# Travel Restrictions as a Strategy for Pandemic Control

*Assessing the Effectiveness of State-Level Policy Interventions on Domestic Air Travel During the COVID-19 Crisis*

## Background

On January 31, 2020, the World Health Organization (WHO) declared the outbreak of SARS-CoV-2 a Public Health Emergency of International Concern. In their attempt to slow the spread of disease, travel restrictions became a popular approach taken by policy makers hoping to reduce activity and restrict the movement of potentially infected people. Considering the widespread adaption of travel-related restrictions throughout the United States, especially in light of their potentially large economic and social consequences, this study aimed to understand whether such measures can be, and have been, effective at reducing the frequency of interstate air travel during the recent coronavirus pandemic.

METHODS

**RDD**
REGRESSION DISCONTINUITY DESIGN ANALYSIS
COMPARES SLOPES ON EITHER SIDES OF A THRESHOLD

**TSA**
TIME SERIES ANALYSIS
PELT CHANGEPOINT DETECTION ALGORITHM

UNITS OF ANALYSIS:
**DAILY FLIGHT FREQUENCY/ TRAVEL RESTRICTION DATES**

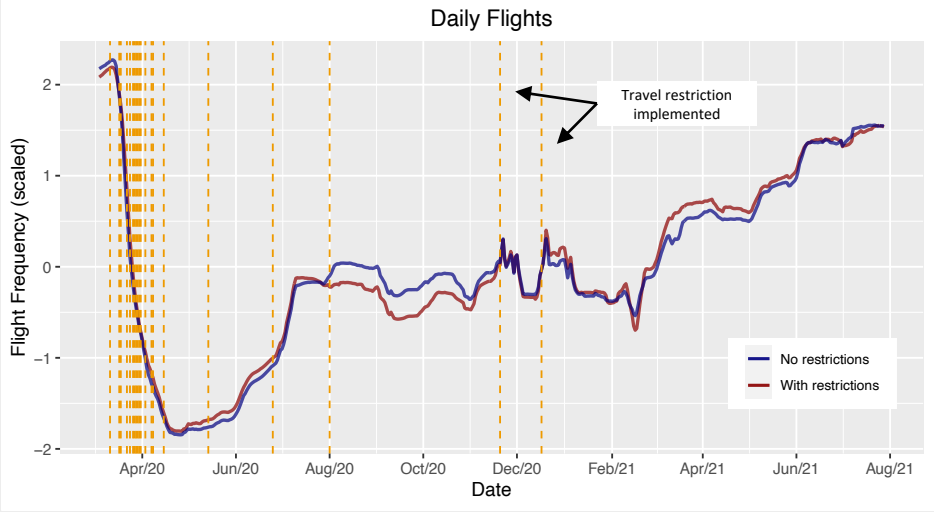
DATA:
**U.S. BUREAU OF TRANSPORTATION AIRPORT DEPARTURES/ JHU STATE LEVEL POLICY TRACKER**

## Methods

Two methods were used to investigate and compare the effectiveness of travel restrictions between states. First, an RDD analysis modeled a quadratic relationship on either side of a specific threshold (the date in which a travel restriction was enacted) to determine its effect. Next, after detrending the data using national trends in flight frequency, a changepoint algorithm was used to identify points within the dataset where it's statistical properties changed These points were then compared to travel restriction dates within the corresponding state.

## Findings

The RDD model identified six states whose travel restrictions may have led to a notable decrease in the number of daily arrivals (Florida, Idaho, New Mexico, New York, New Jersey, Texas). After controlling for national trends observed in flight frequency, I found no significant evidence that the implementation of a travel restriction by state governments led to a subsequent decrease in the number of arrivals within that state. A causal relationship between travel restrictions and the spread of disease is unlikely. Unless there is a significant change in federal laws that allow states more power to both restrict travel and uphold these restrictions, these findings suggest that travel restrictions are not an effective method of reducing domestic air travel in the United States. Until more evidence is available, government officials should use extreme caution in applying travel restrictions as a means to control the spread of disease.

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