point to a statistically significant average reduction in the variance of sentence length amongst same types of offences.

*Conclusions* We demonstrate the relevance of two new methods that can be used to produce more robust assessments regarding the evolution of consistency in sentencing, even in situations when only observational non-hierarchical data is available. The application of these methods showed an improvement in consistency during 2011 in England and Wales, although this positive effect cannot be conclusively ascribed to the implementation of the new assault guideline.



## Abstract 3 (Anderson et al., 2003)

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### Recap

Five experiments examined effects of songs with violent lyrics on aggressive thoughts and hostile feelings. Experiments 1, 3, 4 and 5 demonstrated that college students who heard a violent song felt more hostile than those who heard a similar but nonviolent song. Experiments 2–5 demonstrated a similar increase in aggressive thoughts. These effects replicated across songs and song types (e.g., rock, humorous, nonhumorous). Experiments 3–5 also demonstrated that trait hostility was positively related to state hostility but did not moderate the song lyric effects. Discussion centers on the potential role of lyric content on aggression in short-term settings, relation to catharsis and other media violence domains, development of aggressive personality, differences between long-term and short-term effects, and possible mitigating factors.



## Exercise 3b: Experiments

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Recap

- Discuss potential experimental designs to explore the following research questions
  - What is the impact of criminal record on employability?
  - What is the effect of Marijuana legalisation on drug crime rates?

## What is Survey Research?

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## Recap

- We have introduced the first data collection methods: survey research
- We have identified the different stages involved in the design and implementation of a survey
- We have examined the differences between good and bad questions
- We have discussed the pros and cons of alternative modes of data collection
- We have examined the limitations of cross-sectional data
- And introduced experimental designs



## Next Workshops

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Recap

- To review what we have covered here read
  - On survey research, Bachman and Schutt (2017) chapter 8 (available on Minerva)
  - Regarding questionnaire design, Matthews and Ross (2010) chapter 3 (available on Minerva)
  - On the topic of causation and experimentation, Bachman and Schutt (2017) chapter 6
- To prepare for the next session on ‘qualitative interviews and focus groups’ read
  - Bryman (2012), chapter 17 (the nature of qualitative research)