Estimating the Impact of Opioid Control Policies

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Executive Summary

This report delves into the opioid crisis in the United States, tracing its evolution from the over-prescription of pain medication to a full-blown public health emergency. The analysis zeroes in on Texas, Florida, and Washington—three states that implemented varied strategies to tackle this escalating issue.

Our investigation assesses the repercussions of the policies enacted in these states. We gauge their success by examining shifts in opioid prescription rates and overdose mortality rates, utilizing pre-post and difference-in-difference analytical methods to discern the true impact of state-level interventions against broader national trends.

Key Findings:

1. **Policy Impact Varied by State**: The effectiveness of opioid control policies showed significant variation across the states studied. Florida's policy resulted in a marked decline in both opioid shipments and overdose mortality rates, illustrating a strong and sustained policy impact. Conversely, Texas experienced an initial dip in mortality rates post-policy implementation, which eventually realigned with the upward trend seen in comparison states, signaling a transient effect. Washington observed a modest decrease in overdose deaths, indicative of a moderate policy impact.

2. **Reduction in Opioid Shipments**: Post-policy, Florida saw a significant downturn in opioid shipments per capita, a testament to the robustness of its regulatory measures. This stark reduction contrasted with the outcomes in Texas and Washington, where such trends were not as pronounced.

3. **Mortality Rate Trends**: The data revealed Florida's policy led to a substantial decrease in drug overdose mortality rates, a success not mirrored in Texas. Washington's policy influence was more conservative, with only a modest mitigation of overdose deaths.

Recommendations:

- Targeted Policy Implementation: The disparities in policy outcomes among the states highlight the necessity of tailored opioid control strategies. Policymakers should craft regulations that are attuned to the specific needs and characteristics of their states.
- Continuous Monitoring and Adjustment: The dynamic nature of the opioid crisis calls for policies that are adaptable, with continuous evaluation and refinement based on impact assessments to ensure long-term efficacy.
- Comprehensive Approach: The fight against the opioid epidemic requires a multi-faceted strategy. Integrating policy measures with public health initiatives, educational campaigns, and support for rehabilitation could amplify the impact of the regulations and lead to more sustainable outcomes.

Introduction

The opioid crisis in the United States, particularly between 2005 and 2015, highlighted a complex public health challenge. The steady increase in overdose deaths and decline in life expectancy underscored the need for comprehensive public health approaches to address the crisis. This period witnessed a surge in abuse of synthetic opioids and a rise in deaths from psychostimulants, often linked to low rates of treatment entry and retention.

This background sets the stage for the project's motivation: to assess the impact of specific opioid policies in Texas, Washington, and Florida on opioid drug prescriptions and drug overdose deaths. The overarching aim is to understand whether these state-level interventions effectively curbed opioid misuse and related fatalities, thereby offering lessons for future policy-making in this domain.

By focusing on these questions, the project aims to provide policymakers with a clear understanding of the effectiveness of different state-level strategies in combating the opioid crisis. The outcomes of this study are intended to inform policy decisions, helping to shape more effective responses to the challenges posed by opioid misuse and related mortality.

Overview of the Dataset

The key information needed for the study includes:

- Implementation Time of Policies: Critical for assessing changes in opioid prescription and mortality rates, the time when each policy was implemented provides a baseline for analysis.
- Population Data: Sourced from the CDC, this Dataset offers annual population figures for each state and county, which is essential for calculating per capita rates of opioid prescription and mortality.
- Opioid Usage Data: Covering prescription opioid shipments in the U.S. from 2006 to 2019, this dataset includes detailed information about Morphine Milligram Equivalent (MME) quantities. It is crucial for comparing annual opioid usage trends.
- Mortality Data: This dataset is vital for understanding the number of deaths due to opioid prescriptions. It categorizes causes of deaths and death counts by year, county, and state, providing insights into mortality rates linked to opioid use.

Here is the table summarizing the data we utilized in our final analysis:

Population	Shipment	Mortality
year state county population	year state county morphine milligram equivalent	year state county death count

In our study examining the impact of opioid policies in three specific states, we selected multiple control states for each target state to observe the changes before and after policy implementation. These control states were identified based on their geographic proximity to the target states, similarity in trends pre-implementation of drug control policies in the target state and the absence of similar opioid regulatory measures during the period when the target states implemented their policies. This selection criterion was crucial for establishing an appropriate baseline for comparison, ensuring that the observed effects could be attributed more confidently to the specific policies in question.

The study used county-level data, which, while varying greatly in size and population across states, offered a practical balance. Counties, as administrative units within states, provided a sufficiently detailed geographic

scale for analysis, while also being large enough to maintain individual privacy, particularly in reporting drug overdose deaths. This approach, with counties as the primary unit and data aggregated annually, allowed for a comprehensive yet manageable examination of the opioid crisis' impact across different regions.

1. **Texas (2007)**: New Mexico, Louisiana, Arizona, Oklahoma, Arkansas, Mississippi, Alabama
2. **Florida (2010)**: Georgia, Louisiana, North Carolina
3. **Washington (2012)**: Oregon, Wisconsin, New Jersey

Analysis

In this study, the methodology centers around two key approaches: pre-post analysis and difference-in-difference analysis. These approaches address the fundamental problem of causal inference by estimating what might have happened without the policy changes. The difference-in-difference method helps to differentiate the effects of statewide policies from national trends or other external factors, ensuring a more accurate assessment of the policies' impacts.

Anticipated Outcomes of Opioid Policy Interventions

In the context of evaluating opioid policies in Florida, Washington, and Texas, it is anticipated that successful policy interventions would lead to a decrease in opioid prescriptions. However, the relationship between policy changes and drug-related deaths may not be straightforward. While reduced access to prescription opioids could lower the risk of new addictions, there's a possibility that individuals already addicted might turn to alternative, potentially more dangerous substances. This could lead to a scenario where drug-related deaths either stabilize or increase, despite the decrease in prescriptions, as those in recovery might face higher overdose risks if they revert to opioid use.

Interpretation of the Analysis for Treatment States

1. Texas (2007) with Control States: New Mexico, Louisiana, Arizona, Oklahoma, Arkansas, Mississippi, Alabama

The analysis of opioid-related mortality trends in Texas presents a nuanced picture. Before the implementation of opioid control policies in 2007, Texas experienced a rising trend in opioid-related deaths. Following the policy's enactment, there was a noticeable initial decline in mortality rates, suggesting an

immediate impact of the policy. However, this decline was not sustained; the trend in opioid-related deaths resumed its upward trajectory.

When comparing Texas with control states that did not implement similar policies, the immediate effect of Texas's policy becomes more evident. Initially, Texas showed a more significant reduction in mortality rates compared to these states. Nonetheless, over time, the trend in Texas aligned with that of the control states, indicating that the long-term effectiveness of the policy might have been limited. This pattern suggests that while the policy may have had an initial positive effect in reducing opioid-related deaths, its enduring impact was comparable to states that did not enact similar measures.
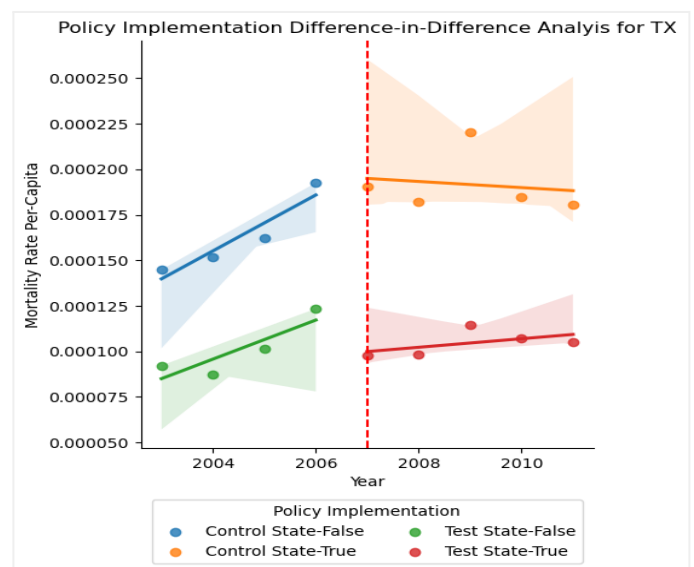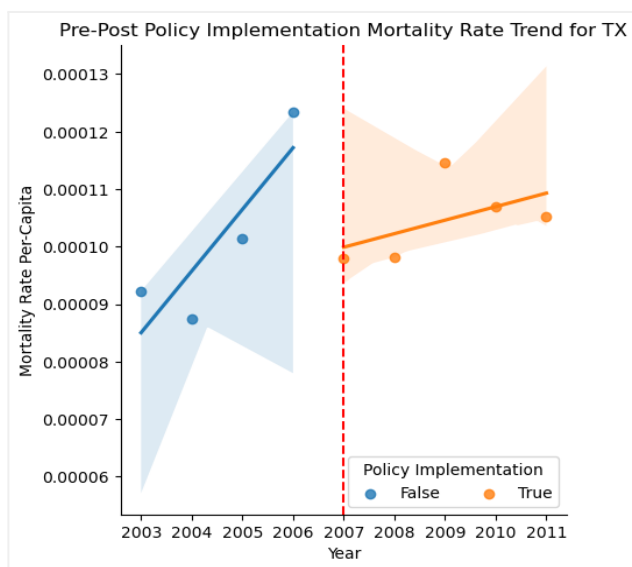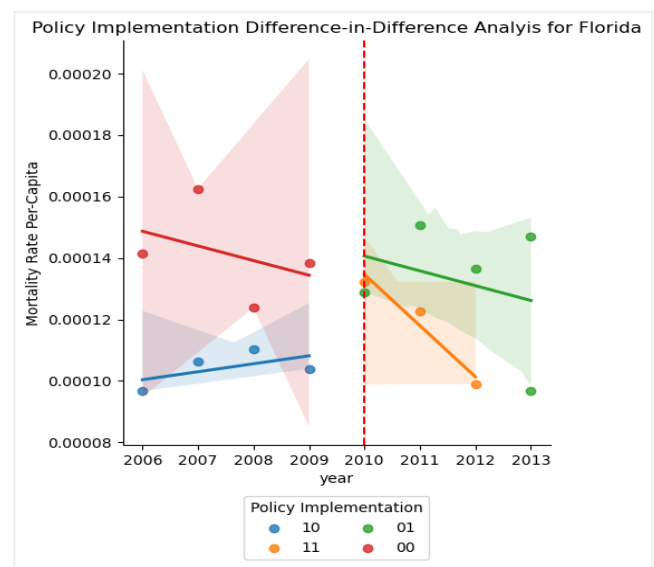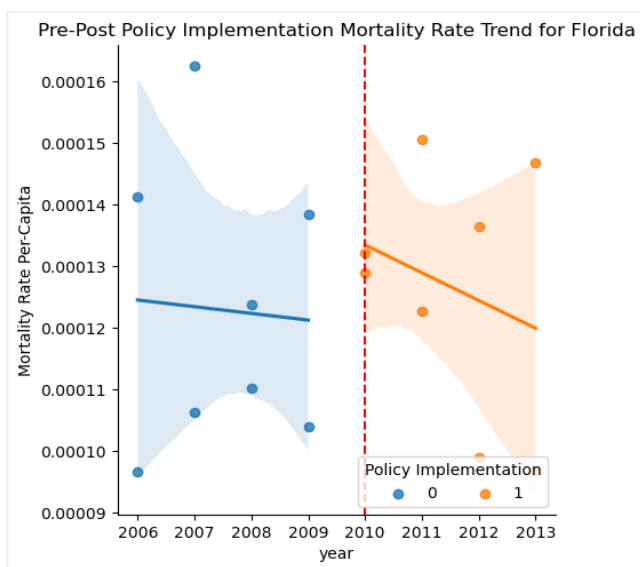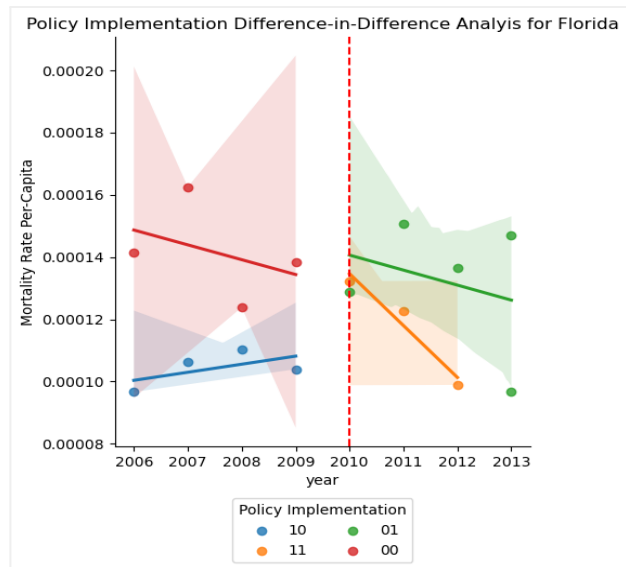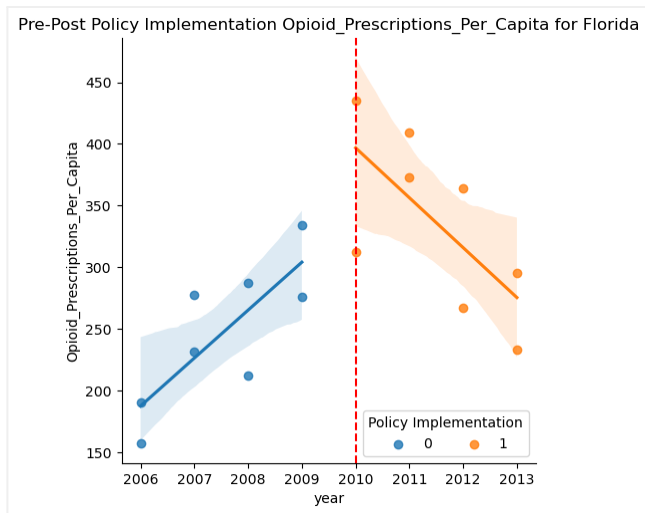

2. Florida (2010) with Control States: Georgia, Louisiana, North Carolina

The examination of Florida's opioid-related trends provides a distinct contrast to Texas. Prior to the implementation of opioid control policies in 2010, Florida was witnessing a consistent increase in both opioid-related mortality and prescription rates. The introduction of the policy marked a significant turning point, with a swift and notable reduction in both metrics, signaling the policy's immediate efficacy.

In the comparative analysis, Florida's results post-policy implementation stand out against those of the control states, which either experienced a less significant decline or maintained their pre-policy trends. This stark differentiation not only underscores the policy's initial success in curtailing opioid prescriptions and overdose deaths but also its sustained effect over the subsequent years.
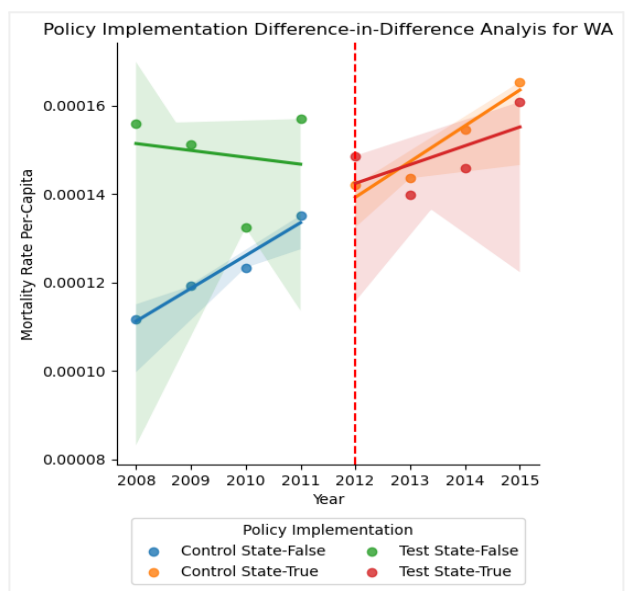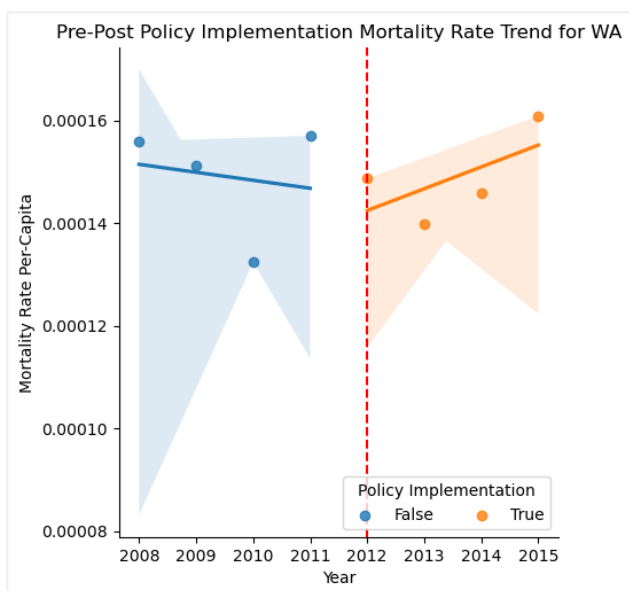
The data from Florida indicates that the policy had a substantial and persistent positive impact, demonstrating a decline that diverges from the trends observed in the control states. This sustained pattern of reduction postulates that Florida's policy interventions were effectively targeted and enforced, leading to outcomes that were not only immediate but also enduring, setting them apart from states that had not implemented similar opioid control measures.

Pre-Post Policy Implementation Opioid_Prescriptions_Per_Capita for Florida

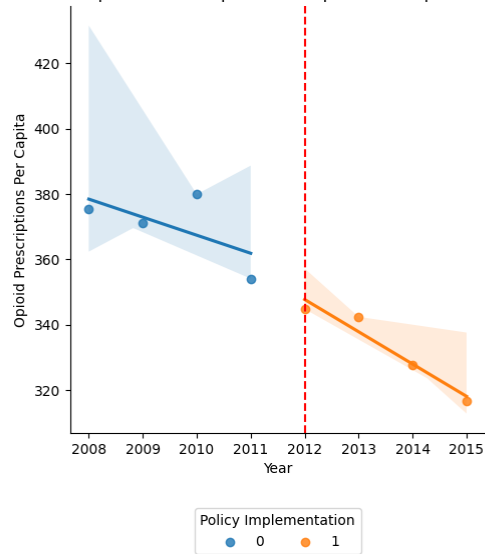Policy Implementation Difference-in-Difference Analyis for Florida

3. Washington (2012) with Control States: Oregon, Wisconsin, New Jersey

Washington's policy, implemented in 2012, showed a slight reduction in opioid-related deaths and shipments. This reduction, though modest, was more evident when compared to the control states, which did not exhibit a similar downward trend.

Pre-Post Policy Implementation Mortality Rate Trend for WA

Policy Implementation Difference-in-Difference Analyis for WA

Pre and Post Implemenation Opioid Prescription Per Capita for Washington

Policy Implementation Difference-in-Difference Analysis for Washington
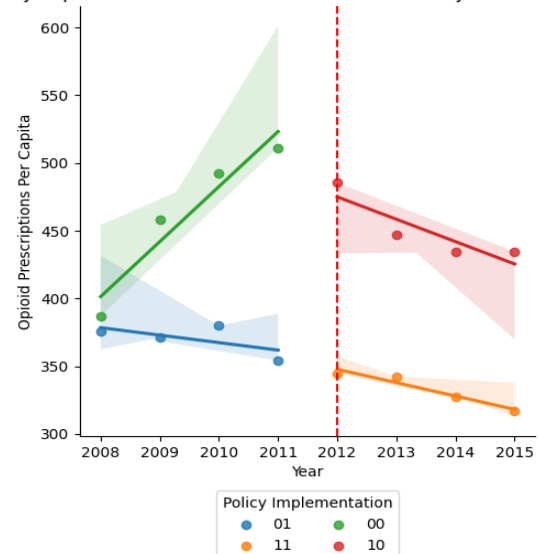
Conclusion

For policymakers, Florida's approach emerges as the most impactful, showing significant reductions in both opioid prescriptions and overdose deaths. This suggests that policies similar to those implemented in Florida could be more effective in other states grappling with opioid crisis.

References

- America's opioid crisis: the need for an integrated public health approach." Translational Psychiatry, Nature.com. Link