Backwards Design Template

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1 Topic:

We want to tackle the problem of the high number of prescription opioids in the United States.

2 Project Question

In this project we want to answer the following two specific questions:

- What is the effect of opioid drug prescription regulations on the volume of opioids prescribed?
- What is the effect of opioid drug prescription regulations on drug overdose deaths?

3 Project Hypothesis

The hypothesized answer to the two project questions are:

- Opioid drug prescription regulations decrease the volume of opioids prescribed.
- Opioid drug prescriptions regulations increase drug overdose deaths in the short to medium run.

4 Model Results

In the final report, the graphics below will be presented separately for two different policy interventions in Florida and Washington. In addition, these graphics will be generated using drug overdose mortality per capita on the y-axis. For that, three distinct policies in Florida, Washington, and Texas will be analyzed. All graphics will include standard error bands.

Result if the hypothesis is true **Result if the hypothesis is false**

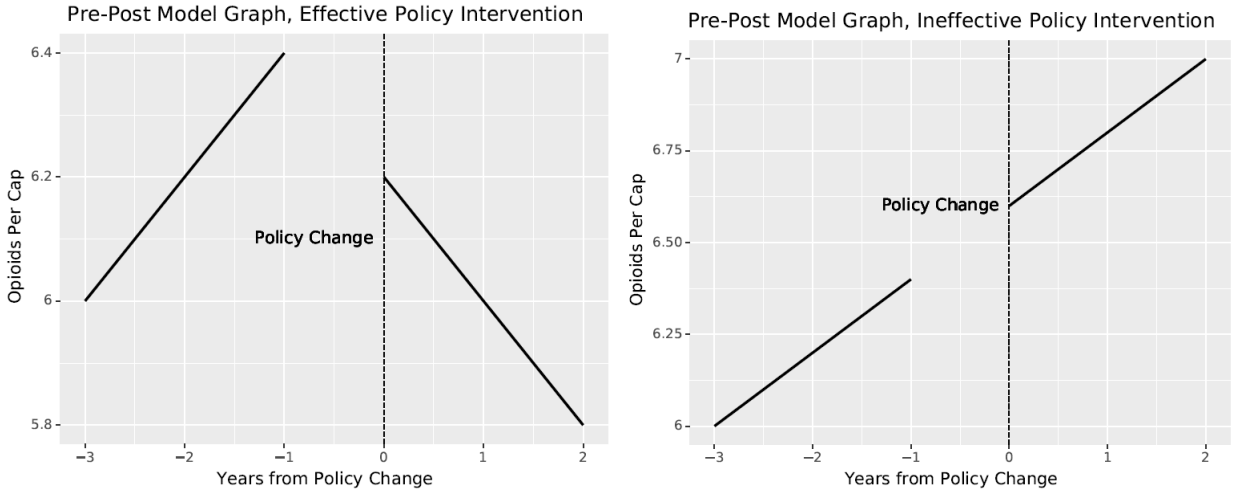

Figure 1: Potential model results pre-post comparison

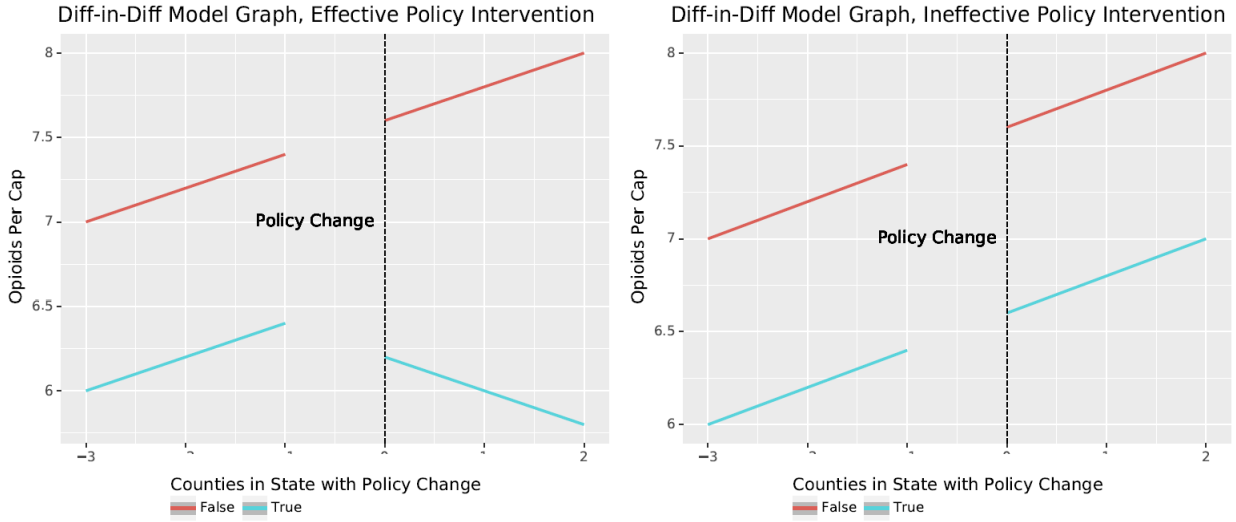

Figure 2: Potential model results difference-in-difference comparison

5 Final Variables Required

A single row in the data will contain one observation for one county for one year. All data should be available before and after the policy intervention. Data is required for both, US counties which are affected by policy intervention and for those which are unaffected.

- Opioid drug prescriptions per capita per county per year
  - Absolute opioid drug prescriptions per county per year

  - County population size per year
- Drug overdose mortality numbers per capita per county per year
  - Absolute drug overdose mortality numbers per county per year
  - County population size per year
- Binary variable which indicates whether the observation is in a state with policy change (for Difference-in-Difference)
- Year

6 Data Sources

- US Vital Statistics records
- Prescription opioid drug shipments by the Washington Post
- FIPS codes based on a file by the US census
- US census population data

The data sets will be merged based on the county FIPS codes and the year. They are already included in the population data set and the US vital statistics records. Based on the county and state name they will be added to the prescription opioid drug shipment data.

7 Task assignment

Step	**Writes initial code**	**Reviews code**
Import data	Fabian	
Clean and aggregate data	Fabian	
Merge data	Zhanyi	Fabian
Analyze data	Zhanyi	
Create graphs		