

## Abstract

The problem of identifying and selecting control in a randomized controlled experiment has received much attention. Abadie et al. propose a data-driven synthetic control method where the control is constructed "synthetically" from a fixed donor pool. We focus on a robust synthetic control algorithm, which uses spectral methods to de-noise the donor pool before constructing synthetic control. Our algorithm produces a consistent estimator, with respect to the mean-squared error, of the pre- and post-intervention treatment unit, and our experiments on large synthetic tests show convergence in mean squared. By choosing a low-rank spectral approximation to the data matrix, we eliminate the need for "domain experts" to help determine the best donor pool [ref Abadie]. Furthermore, we are able to reproduce existing case studies on real-world randomized controlled experiments for causal inference analysis without the need for "domain expert" intervention.