

# Spending Allocation Equity and Political Bias

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## Introduction

In this analysis, we aim to answer two key questions:

1. Is the allocation of spending across the States and Territories equitable based on their populations?
2. Does the allocation of spending favor the political interests of the Biden administration?

To investigate these questions, we will explore spending per capita, spending distribution by political alignment, and the relationship between spending and population.

## Data

We start with the provided dataset, which contains spending amounts per state. We will also source data on the current population of each state and the official election results of the 2020 Presidential election.

```
## New names:
## * ' ' -> '...2'
## * ' ' -> '...3'
## * ' ' -> '...4'
## * ' ' -> '...5'
## * ' ' -> '...6'

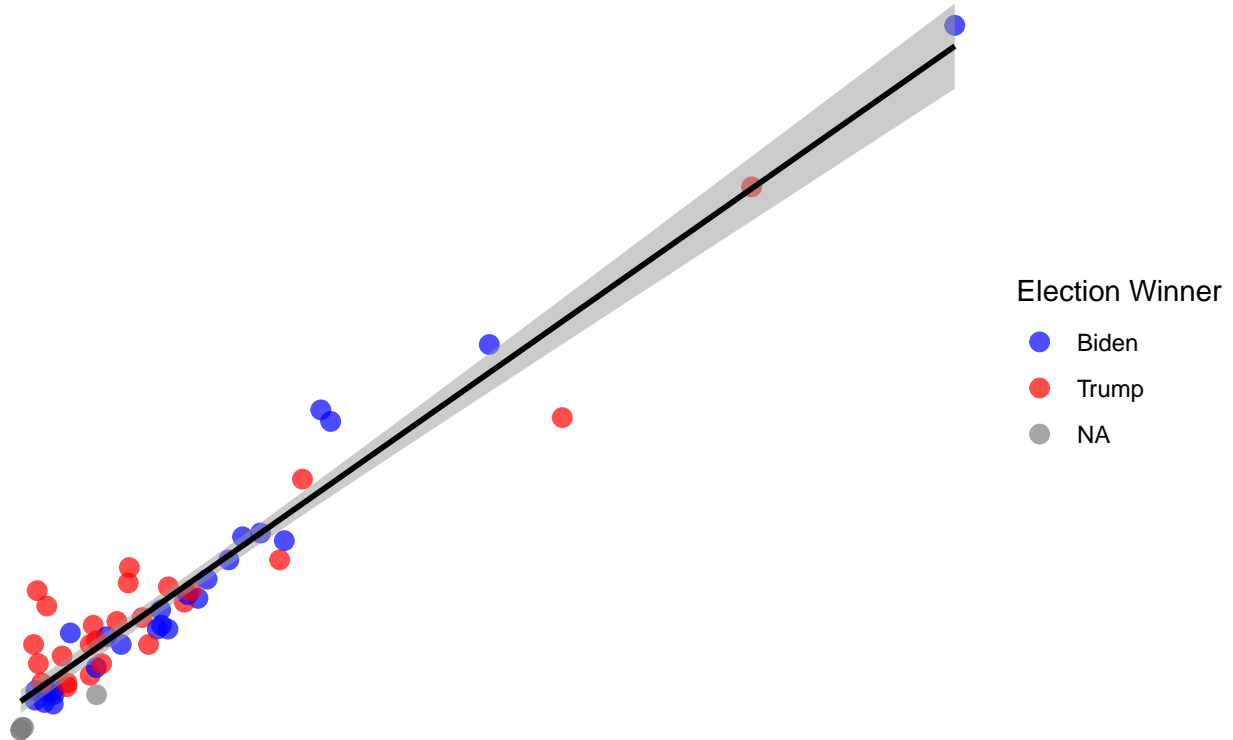
## # A tibble: 6 x 5
##   state      total_spending_bil population winner spending_per_capita
##   <chr>          <dbl>         <dbl> <chr>          <dbl>
## 1 ALABAMA          3         5108468 Trump           587.
## 2 ALASKA          3.7         733406 Trump          5045.
## 3 AMERICAN SAMOA  0.0686         45000 <NA>          1524.
## 4 ARIZONA          3.5         7431344 Biden           471.
## 5 ARKANSAS          2.8         3067732 Trump           913.
## 6 CALIFORNIA      18.4        38965193 Biden           472.
```

## Analysis

Now that we have prepped the data, we can proceed with the analysis. We will start by examining the relationship between total spending and population for each state. We will then investigate the deviation from equitable allocation of spending per capita across states. Finally, we will explore the total spending per capita by election winner.

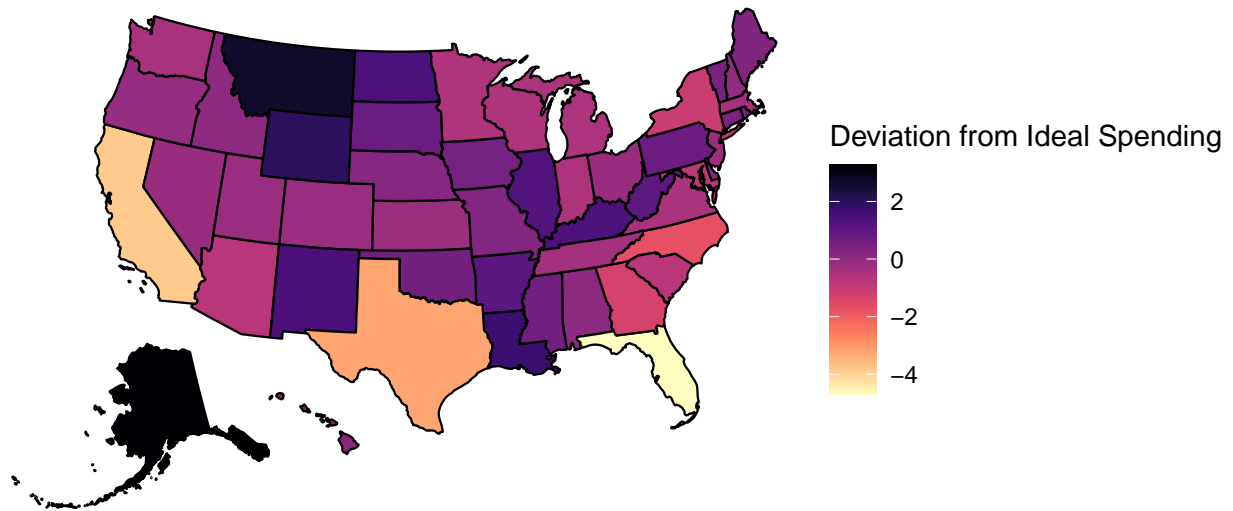
```
## 'geom_smooth()' using formula = 'y ~ x'
```

## State Spending vs Population



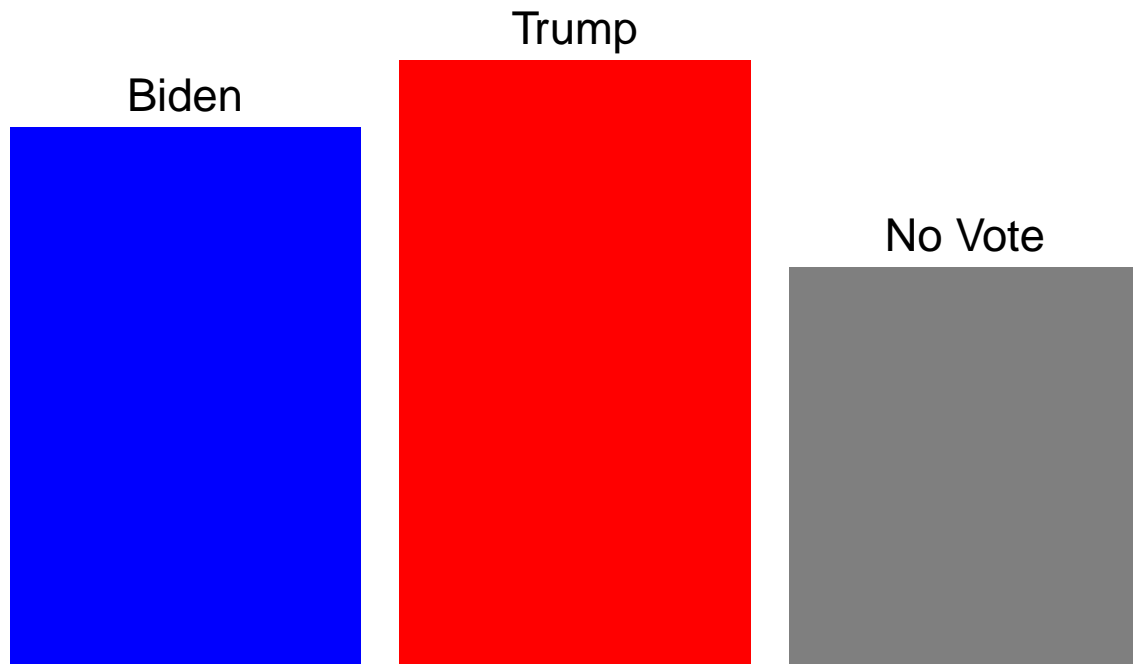
The above scatterplot shows the relationship between total spending and population for each state. The included trendline and standard error bands highlight expected spending levels based on population. A cursory examination reveals that the vast majority of states are relatively close to the trendline, suggesting that spending is generally proportional to population. There appears to be no major patterns based on the election winner, with both Biden and Trump states above and below the trendline.

## Deviation from Equitable Allocation



The map above shows the deviation from equitable allocation of spending per capita across states. States in blue have higher spending per capita than expected based on their population, while states in red have lower spending per capita. The map provides a visual representation of the disparities in spending allocation across states. It reveals the majority of states are close to the ideal allocation, with a few major outliers that deviate significantly. Alaska and Nebraska are extremely high, while Florida, California, and Texas are significantly lower than the ideal allocation. Something of note is that Alaska has a population to landmass ratio that is vastly larger than the other states, which may explain its high deviation from the ideal allocation. Larger landmasses may require more spending even with a smaller population. Additionally, Alaska has a unique geography and climate that may necessitate higher spending.

## Total Spending Per Capita by Election Winner



Finally, the bar plot above shows the total spending per capita by election winner. The plot shows no evidence of favoritism by the current administration towards states that voted for Biden. On the contrary, states that voted for Trump have a higher spending per capita than states that voted for Biden. This suggests that the allocation of spending is not influenced by political interests and is likely due to specific anomalies in the needs of different states, for example, Alaska's large landmass and unique geography. The plot does seem to suggest that territories that cannot vote in the presidential election have lower spending per capita. However, this may be due to their unique status and not necessarily a result of political favoritism and requires further investigation.