

Session II

Examples and Paradigms

Thomas J. Leeper

Government Department
London School of Economics and Political Science

- 1 Translating Hypotheses into Designs
- 2 Assessing Quality
- 3 Common Paradigms and Examples
- 4 More Advanced Designs

1 Translating Hypotheses into Designs

2 Assessing Quality

3 Common Paradigms and Examples

4 More Advanced Designs

From Theory to Design

- From theory, we derive testable hypotheses
 - Hypotheses are expectations about differences in outcomes across levels of a putatively causal variable
- Hypothesis must be testable by an SATE
($H_0 = 0$)
- Manipulations are developed to create variation in that causal variable

Example: News Framing

- Theory: Presentation of news affects opinion
- Hypotheses:
 - News emphasizing free speech increases support for a hate group rally
 - News emphasizing public safety decreases support for a hate group rally
- Manipulation:
 - Control group: no information
 - Free speech group: article emphasizing rights
 - Public safety group: article emphasizing safety

Example: Partisan Identity

- Theory: Strength of partisan identity affects tendency to accept party position
- Hypotheses:
 - Strong partisans are more likely to accept their party's position on an issue
- Manipulation:
 - Control group: no manipulation
 - “Univalent” condition
 - “Ambivalent” condition

UnivalentAmbivalent

These days, Democrats and Republicans differ from one another considerably. The two groups seem to be growing further and further apart, not only in terms of their opinions but also their lifestyles.

Earlier in the survey, you said you tend to identify as a *Democrat/ Republican*. Please take a few minutes to think about what you like about *Democrats/ Republicans* compared to the *Republicans/ Democrats*. Think of 2 to 3 things you especially like best about **your partythe other party**. Then think of 2 to 3 things you especially dislike about **your partythe other party**. Now please write those thoughts in the space below.

Treatments Test Hypotheses!

- Experimental “factors” are expressions of hypotheses as randomized groups
- What stimulus each group receives depends on hypotheses
- Three ways hypotheses lead to stimuli:
 - presence/absence
 - levels/doses
 - qualitative variations

Ex.: Presence/Absence

- Theory: Negative campaigning reduces support for the party described negatively.
- Hypothesis: Exposure to a negative advertisement criticizing a party reduces support for that party.
- Manipulation:
 - Control group receives no advertisement.
 - Treatment group watches a video containing a negative ad describing a party.

Ex.: Levels/doses

- Theory: Negative campaigning reduces support for the party described negatively.
- Hypothesis: Exposure to higher levels of negative advertising criticizing a party reduces support for that party.
- Manipulation:
 - Control group receives no advertisement.
 - Treatment group 1 watches a video containing 1 negative ad describing a party.
 - Treatment group 2 watches a video containing 2 negative ads describing a party.
 - Treatment group 3 watches a video containing 3 negative ads describing a party.
 - etc.

Ex.: Qualitative variation

- Theory: Negative campaigning reduces support for the party described negatively.
- Hypothesis: Exposure to a negative advertisement criticizing a party reduces support for that party, while a positive advertisement has no effect.
- Manipulation:
 - Control group receives no advertisement.
 - Negative treatment group watches a video containing a negative ad describing a party.
 - Positive treatment group watches a video containing a positive ad describing a party.

Questions?

- 1 Translating Hypotheses into Designs
- 2 Assessing Quality**
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Activity!

- How do we know if an experiment is any good?
- Talk with a partner for about 3 minutes
- Try to develop some criteria that allow you to evaluate “what makes for a good experiment?”

Some possible criteria

- Significant results
- Face validity
- Coherent for respondents
- Non-obvious to respondents
- Simple
- Indirect/unobtrusive
- Validated by prior work
- Innovative/creative
- ...

The best criterion for evaluating the quality of an experiment is whether it manipulated the intended independent variable and controlled everything else by design.

–Thomas J. Leeper (5 February 2018)

How do we know we manipulated what we think we manipulated?

- Outcomes are affected consistent with theory
- Before the study using *pilot testing* (or *pretesting*)
- During the study, using *manipulation checks*
- During the study, using *placebos*
- During the study, using *non-equivalent outcomes*

I. Outcomes Affected

- Follows a circular logic!
- Doesn't tell us anything if we hypothesize null effects

II. Pilot Testing

- Goal: establish construct validity of manipulation
- Assess whether a set of possible manipulations affect a measure of the *independent* variable
- Example:
 - Goal: Manipulate the “strength” of an argument
 - Write several arguments
 - Ask pilot test respondents to report how strong each one was

III. Manipulation Checks

- Manipulation checks are items added post-treatment, post-outcome that assess whether the *independent* variable was affected by treatment
- We typically talk about manipulations as directly setting the value of X , but in practice we are typically manipulating something *that we think* strongly modifies X
- Example: information manipulations aim to modify knowledge or beliefs, but are necessarily imperfect at doing so

Manipulation check example¹

- 1 Treatment 1: Supply Information
- 2 Manipulation check 1: measure beliefs
- 3 Treatment 2: Prime a set of considerations
- 4 Outcome: Measure opinion
- 5 Manipulation check 2: measure dimension salience

¹Leeper & Slothuus. n.d. "Can Citizens Be Framed?" Available from: <http://thomasleeper.com/research.html>.

Some Best Practices

- Manipulation checks should be innocuous
 - Shouldn't modify independent variable
 - Shouldn't modify outcome variable
- Generally, measure post-outcome
- Measure both what you wanted to manipulate *and* what you didn't want to manipulate
 - Most treatments are *compound!*

IV. Placebos

- Include an experimental condition that *does not* manipulate the variable of interest (but might affect the outcome)
- Example:
 - Study whether risk-related arguments about climate change increase support for a climate change policy
 - Placebo condition: control article with risk-related arguments about non-environmental issue (e.g., terrorism)

V. Non-equivalent outcomes

- Measures an outcome that *should not* be affected by independent variable
- Example:
 - Assess effect of some treatment on attitudes toward group A
 - Focal outcome: attitudes toward group A
 - Non-equivalent outcome: attitudes toward group B

Aside: Demand Characteristics

- “Demand characteristics” are features of experiments that (unintentionally) imply the purpose of the study and thereby change respondents’ behavior (to be consistent with theory)
- Implications:
 - Design experimental treatments that are non-obvious
 - Do not disclose the purpose of the study up front²

²But, consider the ethics of not doing so (more Friday)

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Question Wording Designs

- Simplest paradigm for presence/absence or qualitative variation
- Manipulation operationalizes this by asking two different questions
- Outcome is the answer to the question
- Example: Schuldt et al. “‘Global Warming’ or ‘Climate Change’? Whether the Planet is Warming Depends on Question Wording.”

You may have heard about the idea that the world's temperature may have been **going upchanging** over the past 100 years, a phenomenon sometimes called **global warmingclimate change**. What is your personal opinion regarding whether or not this has been happening?

- Definitely has not been happening
- Probably has not been happening
- Unsure, but leaning toward it has not been happening
- Not sure either way
- Unsure, but leaning toward it has been happening
- Probably has been happening
- Definitely has been happening

Another framing example³

Today, tests are being developed that make it possible to detect serious genetic defects **before a baby is born in the fetus during pregnancy**. But so far, it is impossible either to treat or to correct most of them. If (you/your partner) were pregnant, would you want (her) to have a test to find out if the **babyfetus** has any serious genetic defects? (Yes/No)

Suppose a test shows the **babyfetus** has a serious genetic defect. Would you, yourself, want (your partner) to have an abortion if a test shows the **babyfetus** has a serious genetic defect? (Yes/No)

³Singer & Couper. 2014. "The Effect of Question Wording on Attitudes toward Prenatal Testing and Abortion." *Public Opinion Quarterly* 78(3): 751–760.

Another framing example⁴

Blacks are about 12% of the U.S. population, but they were half of the homicide offenders last year. Do you favor or oppose the death penalty for persons convicted of murder?

⁴Bobo & Johnson. 2004. "A Taste for Punishment: Black and White Americans' Views on the Death Penalty and the War on Drugs." *Du Bois Review* 1(1): 151-180.

Another framing example⁵

Concealed handgun laws have recently received national attention. Some people have argued that law-abiding citizens have the right to protect themselves. Concealed handgun laws have recently received national attention. Some people have argued that laws allowing citizens to carry concealed handguns threaten public safety because they would allow almost anyone to carry a gun almost anywhere, even onto school grounds. What do you think about concealed handgun laws?

⁵Haider-Markel & Joslyn. 2001. "Gun Policy, Opinion, Tragedy, and Blame Attribution: The Conditional Influence of Issue Frames." *Journal of Politics* 63(2): 520–543.

Question Order Designs

- Manipulation of pre-outcome questionnaire
- Example:
 - Goal: assess influence of value salience on support for a policy
 - Manipulate by asking different questions:
 - Battery of 5 “rights” questions, or
 - Battery of 5 “life” questions
 - Measure support for legalized abortion
- If answers to manipulated questions matter, can measure rest post-outcome

Ex. Question-as-treatment⁶

- How close do you feel to your ethnic or racial group? How close do you feel to other Americans?
- Some people have said that taxes need to be raised to take care of pressing national needs. How willing would you be to have your taxes raised to improve education in public schools? Some people have said that taxes need to be raised to take care of pressing national needs. How willing would you be to have your taxes raised to improve educational opportunities for minorities?

⁶Transue. 2007. "Identity Salience, Identity Acceptance, and Racial Policy Attitudes: American National

Ex.: Knowledge and Political Interest

- 1 Do you happen to remember anything special that your U.S. Representative has done for your district or for the people in your district while he has been in Congress?
- 2 Is there any legislative bill that has come up in the House of Representatives, on which you remember how your congressman has voted in the last couple of years?
- 3 Now, some people seem to follow what's going on in government and public affairs most of the time, whether there's an election going on or not. Others aren't that interested. Would you say that you follow what's going on in government and public affairs most of the time, some of the time, only now and then, or hardly at all?

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- 3 Is there any legislative bill that has come up in the House of Representatives, on which you remember how your congressman has voted in the last couple of years?

An Instructional Manipulation⁷

For the next few questions, I am going to read out some statements, and for each one, please tell me if it is true or false. If you don't know, just say so and we will skip to the next one please just give me your best guess.

- 1 Britain's electoral system is based on proportional representation.
- 2 MPs from different parties are on parliamentary committees.
- 3 The Conservatives are opposed to the ratification of a constitution for the European Union.

⁷Sturgis, Allum & Smith. 2008. "An Experiment on the Measurement of Political Knowledge in Surveys." *Public Opinion Quarterly* 72(1): 90–102.

An Instructional Manipulation + ⁸

In the next part of this study, you will be asked 14 questions about politics, public policy, and economics. Many people don't know the answers to these questions, but it is helpful for us if you answer, even if you're not sure what the correct answer is. We encourage you to take a guess on every question. At the end of this study, you will see a summary of how many questions you answered correctly. We will pay you for answering questions correctly. You will earn \$1 for every correct answer you give. So, if you answer 3 of the 14 questions correctly, you will earn \$3. If you answer 7 of the 14 questions correctly, you will earn \$7. The more questions you answer correctly, the more you will earn.

⁸Prior & Lupia. 2008. "Money, Time, and Political Knowledge: Distinguishing Quick Recall and Political Learning Skills." *American journal of Political Science* 52(1): 169–183.

Vignettes

- A “vignette” is a short text describing a situation
- Vignettes are probably the most common survey experimental paradigm, after question wording designs
- Take many forms and increasingly encompass non-textual stimuli
- Basically limited to web-based mode

A classic vignette⁹

Now think about a **(black/white)** woman in her early thirties. She is a high school **(graduate/drop out)** with a ten-year-old child, and she has been on welfare for the past year.

- How likely is it that she will have more children in order to get a bigger welfare check? (1 = Very likely, . . . , 7 = Not at all likely)
- How likely do you think it is that she will really try hard to find a job in the next year? (1 = Very likely, . . . , 7 = Not at all likely)

⁹Gilens, M. 1996. "'Race coding' and white opposition to welfare. *American Political Science Review* 90(3): 593-604.

Newer vignette¹⁰

Imagine that you were living in a village in another district in Uttar Pradesh and that you were voting for candidates in **(village/state/national)** election. Here are the two candidates who are running against each other: The first candidate is named **(caste name)** and is running as the **(BJP/SP/BSP)** party candidate. **(Corrupt/criminality allegation)**. His opponent is named **(caste name)** and is running as the **(BJP/SP/BSP)** party candidate. **(Opposite corrupt/criminality allegation)**. From this information, please indicate which candidate you would vote for in the **(village/state/national)** election.

¹⁰Banerjee et al. 2012. "Are Poor Voters Indifferent to Whether Elected Leaders are Criminal or Corrupt? A Vignette Experiment in Rural India." Working paper.

Longer vignette example¹¹

Fears of Future Terror Attacks Warranted

By Andrew Tardaca

Published: January 17, 2009

U.S. citizens are bracing for another 9/11 type terrorist attack, according to a variety of reports. A recent Gallup poll finds that 87% of the American public is highly concerned about the possibility of a terrorist attack at home. According to new information from several international sources, these fears are well supported.

A raid on a London terrorist hideout on November 9, 2008 resulted in the capture of computer files that identified numerous U.S. financial districts, cultural centers, and transportation systems on a list of future Al Qaeda targets. According to a recent overseas intelligence report, "al Qaeda already has several cells operating in the U.S. that may be on the verge of mounting a large-scale terrorist attack."

On September 11, 2001, Al Qaeda's attacks killed nearly 3,000 men, women, and children, and injured over 6,000 more. Since September 11th, Al Qaeda and groups affiliated with Al Qaeda have waged attacks in countries such as Egypt, Indonesia, Kenya, Morocco, Saudi Arabia, Spain, Turkey, the United Kingdom, and most recently India. U.S. security officials are warning that current terrorist plots include plans for attacks on U.S. soil at least twice the magnitude of 9/11. An anonymous source reported that recent intelligence documents contain "sobering information" concerning the magnitude of future terrorist attacks.

Warnings issued by extremist groups such as Al Qaeda to "attack U.S. interests and allies on its soil" are even more alarming given the state of preparedness for future incidents. Experts have issued warnings about

Economic Recession Projected to Deepen

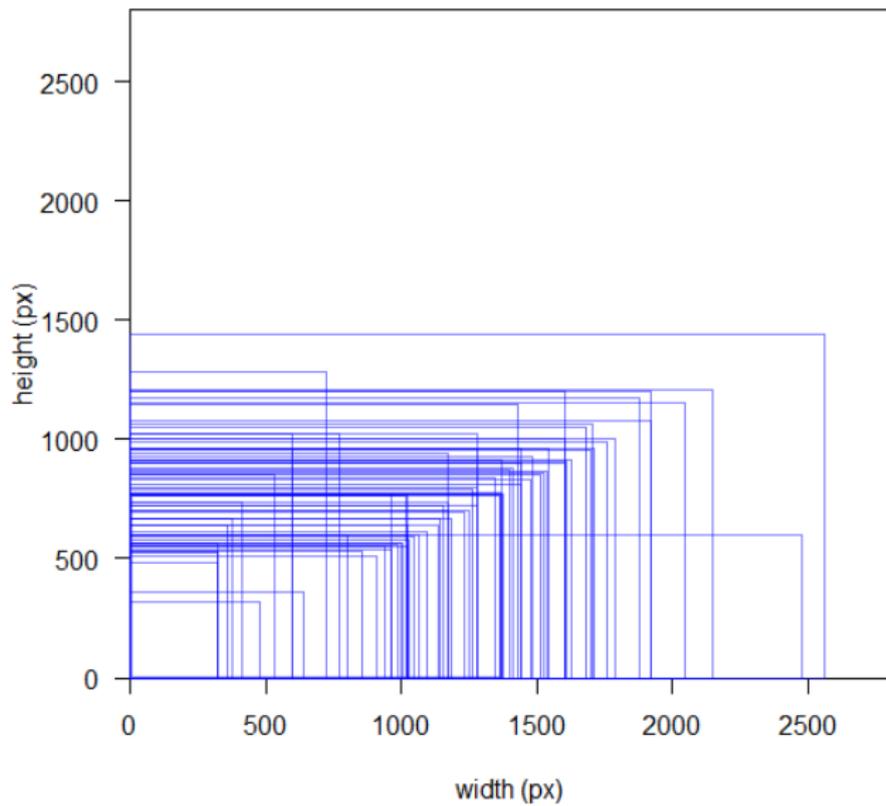
By Andrew Tardaca

Published: January 17, 2009

U.S. citizens are bracing for a drastic deepening of the current economic recession. A recent Gallup poll finds that 87% of the American public is highly concerned about economic conditions in the country. The report further states "The economic mood is grimmer than it has been since 1992."

Some vignette considerations

- Comparability across conditions
 - Length
 - Readability
- Language proficiency
- Length
 - Timers
 - Forced exposure
 - Mouse trackers
- Devices
 - Browser-specificity
 - Device sizes (e.g., mobile)



Non-textual Manipulations

- Images can work well
- Standalone or embedded in a text or question
- Examples
 - Kalmoe & Gross¹² measure impact of patriotic cues on candidate support by showing images of candidates with and without flags
 - Subliminal primes possible, depending on software
 - Lots of recent examples of facial manipulation

¹²“Cueing Patriotism, Prejudice, and Partisanship in the Age of Obama: Experimental Tests of U.S. Flag Imagery Effects in Presidential Elections.” *Political Psychology*: in press.

Example¹³



Light Complexion



Original



Dark Complexion

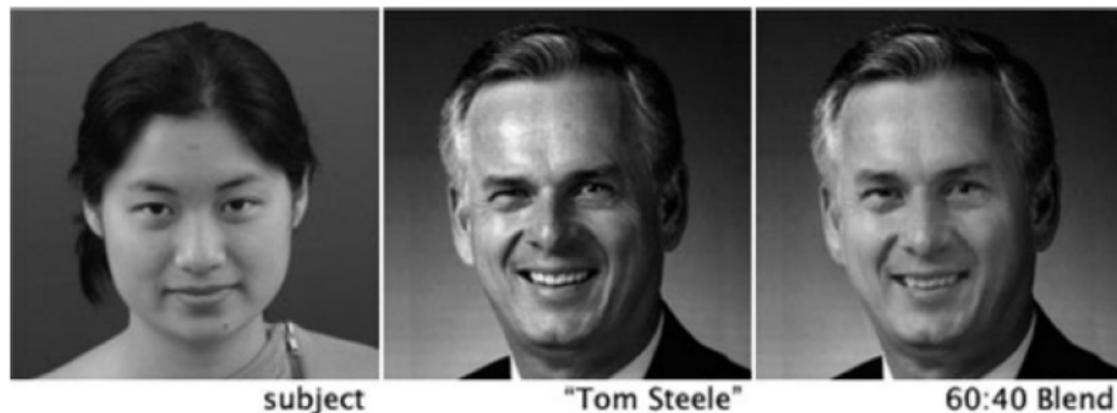
¹³Iyengar et al. 2010. "Do Explicit Racial Cues Influence Candidate Preference? The Case of Skin Complexion in the 2008 Campaign." Working paper.

Example¹⁴



¹⁴Laustsen & Petersen. 2016. "Winning Faces vary by Ideology." *Political Communication* 33(2): 188–211.

Example¹⁵



¹⁵Bailenson et al. 2006. "Transformed Facial Similarity as a Political Cue: A Preliminary Investigation." *Political Psychology* 27(3): 373–385.

Audio & Video manipulations

- Problematic for same reasons as long texts
- Best practices
 - Keep it short
 - Have the video play automatically
 - Disallow survey progression
 - Control and validate
- Examples
 - Television Advertisements¹⁶
 - News Programs¹⁷

¹⁶Vavreck. 2007 "The Exaggerated Effects of Advertising on Turnout: The Dangers of Self-Reports." *Quarterly Journal of Political Science* 2: 325–343.

¹⁷Mutz. 2007. "Effects of 'In-Your-Face' Television Discourse on Perceptions of a Legitimate Opposition." *American Political Science Review* 101(4): 621–635.

“Task” Designs

- Task designs ask respondents to perform a task
- Often developed for laboratory settings
- Most common example: writing something
- Can be problematic:
 - Time-intensive
 - Invites drop-off
 - Compliance problems

UnivalentAmbivalent

These days, Democrats and Republicans differ from one another considerably. The two groups seem to be growing further and further apart, not only in terms of their opinions but also their lifestyles.

Earlier in the survey, you said you tend to identify as a *Democrat/ Republican*. Please take a few minutes to think about what you like about *Democrats/ Republicans* compared to the *Republicans/ Democrats*. Think of 2 to 3 things you especially like best about **your partythe other party**. Then think of 2 to 3 things you especially dislike about **your partythe other party**. Now please write those thoughts in the space below.

Questions?

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Beyond Simple Designs

- 1 Factorial designs
- 2 Sensitive question designs
- 3 Conjoint designs
- 4 Multi-component designs
 - Over-time measurement/randomization
 - Field-survey combinations

Sensitive Item Designs

- Randomization can be used to measure something
- List experiments
 - Randomly present lists of items of varying length
 - Difference in count of items supported is prevalence of sensitive attitude/behavior
- Randomized response
 - Present a sensitive question
 - Use a randomization device to dictate whether the respondent answers the sensitive question or something else

List Experiments¹⁸

Now I'm going to read you three things that sometimes make people angry or upset. After I read all three, just tell me *how many* of them upset you. I don't want to know which ones. just *how many*.

- 1 the federal government increasing the tax on gasoline
- 2 professional athletes getting million-dollar salaries
- 3 large corporations polluting the environment
- 4 **a black family moving in next door**

¹⁸Kuklinski et al. 1997. "Racial Prejudice and Attitudes Toward Affirmative Action." *American Journal of Political Science* 41(2): 402–419.

Randomized Response¹⁹

■ Example:

Here is a bag; in it there are stones from the game 'Go,' some colored black and others white. Please take one stone out, and see by yourself what color it is, black or white. Don't let me know whether it is black or white, but be sure you know which it is. If you take a black one, answer the question: "Have you ever had an induced abortion?"

If you take a white one, answer the question: "Were you born in the lunar year of the horse?"

■ Considerations:

- Can use any randomization device
- Can be cognitively complex

¹⁹Blair, Imai, and Zhou. 2015. "Design and Analysis of the Randomized Response Technique." *JASA* 110(511): 1304–19.

Conjoint Analysis

- Surveys measure *stated* preferences
- Conjoint analysis involves measuring *revealed* preferences based upon a series of forced-choice decisions
 - Present respondents with pairs of “profiles” containing many *features*
 - Force respondents to choose which of the two they prefer
- Estimate *relative* importance of features of each profile
- Randomization of profile features gives differences in preferences across attributes a causal meaning

Advantages/Disadvantages

■ Advantages

- Reduces “cheap talk” results
- Lower social desirability biases
- Mimics real-world decisions
- Revealed preferences are causally interpretable

■ Disadvantages

- More cognitively complex for respondents than traditional polling
- No straightforward “% support” statistics

Structure of Conjoint

- Three examples:
 - 1 Policy preference on Brexit negotiations
 - 2 Choice of BBC Director General
 - 3 Choice of a lodger

- All are binary, forced-choice designs

- Analysis is all focused on AMCEs or subgroup AMCEs
 - Estimated using OLS dummy variable regression

Conjoint 1: Brexit Negotiations

YouGov

We are interested in your opinions about the negotiations between Britain and the European Union regarding Britain's exit from the EU and future relationship with the EU.

Please look carefully at these two possible outcomes:

	Outcome A	Outcome B
Britain's one-off payment to the EU to settle outstanding commitments	No payment	£10 billion
When this will come into effect	2025	2023
Border checks between Northern Ireland and the Republic of Ireland	No passport checks and no customs checks	Full passport and customs checks
EU's legal authority in Britain	Britain adopts some EU laws but is not subject to decisions by the European Court of Justice	Britain is subject to all EU laws and all decisions by the European Court of Justice
Britain's future payments to the EU budget to access science and regional development programmes	£1 billion per year for access	£1 billion per year for access
Trade agreement with the EU	Many administrative barriers to trade in goods and services and 5% average tariff on goods	Few administrative barriers to trade in goods and services and 2.5% average tariff on goods
Policy on immigration from the EU	Full control over EU immigration and little to no EU immigration	Some control over EU immigration and lower levels of EU immigration than now
Future rights of current EU nationals in Britain and British nationals in the EU	All can stay indefinitely	Must apply for 'leave to remain' under the same terms as people from non-EU countries

Which of these two outcomes do you prefer?

- Outcome A
 Outcome B

Conjoint 2: BBC Director

Imagine that you are deciding who to appoint as the next Director General of the BBC. You have received the following information about two applicants and need to make a decision between them.

- Tom
- 68 years old
- Has worked 21 years for the BBC
- Has a degree from the University of Oxford
- Didn't vote at the 2017 election
- Voted Remain in the EU referendum
- Former lawyer
- Claire
- 35 years old
- Has never worked for the BBC
- Has a PhD from the University of Exeter
- Voted Conservative at the 2017 election
- Didn't vote in the EU referendum
- Former television producer

Which of the two applicants would you prefer as the next Director General of the BBC?

Conjoint 3: Lodger

Imagine that you have a spare room that you want to rent out to a lodger. You have received the following information about two possible lodgers and need to make a decision between them.

- James
 - 19 years old
 - Full-time student
 - Helps out at the local Anglican church
 - Didn't vote at the 2017 election
 - Voted Remain in the EU referendum
 - Likes watching rugby
- Becky
 - 35 years old
 - Works for a private company
 - Volunteers at an Oxfam shop
 - Voted Conservative at the 2017 election
 - Didn't vote in the EU referendum
 - Likes playing videogames

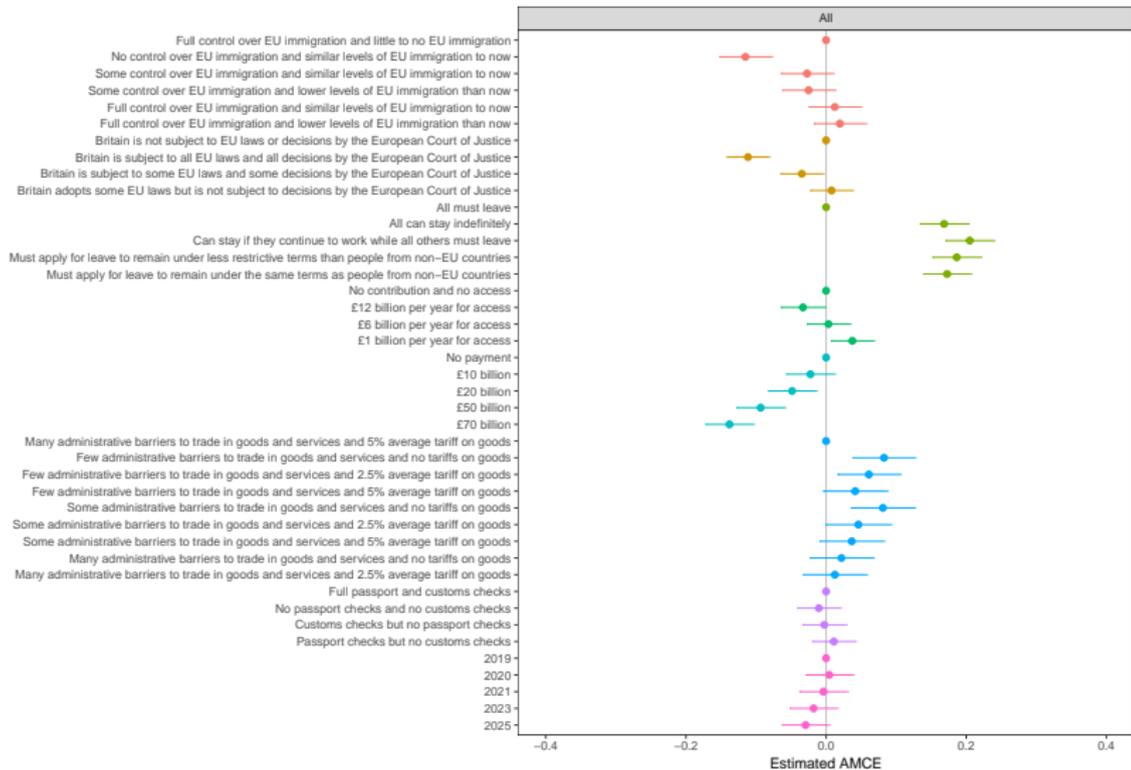
Which of the two lodgers would you prefer?

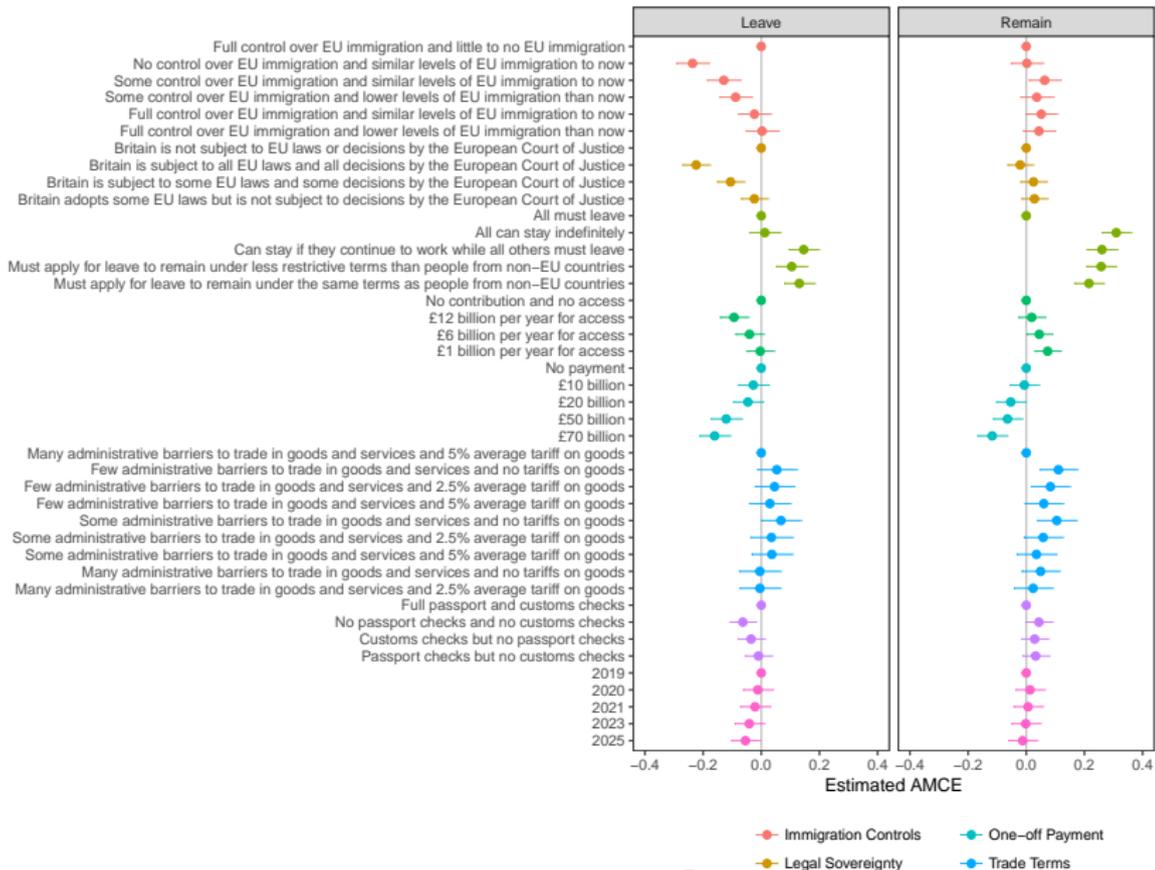
AMCEs

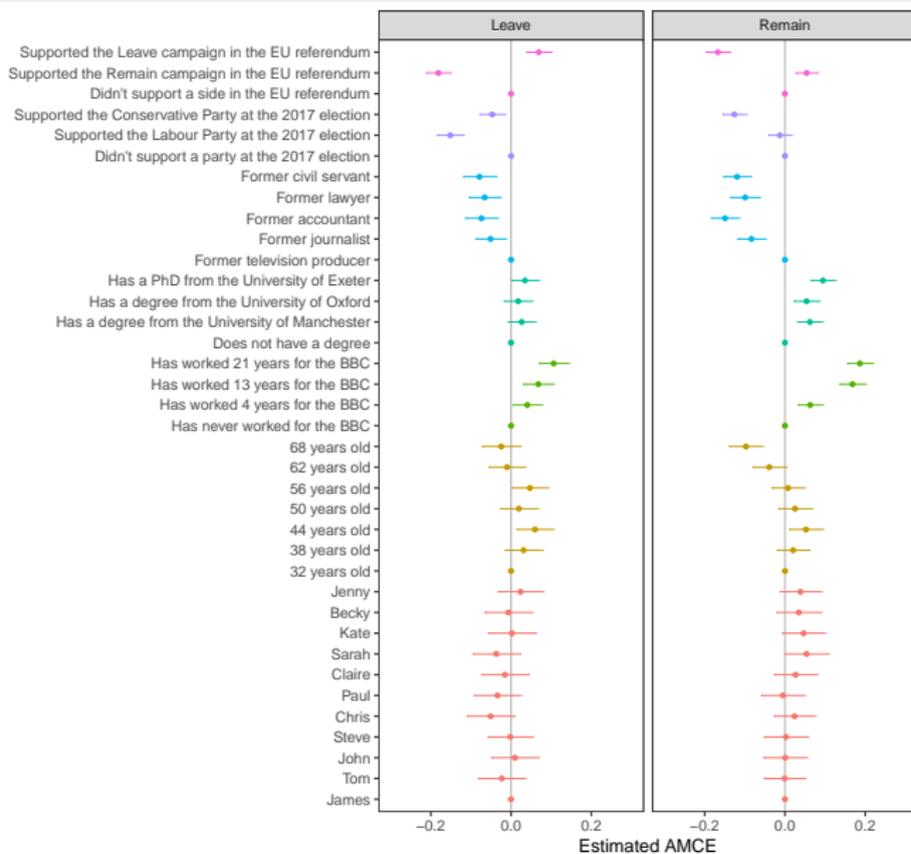
Statistic of interest is the *average marginal component effect* (AMCE), which is the causal effect of each level of each feature on support for an overall profile.

We can estimate this using (dummy variable) OLS, assuming:

- Full randomization of attributes and randomized pairing of profiles
- Even presentation of levels w/in features
- No profile ordering effects

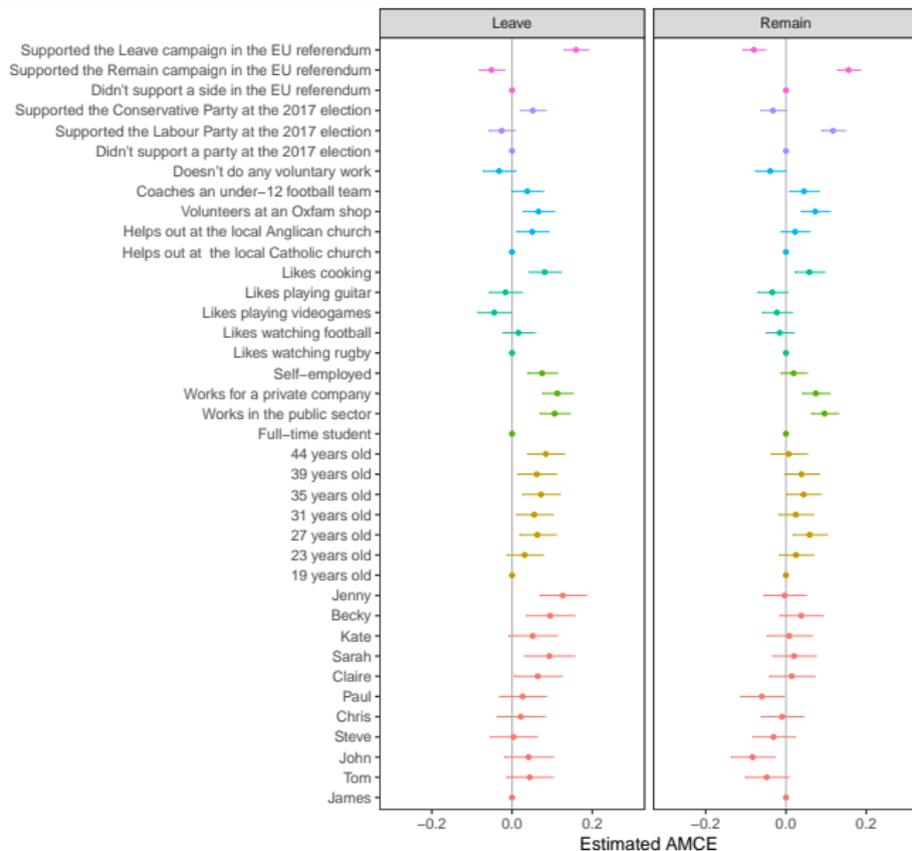






Feature

- name
- experience
- occupation
- eu
- age
- degree
- party



Feature

- name
- occupation
- volunteer
- eu
- age
- hobby
- party

Implementing a Conjoint

- Hope someone else can do it for you!
 - Requires programming
 - Not possible to manually create all possible combinations
- Strezhnev et al.'s tool:
`https://scholar.harvard.edu/astrezhnev/conjoint-survey-design-tool`
- Qualtrics using Javascript:
`https://github.com/leeper/conjoint-example`

Questions?

Homework!

- Get a sense of what can be studied survey-experimentally

- Look at three studies from TESS

`http://tessexperiments.org/data/whillans626.html`

`http://tessexperiments.org/data/malhotra634.html`

`http://tessexperiments.org/data/nair644.html`

- We will share them tomorrow

