Notes for long version

1. Translate the wording for everyone (mechanism, quasi-random), and be clearer about suggestive. Use words like necessary but not sufficient.
2. Needs a clearer introduction, which accurately overviews and previews the approach findings
3. Novelty needs to be loud, so put it first, Write ATE = ADE + AIE for Levon, and enumerates folks theorems for why CM did not take off in econ but did in medicine epi psych)
4. Evan Riehl recommends a slide with quotes from top 5s that investigates mechanisms (note the approach is necessary but not sufficient for mechanism analysis)
5. Mention Kwon Roth result on my data, reject null then move on....
6. Longer presentation needs clear reasoning on the IV.

Notes for long version: empirical IV

1. Longer explanation of the IV in Oregon for applied audience
2. Options for the included IV, mainly to consider as illustrative (and do not want people to expect a super clean IV, but then get an illustrative one).
3. Talk through the quasi-experimental concerns (why is D_i endogenous?)
4. Show the IV set-up (clean pre-Z_i first-stage, but exclusion restriction maybe lacking). Can it be made binary to simplify the interpretation (and linearise the estimation?).
5. Develop at least one slide that talks through the controlling for *already diagnosed* illnesses
6. See what the CM estimates look like without controlling for them already.

Causal Mediation in Natural Experiments

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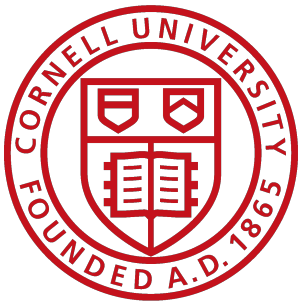


Cornell, Labor Economics Seminar
17 November 2025

Presentation Plan

Introduction

First ten minutes: introduction, road-map, and preview of findings.

- Mechanism are important (show top 5 quotes), and we do not know much about them and given (at best) suggestive evidence.
- CM is a framework from elsewhere which gives sufficient evidence, though has not taken off in economics
- I give explicit reasoning for why conventional CM methods are unlikely to work in applied econ settings, then develop a structural approach to get back to what you want.
- Apply these methods to Oregon, showing how these methods work in practice (suggestive, conventional CM, then my MTE approach).

For this part, no model and no maths notation, just vibes.

1. Oregon

Second ten-minutes, the model and suggestive evidence in the OHIE.

- Introduce the OHIE, and say why the mechanisms are important and unknown

Causal Mediation in Natural Experiments

Natural experiments gives credible estimates of causal effects

- Little information on the mechanisms through which they operate
- Limits understanding of the decisions and underlying economic system
-

School meals $\rightarrow$ adult income, because increased education (Lundborg Rooth Alex-Petersen 2022).

Senan note: unsure how to start the presentation with 5 minutes that grab attention. Just start section 1, introducing the data succinctly.

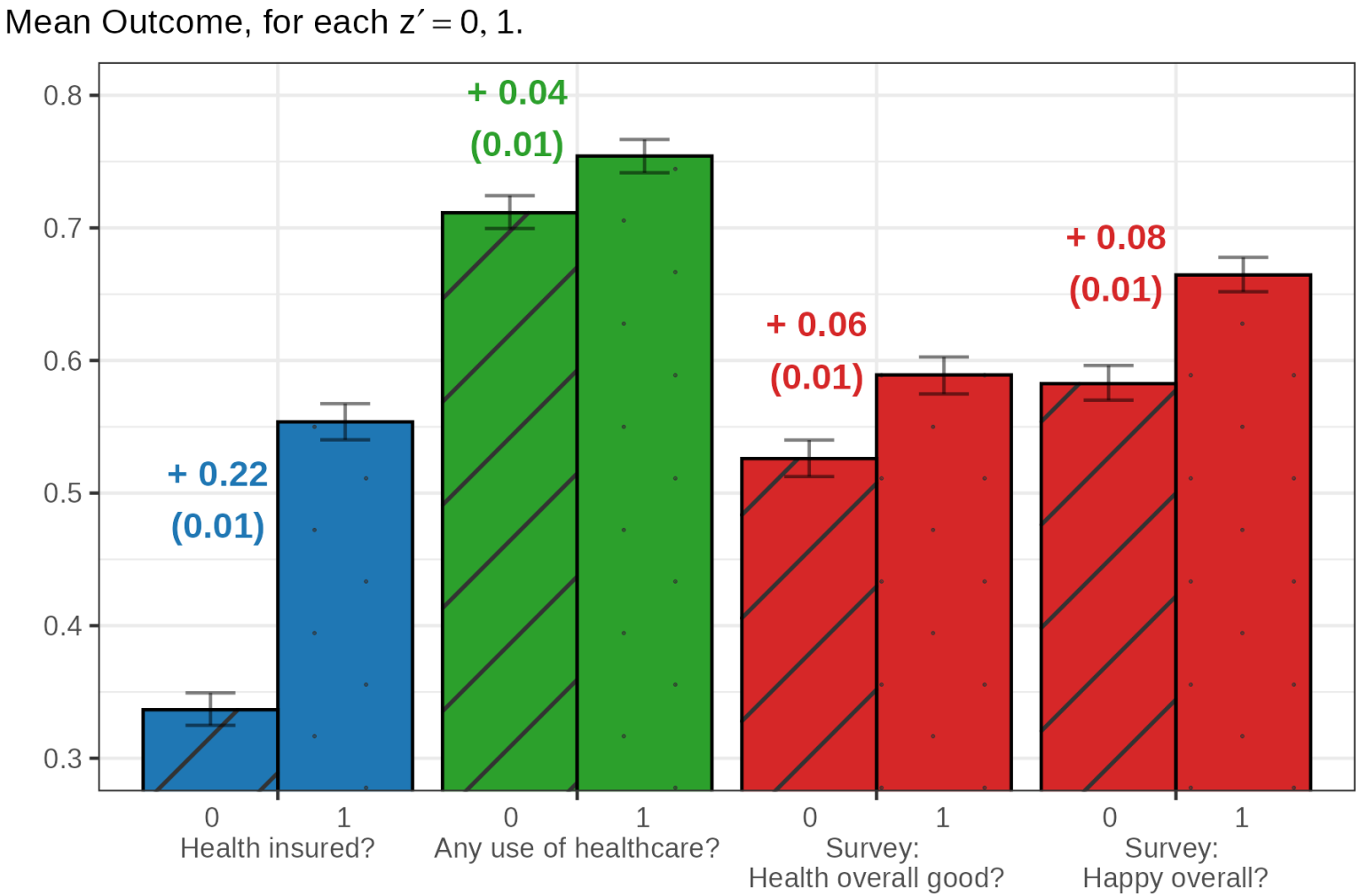
Oregon Health Insurance Experiment

In the USA, healthcare is not provided directly by the government.

Further introduce this setting.

Oregon Health Insurance Experiment

In 2008, Oregon gave access to socialised health insurance by wait-list lottery (Finkelstein et al, 2012).



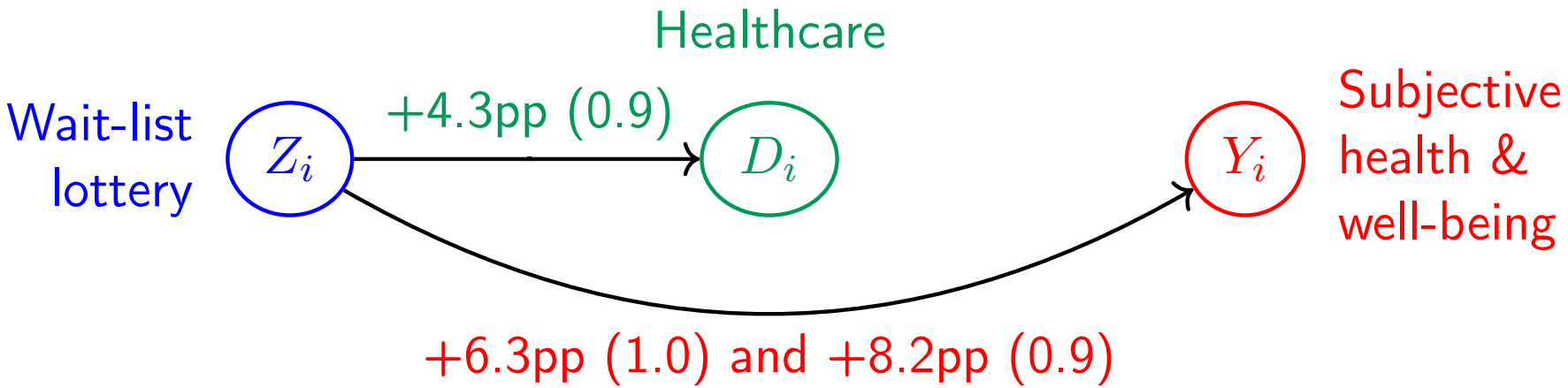
Oregon Health Insurance Experiment

Frame describing why direct and indirect effects, maybe how a suggestive analysis works. (can do with dots and arrows, and labelled effects)

Oregon: Suggestive Evidence

Two average causal effects are identified:

1. Average first-stage $\mathbb{E}[D_i \mid Z_i = 1] - \mathbb{E}[D_i \mid Z_i = 0]$.
2. Average Treatment Effect (ATE) $\mathbb{E}[Y_i \mid Z_i = 1] - \mathbb{E}[Y_i \mid Z_i = 0]$.



- If the first-stage $\neq 0$, then healthcare may be a mediating mechanism
- This gives **suggestive evidence for a mechanism**.

Oregon: Suggestive Evidence

Suggestive evidence is primarily how economists investigate mechanisms.

Abstract — Lundborg Rooth Alex-Petersen (2022, ReStud).

"... Exposure to the [free school meals] programme also had substantial effects on educational attainment and health, which can explain a large part of the effect of the programme on lifetime income."

Abstract — Bloom Mahajan McKenzie Roberts (2013, QJE).

"... We find that adopting these management practices had three main effects. First, it raised average productivity by 11% through improved quality and efficiency and reduced inventory [...]."

Abstract — Carvhalo (2025, JPE Micro).

"... Evidence suggests fluid intelligence and self-control partly mediate the relationship between the [education polygenic index] and education."

Oregon: Suggestive Evidence

Two average causal effects are identified:

1. Average first-stage $\mathbb{E}[D_i \mid Z_i = 1] - \mathbb{E}[D_i \mid Z_i = 0]$.
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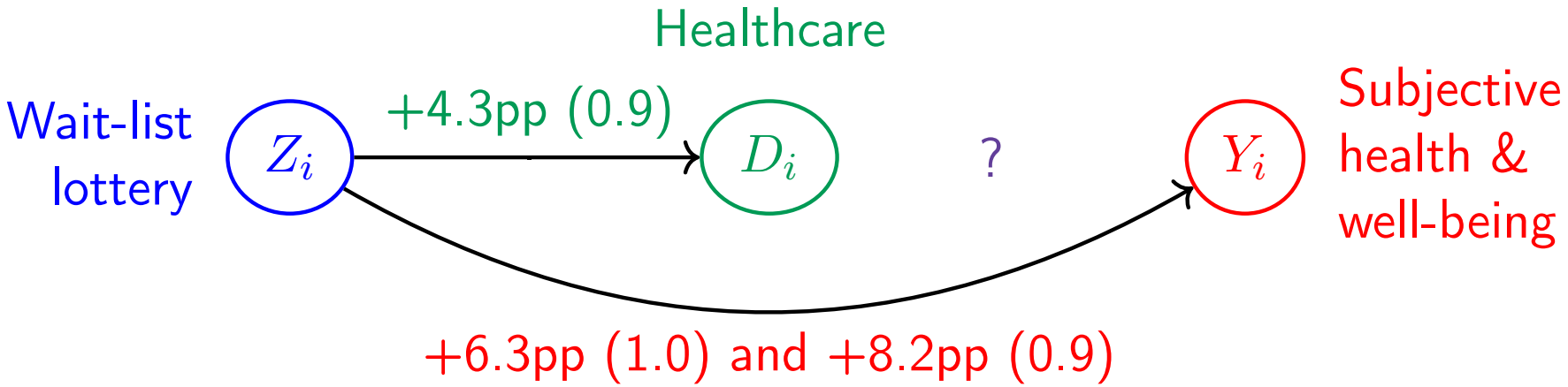

There is one missing piece to make a **definitive conclusion**:

Size of causal effect $D_i \to Y_i$ . . .

- If large, then healthcare explains all the lottery effects
- If small/zero then, then all direct (e.g., psychological) effects.

Causal Mediation (CM)

CM with Selection

Oregon Health Insurance Experiment

Conclusion