

Causal Machine Learning

Introduction

Authors

January 10, 2025

Table of contents

1. Introduction
2. Synthetic Controls

Introduction



Some inspiratong stuff

Synthetic Controls

Synthetic Controls

Introduced in [1] and [2], well described in [3]

- A method for estimating the effect of a treatment on a single unit
- The treatment unit is compared to a weighted average of control units
- The weights are chosen to minimize the difference between the treated unit and the synthetic control

Example for the effect of taxes on sugar-based product consumption in [4], review of usage in healthcare [5].

This slide changes!

You can always see this.

This slide changes!

You can always see this. But this appears later!

Wake up!

Resources

- <https://web.stanford.edu/~swager/stats361.pdf>
- <https://www.mixtapesessions.io/>
- <https://alejandroschuler.github.io/mci/>

Bibliography

Bibliography

- A. Abadie and J. Gardeazabal, “The economic costs of conflict: A
[1] case study of the Basque Country,” *American economic review*, vol.
93, no. 1, pp. 113–132, 2003.

- [2] A. Abadie, A. Diamond, and J. Hainmueller, “Synthetic control methods for comparative case studies: Estimating the effect of California’s tobacco control program,” *Journal of the American statistical Association*, vol. 105, no. 490, pp. 493–505, 2010.
- [3] A. Abadie, “Using synthetic controls: Feasibility, data requirements, and methodological aspects,” *Journal of economic literature*, vol. 59, no. 2, pp. 391–425, 2021.

- L. Puig-Codina, J. Pinilla, and J. Puig-Junoy, “The impact of taxing sugar-sweetened beverages on cola purchasing in Catalonia: an
- [4] approach to causal inference with time series cross-sectional data,” *The European Journal of Health Economics*, vol. 22, no. 1, pp. 155–168, 2021.
- [5] J. Bouttell, P. Craig, J. Lewsey, M. Robinson, and F. Popham, “Synthetic control methodology as a tool for evaluating population-

level health interventions,” *J Epidemiol Community Health*, vol. 72, no. 8, pp. 673–678, 2018.