FINAL PROJECT
Backward Design Template
Group 5

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1. Topic

The primary problem is the significant increase in opioid addiction and overdose deaths in the United States, largely driven by the over-prescription of opioids. Stakeholders, including public health officials and policymakers, are looking for effective interventions to curb the prescription rates of opioids and reduce associated mortality rates.

2. Project Question

The project aims to answer the following question: What is the effect of opioid prescription regulations implemented in specific states on (a) the volume of opioids prescribed and (b) drug overdose deaths

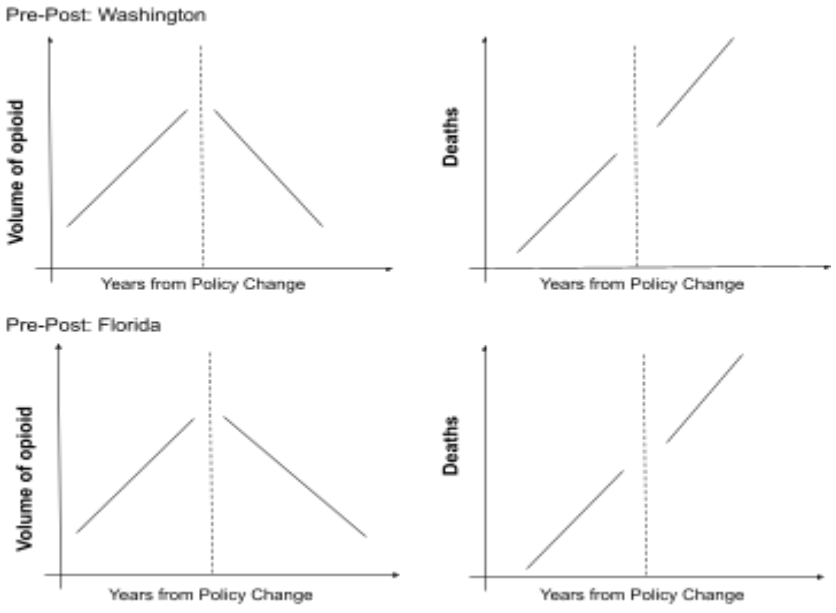
3. Project Hypothesis

The hypothesis for this project is that opioid prescription regulations will lead to a reduction in the volume of opioids prescribed. However, there may be an unintended effect on drug overdose deaths, as individuals who are already addicted might turn to illegal opioids, increasing overdose mortality rates.

4. Model results

a. Pre-post analysis helps us compare the results before and after the policy implementation in the states of Washington and Florida.

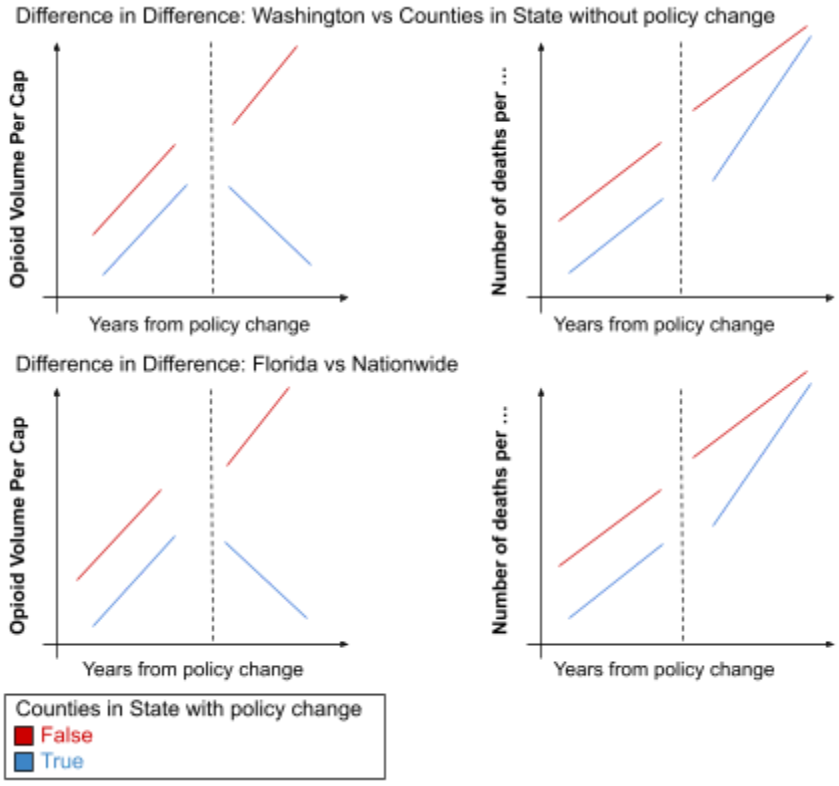
If the hypothesis is true



Interpretation for the pre-post analysis:
After post-policy implementation, we will observe a decrease in opioid prescriptions and an increase in overdose mortality in the treated states (Florida and Washington). Otherwise, the hypothesis will be false.

b. Difference-in-difference analysis assesses the impact of the policy by comparing changes in opioid prescriptions and overdose mortality rates before and after the policy implementation between the treated states and a control state with similar pre-policy trends.

If the hypothesis is true



Interpretation for the difference-in-difference analysis:
After post-policy implementation, the treated states should show a larger decrease in prescriptions and a larger increase in mortality than control states, indicating a negative effect of the policies. Otherwise, the hypothesis will be false.

5. Final Variables Required

Opioid Prescription Volume: The total quantity of prescribed opioids each state and year.
Overdose Deaths: The number of drug overdose deaths, specifically those involving opioids, in each state and year. If detailed data is unavailable, general overdose death will be considered.
Policy Intervention Status: A binary variable indicating whether the state had implemented opioid prescription regulations by a certain date.
Period: Year and month indicators to facilitate time-series analysis.
County and state identifiers (FIPS codes for merging datasets).

The population of the counties at a year level.

6. Data Sources

Population data: U.S. population change data(United States Census Bureau).
Opioid Prescription Data: DEA data from the Washington Post FOIA request (2006-2014) with county-level shipment information.
Overdose Mortality Data: US Vital Statistics summary (2003-2015) with county-level data on drug-related deaths.

7. Division of Labor

Data Sourcing Population Data: Yirang, Tursunai
Data Transformations for merging: Yirang, Tursunai
Data Cleaning
- Opioid Shipment: Ilseop, Ramil
- Overdose Death: Ilseop, Ramil

Data Management of Parquet Files and Data: Ilseop, Yirang
Selection of Comparable Strategy and Criteria: Ilseop, Yirang
Data Analysis
- Washington: Ramil, Tursunai
- Florida: Ramil, Tursunai