

Problem Set: Causality

Cristian Huse

(Based on Huntington-Klein, 2021)

Assume you are given the following data to perform your research project

Name	Gender	Outcome without treatment	Outcome with treatment	Treatment effect
Alfred	Male	1	2	1
Brianna	Female	1	5	4
Chizue	Female	2	5	3
Diego	Male	2	4	2

Questions

1. What is the problem with the data above?
2. State the definition of the average treatment effect (ATE). Calculate it for the data above.
3. State the definition of the conditional average treatment effect (CATE). Calculate it for the data above separately for the male and female subsamples. How do these values compare to the ATE?
4. State the definition of the average treatment effect on the treated (ATT). Assume that you know for a fact that only Alfred and Chizue are treated. Calculate the ATT based on the data above and this information.