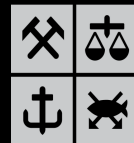


CORRELATION AND CAUSATION



Image generated by OpenAI

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CAUSALITY

If we think that factor X causes factor Y, then manipulating the value of X should also change the value of Y.

Heavier rain \Rightarrow More umbrellas

More umbrellas \nRightarrow Heavier rain

CAUSAL EXPERIMENTS IN MEDICINE

Hypothesis: An organism causes a disease

1. The organism should be present in people with the disease
 2. The organism should not be present in people without the disease
- A treatment that eliminates the organism should eliminate the disease.
 - Infecting someone with the organism should cause them to contract the disease

GOLD STANDARD OF CAUSALITY: CONTROLLED EXPERIMENTS

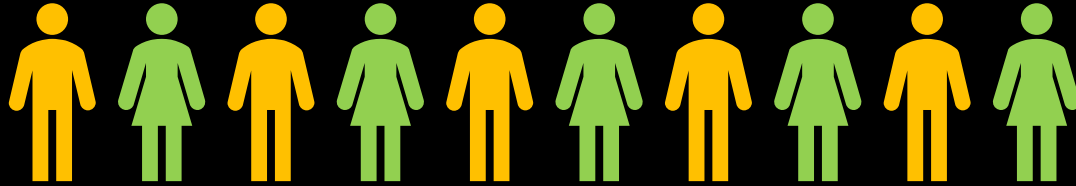
- Control group
- Treatment group(s)



GOLD STANDARD OF CAUSALITY: CONTROLLED EXPERIMENTS

- Randomized experiments

Control

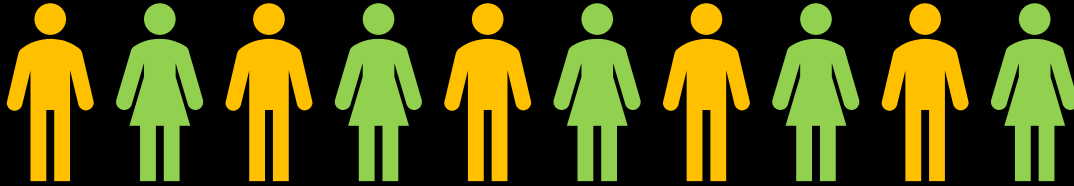


Treatment

GOLD STANDARD OF CAUSALITY: CONTROLLED EXPERIMENTS

- Randomized experiments

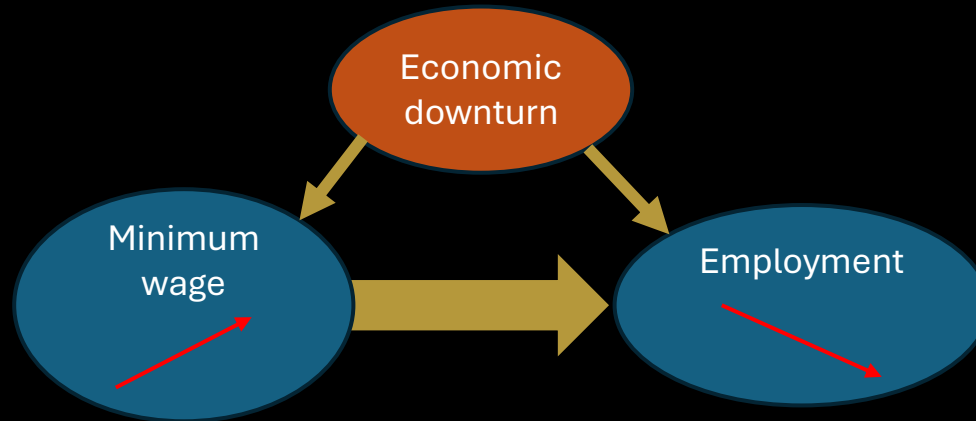
Control



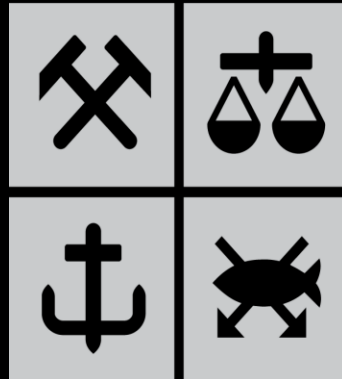
Treatment

OBSERVATIONAL STUDIES

- What is the impact of a national minimum wage increase on employment?
- What are the effects of deceptive marketing on consumer trust?



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