Government 10: Quantitative Political Analysis

Sean Westwood

Observational Causal Designs: The Limits of Randomization

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  - **How do economic crises affect support for incumbents?**

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- An examaple where we cannot randomize!

1854 cholera outbreak in London

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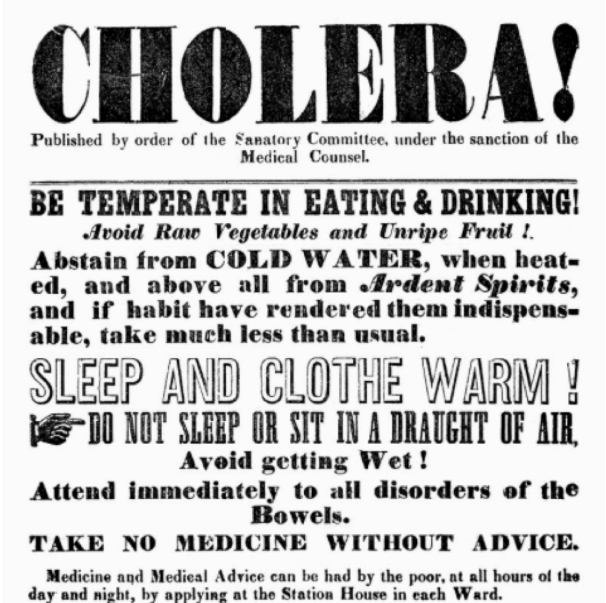


CHOLERA!

Published by order of the Sanatory Committee, under the sanction of the Medical Counsel.

BE TEMPERATE IN EATING & DRINKING!

Avoid Raw Vegetables and Unripe Fruit !.

Abstain from COLD WATER, when heated, and above all from *Ardent Spirits*, and if habit have rendered them indispensable, take much less than usual.

SLEEP AND CLOTHE WARM !

DO NOT SLEEP OR SIT IN A DRAUGHT OF AIR.

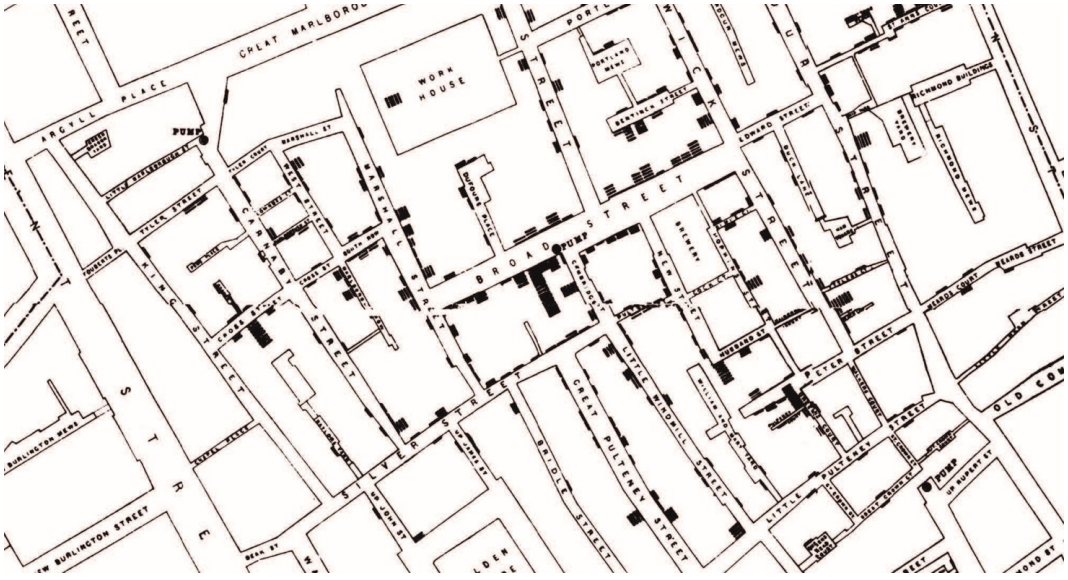
Avoid getting Wet !

Attend immediately to all disorders of the Bowels.

TAKE NO MEDICINE WITHOUT ADVICE.

Medicine and Medical Advice can be had by the poor, at all hours of the day and night, by applying at the Station House in each Ward.

John Snow: Observational Study




GREAT MARLBOROUGH STREET
PUMP
WORK HOUSE
PUMP
PUMP
PUMP
PUMP
GOLDEN SQUARE

A Good Observational Study

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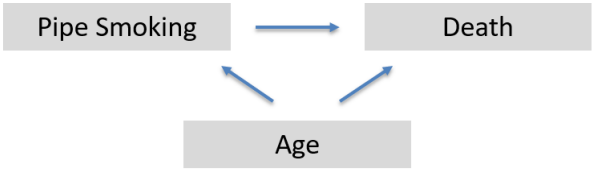


Iowa

Subclassification

- One way to limit the influence of confounders is to narrow the study to *focus on similar participants*

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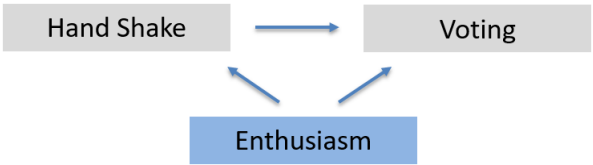

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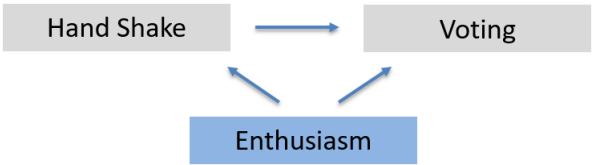

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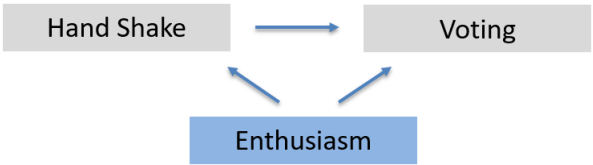

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$$Avg_{Enthusiastic\ Handshake} = Avg_{Enthusiastic\ No\ Handshake}$$

Longitudinal Studies

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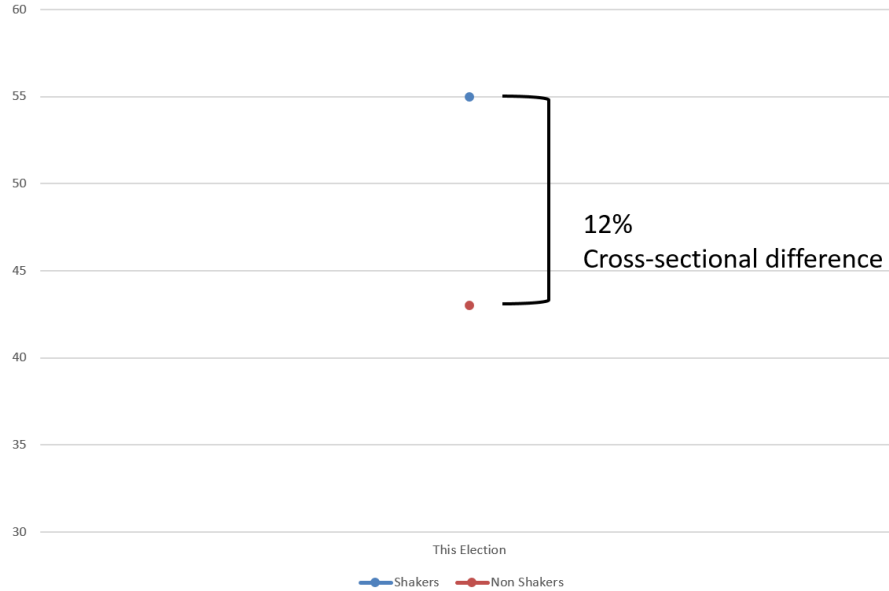
$$\text{Effect of Hand Shake} = Turnout_{After} - Turnout_{Before}$$


60
55
50
45
40
35
30
12%
Cross-sectional difference
This Election
Shakers
Non Shakers

We want to observe behavior before the handshake

Hand Shakers: 45% → 55% Voted

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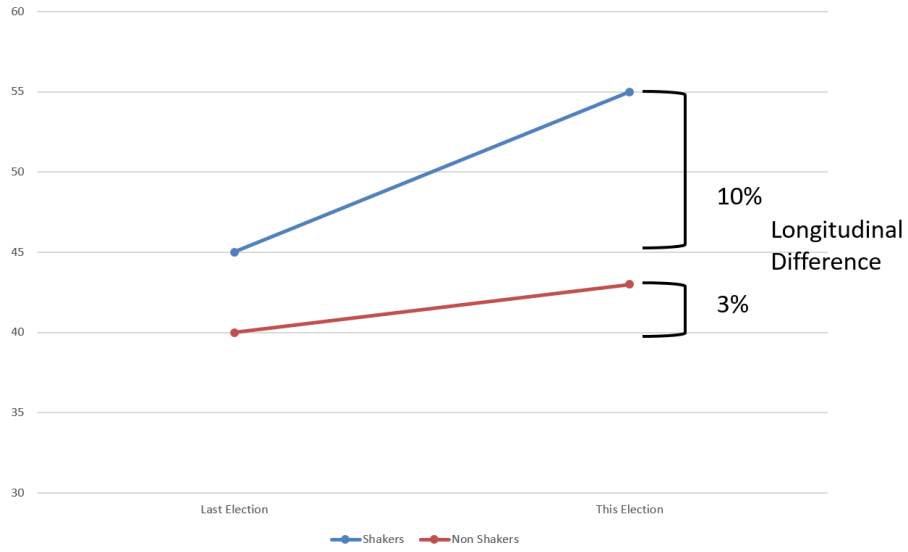
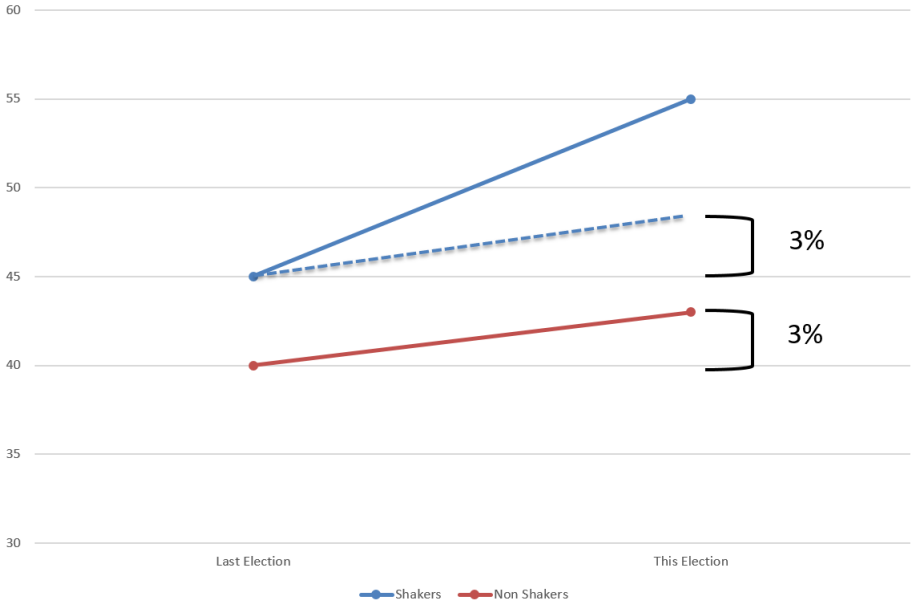
Pre-Treatment Post-Treatment


60
55
50
45
40
35
30
Last Election
This Election
Shakers
Non Shakers
10%
Longitudinal
Difference
3%

What is the effect of a handshake?

	Increase	**Voted**
Hand shakers:	10% Increase	55%
Non shakers:	3% Increase (Control)	43%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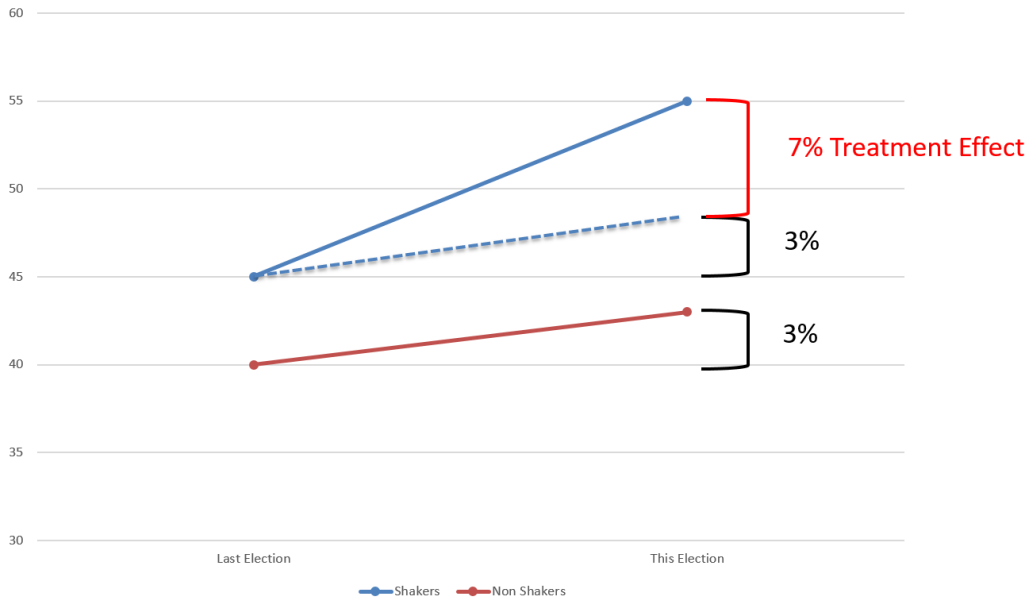
60
55
50
45
40
35
30
7% Treatment Effect
3%
3%
Last Election
This Election
Shakers
Non Shakers

Difference-in-Differences Estimator

Average Treatment Effect:

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Average Treatment Effect:

Avg($Y_{Treatment\,Group}$) - Avg($Y_{Control\,Group}$)

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10% - 3%

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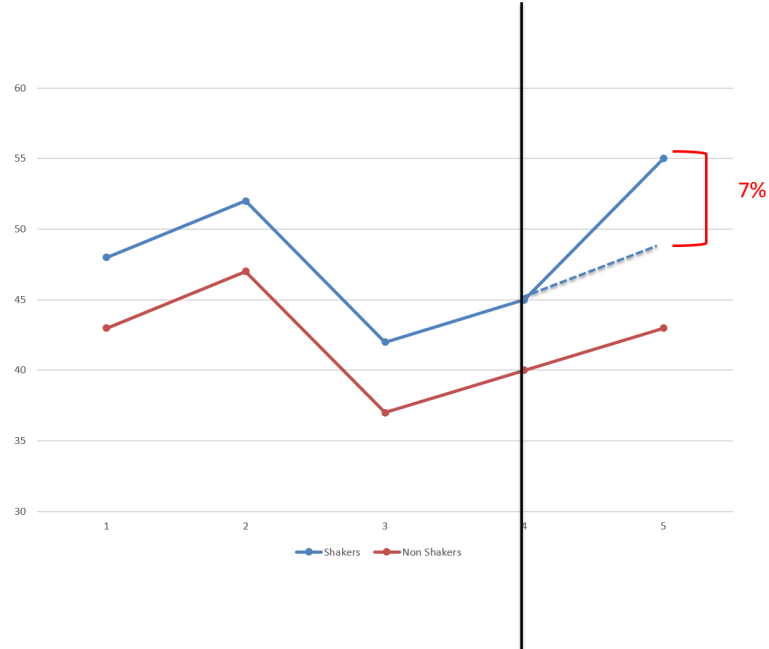
  - However, we should observe parallel trends over time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