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DATA 5310 01 23FQ Data Visualization

Exploring Campaign Finance Dynamics in Washington State

Introduction

Campaign finance laws in the United States have been in effect since the establishment of the Federal Election Committee in 1867. These regulations, applicable across federal, state, and municipal levels, are designed to establish equilibrium and set boundaries on the influence of financial contributions in electoral processes. Delving into a campaign's financial records provides a profound understanding of candidate priorities and the potential for conflicts of interest. Furthermore, it enables a nuanced exploration of how candidates engage in the political arena through their financial strategies. A prominent illustration is Senator Bernie Sanders, who strategically highlighted the substantial number of individual donors during his 2020 election campaign, portraying widespread and grassroots support.

In addition to individual donor metrics, scrutinizing the allocation of campaign funds sheds light on the political positioning of candidates. The strategic distribution of funds can signify the areas and issues that candidates prioritize, contributing to their overall political narrative. This strategic use of financial resources is particularly evident in closely contested districts, where candidates seek substantial donations to gain a competitive edge. The 8th congressional district in Washington exemplifies this dynamic, standing out as one of the most expensive House races in the past decade, according to reports from The Hill. However, the actual impact and efficacy of such significant financial investments in influencing election outcomes remain uncertain.

Project Overview

This project undertakes a comprehensive exploration by leveraging a dataset from the Washington open data portal. The dataset summarizes campaign finances over the last decade, focusing specifically on individual candidates and their campaigns. By narrowing the scope to individual candidates, the analysis aims to discern patterns in campaign donations, emphasizing their alignment with party lines. The exploration also includes an investigation into geographic trends in campaign spending, offering insights into the strategic allocation of funds. The temporal aspect is not overlooked, with a focus on how these patterns have evolved over time.

This project's strategic focus on State House races ensures a targeted and detailed examination, excluding local races for a more streamlined analysis. The ultimate goal is to contribute valuable insights into the dynamics of campaign finance, providing a nuanced understanding of the interplay between financial contributions, candidate strategies, and the broader political landscape.

Methodology

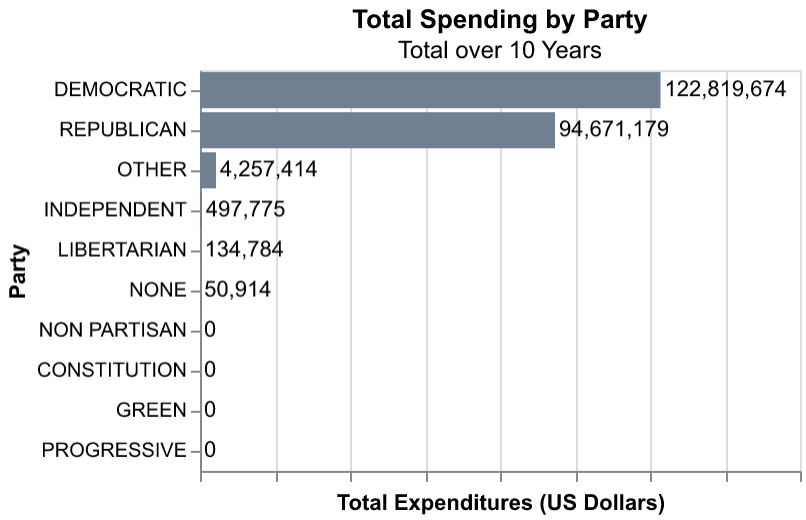
Data Preparation

The dataset used includes data from multiple races across the state, including local races for positions such as Sheriff. These races may have very different patterns of funding than races for state-level positions such as State Representative, so they were removed by selecting only candidates with a valid legislative district in the dataset. The data was also filtered to only include individual candidates, not initiative campaigns or Political Action

Committees. Finally, candidates with a null value for party were removed (but candidates who had “None” listed for party were left in the main dataset). A smaller dataset consisting just of candidates from the two major parties (Democratic and Republican) was also created. Other data used included a shape file of all the legislative districts and demographic data on the population of each legislative district. For districts representing multiple counties this data was taken for the district as a whole, not broken down by individual county. The legislative district shape file was joined to the candidate dataset using district number to help map the data, and the population dataset was joined to the candidate dataset using district number to help calculate per capita statistics.

Results

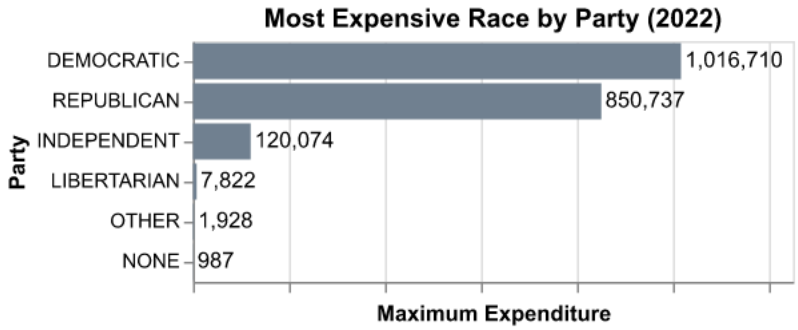
Total Spending by Party



Design justification: The data in this plot is categorical data (total spending by party for the past 10 years) so a bar chart is most appropriate. The bars are horizontal so that it is easy to read the party names on the Y-Axis. It would be possible to add colors for the parties, but this would double-encode the information so it is better to leave it off. The chart uses a blue-gray color instead of the default blue because blue is often used to denote the Democratic Party so using a different color avoids any inadvertent associations. The amount of spending is shown as a text label at the end of each bar instead of as an axis label along the x-axis to make it easier to see the values.

Analysis: This plot shows that the two major parties (Democratic and Republican) spend more than the other parties, and that the Democratic Party spends more than the Republican Party.

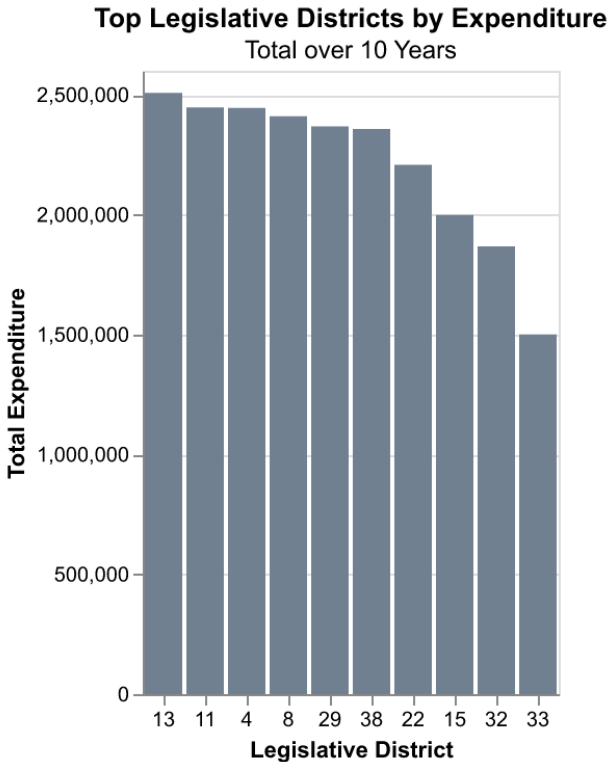
Maximum Spending by Party



Design justification: Similar to the previous chart (Total Spending by Party) a horizontal bar chart is most appropriate for the type of data and legibility. This is still by party so the bars are colored in a more neutral color as opposed to a color like red or blue that is typically associated with a party. The bars are labeled with the value to easily see what the value is. The plot focuses only on a single election year- 2022, which was the most recent primary election year, across the state. This plot is missing information on geography but it would be too cluttered to facet or add color based on legislative districts because there are 49 legislative districts.

Analysis: This plot shows that the two major parties (Democratic and Republican) have had the most expensive individual races and similar to total overall spending the Democratic party had the most expensive race overall. However, Independent and Libertarian races were 3rd and 4th respectively instead of 4th and 5th. This might mean that there are more candidates registered as “Other” so total spending over ten years is higher, or that spending by candidates registered as “Other” has slowed in 2022.

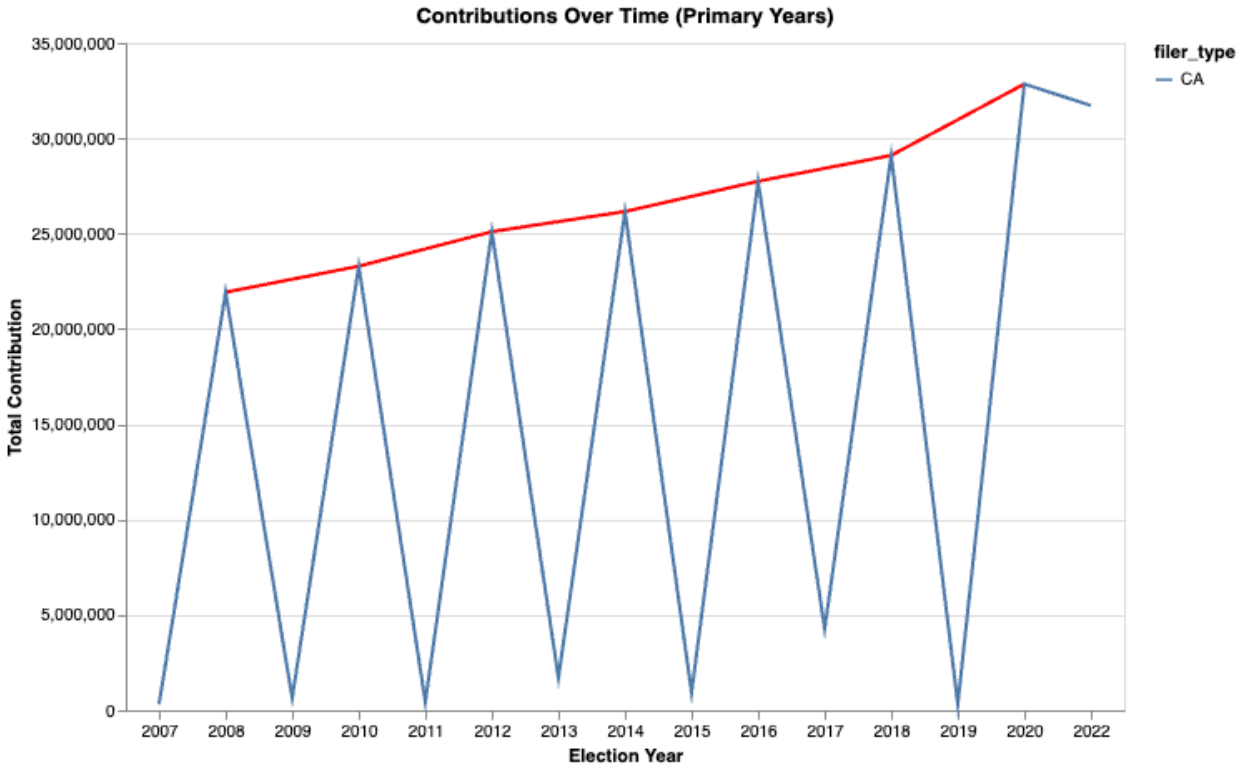
Top Legislative District by Spending



Design justification: This chart is a vertical bar chart because the category labels are relatively easy to read on the X-axis, and the data is categorical. Party is not a variable here so the chart could be any color, but the neutral gray is easy to look at. Because the chart is a vertical bar chart, adding text labels for the totals might be crowded unless they were rounded or reoriented, which would be less interpretable. To a general audience legislative district might not be the most meaningful label, but because legislative districts can span multiple counties this is the easiest grouping to use and would be meaningful to a knowledgeable audience.

Analysis: This plot shows that there is not a geographic trend to total spending over ten years. District 13 is in central Washington, District 11 in western Washington (near Seattle), and District 4 is in eastern Washington. Further analysis by year or finding a way to account for races that are predicted to be narrowly contested might reveal further trends but from this plot it does not seem like geography is a major factor in total expenditure.

Contribution Over Time

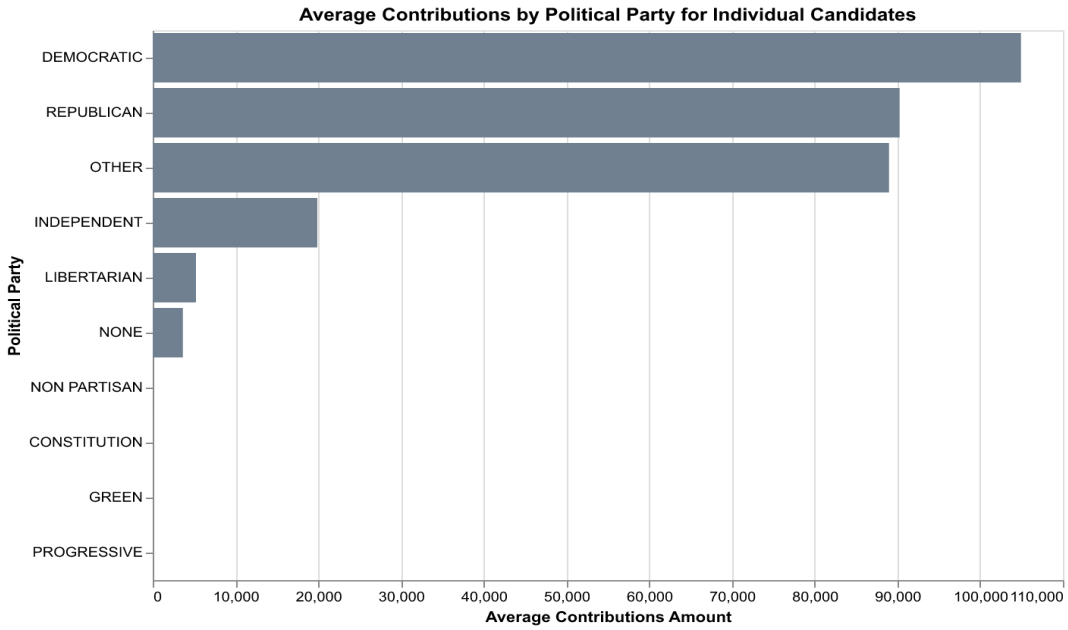


Design justification: The design choice for employing a red line for primary years serves to emphasize and distinguish this subset of data, aligning with conventional color associations where red often indicates significance or emphasis. By utilizing a consistent color scheme, the visual narrative is enhanced, guiding the audience to recognize and focus on the specific primary years. Additionally, the decision to maintain a neutral color for the "All Years" line ensures clarity and avoids potential confusion arising from an overload of colors. This deliberate use of color contributes to a cohesive and comprehensible visual representation.

Analysis: The chart prominently showcases the evolving contributions during primary years through the striking red line, establishing a pronounced contrast with the steady trend portrayed by the second line. The visualization illuminates distinct peaks and valleys in primary years, implying dynamic shifts in campaign financing and possibly pivotal moments. In contrast, the "All Years" line maintains a neutral trajectory, providing a backdrop for comprehending the broader patterns in overall

contribution trends. This consistent increase in total contributions during each primary election year contrasts with the relatively stable nature of "off years," offering viewers a nuanced understanding of specific patterns inherent to primary elections within the broader landscape of campaign finance across the years.

Mean Contribution by Political Party for Individual Candidates

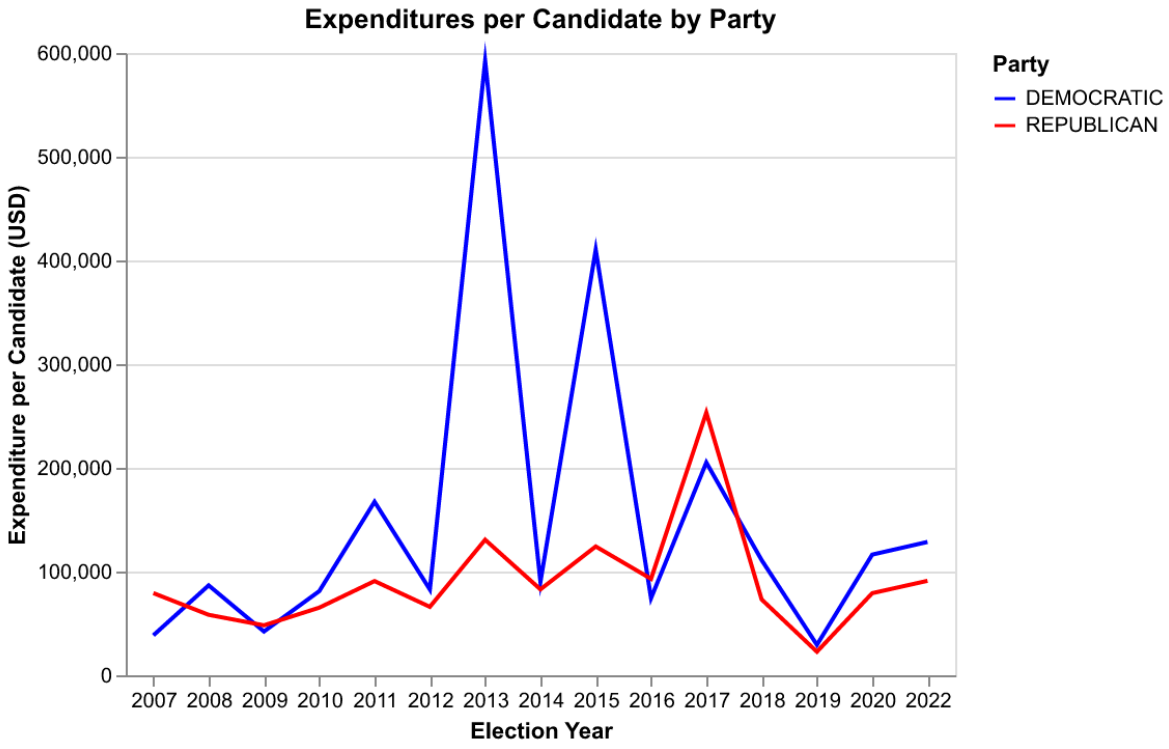


Design justification: This choice is suitable for comparing average contributions across political parties for individual candidates. The y-axis represents political parties, sorted in descending order based on the mean contributions. This ordering enhances clarity, allowing viewers to easily identify the political party with the highest mean contribution. The x-axis denotes the average contribution amount, providing a clear representation of the numerical values. The decision to filter the data exclusively for individual candidates ensures that the analysis focuses solely on contributions made to individual candidates, avoiding potential distortions from committee data.

Analysis: The average contributions by political party chart reveals a notable difference in mean contribution amounts between Democratic and Republican individual candidates. Democrats, on average, receive higher contributions

compared to their Republican counterparts. This insight aligns with broader trends observed in campaign finance, where political parties may exhibit varying levels of financial support from donors. Further investigations into the factors influencing these contribution patterns could offer valuable insights into donor behavior, candidate strategies, or broader political dynamics.

Expenditures per Candidate by Party

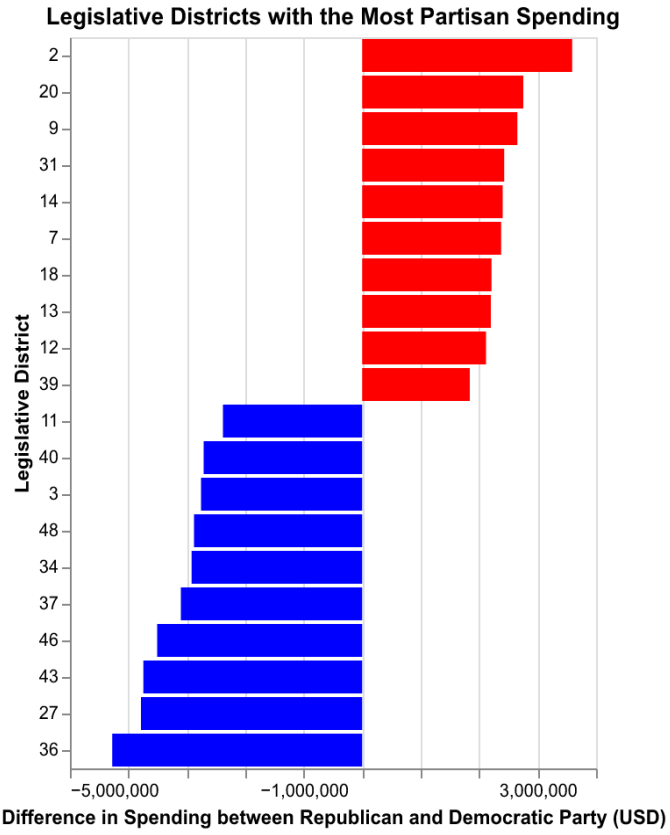


Design Justification: This chart shows a trend over time, so the data is visualized as a line chart with average expenditure per candidate on the y-axis and year on the x-axis. It is also numerical and continuous data so a bar chart is not appropriate. This chart focuses only on the two major parties (Democratic and Republican) which are typically color coded as blue and red so those colors are used for each party in this chart. The exact amount is not as important in this chart, and adding data labels would crowd the chart so they are left off.

Analysis: This chart shows that Democrats tend to spend more per candidate than Republican candidates, with a major spike in 2013 and 2015. This is interesting because both those years could be considered “off years” where there are no major elections so

spending tends to be lower. However, in 2013 there was a legislative special election (Ballotpedia) and two Republican state senators retired so locally there was likely a lot of interest by the Democrats in flipping seats and winning elections. Similarly, there was a special election in 2015, which could explain the spike in funding.

Legislative Districts with the Most Partisan Spending



Design Justification: This chart shows the difference between total spending over the past decade between the Republican and Democratic party by legislative district. This is categorical data so a bar chart makes the most sense. Colors are used to show party with Red representing a republican skew and blue representing a democratic skew. Left and right are also often used to refer to the parties so the right pointing bars are republican favored and left democratic.

Analysis: The top two districts with the most Republican skew are in Western Washington, roughly covering Pierce (district 2) and Lewis/Cowlitz (district 20) counties. District 9 is in Eastern Washington, and includes the city of Spokane. This might indicate that Republican

spending is highest in districts near major cities that are not Seattle (Vancouver, WA, Tacoma, WA, and Spokane, WA). Democratic spending was highest in the 36th, 27th, and 43rd legislative districts which are all located in Seattle or Tacoma. This might indicate that Democrats tend to spend more in major urban areas or Republicans do not spend a lot in these areas.

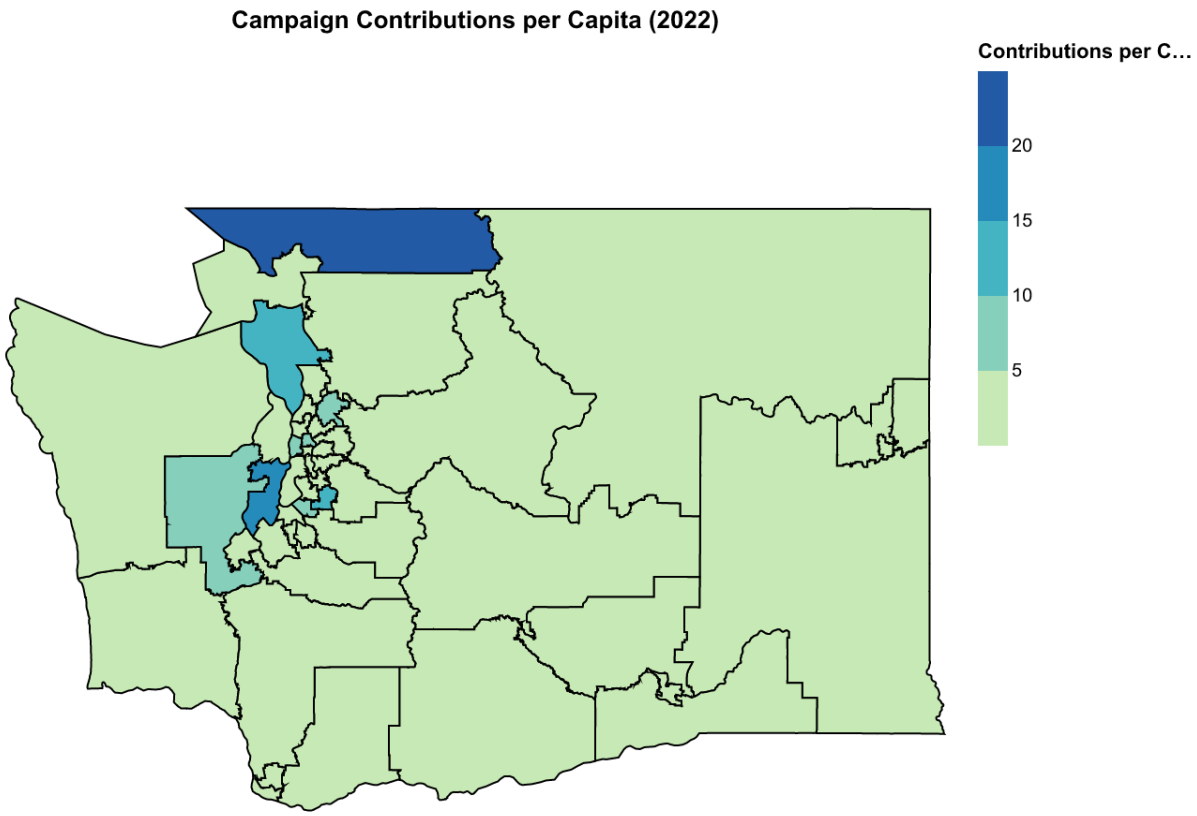
Influence of Spending on Election Outcome

Design Justification: The goal of this chart is to show the trend in spending over time by election result. A line chart was used to make it easier to see trends and compare between the different results. The colors were chosen to avoid associations with parties (blue/red) and also to be easily differentiable. Each plot has a different legend even though they use

similar colors because the results categories are different. The overall plot title was made larger to stand out in contrast to the titles for the individual plots and axes.

Analysis: The difference in average funding by result is highest in the primary, and smaller in the general. The spending speaks at the same years, and there is not a clear trend in terms of funding increasing or decreasing. It is odd that there is zero spending for some of the results in 2019, which might indicate that there is missing data. Another discrepancy is the spending for the "not in primary" result which might just mean that somebody did early fundraising and then dropped out of the race.

Campaign Contributions per Capita

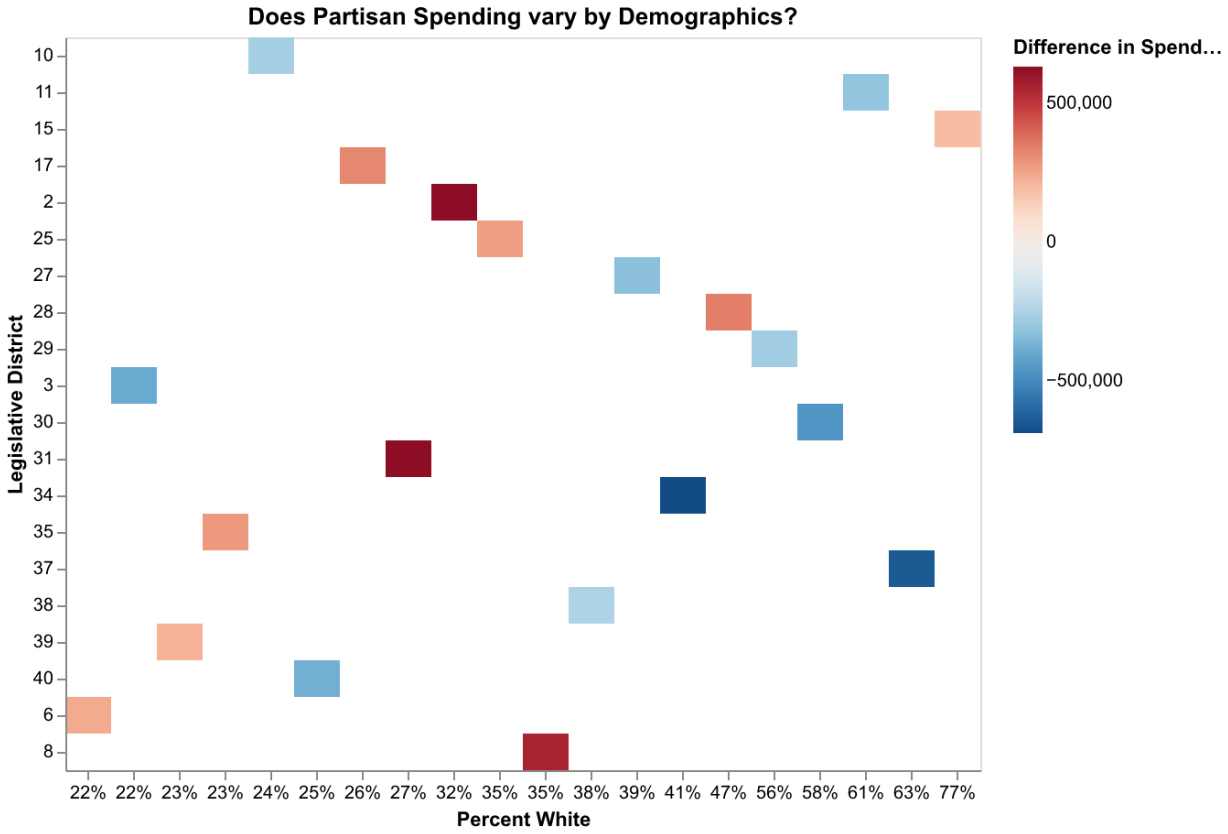


Design Justification: This map was created to get a better sense of geographic trends in contributions. The other graphs indicate that there might not be much of a geographic

trend in terms of overall spending and contributions, but there might be a trend in per capita. A choropleth was chosen to make it easy to see the intensity (versus size for example), Adding labels would clutter the map as there are a lot of districts that are geographically small around the Seattle/Tacoma area.

Analysis: This shows that the highest contributions per capita is in the 42nd legislative district, which is Whatcom county. It is somewhat unclear what would explain this- it could be a district that is hotly contested or politically active, but more study is needed.

Demographics and Partisan Spending



Design Justification: This heat map shows the districts with the most partisan spending, measured by the difference in spending between the Democratic and Republican parties. These districts are on the y-axis while the percentage of the district that is white is on the x-axis. The colors are red-blue diverging with red representing a Republican skew and blue a Democratic one. A heat map was chosen because of the number of variables

Analysis: This graphic shows that there is slightly more Republican spending in districts with a lower percentage of white voters. However, there are Republican and Democratic skewed districts at either end of the spectrum, so it is hard to say how significant the pattern is.

Conclusions

The goal of this paper was to look at trends in campaign finance and understand what factors influence campaign finance. Our analysis shows that trends in campaign finances tend to be most strongly influenced by time, and to a lesser extent, geography. There is an established association between political activity and the election cycle- years with major elections like presidential elections tend to have the most activity- and our analysis confirms this. There also appears to be some association between geography with certain districts having more political contributions than others, but there is not one variable like urban versus rural that can explain these trends. It is also clear that the two major parties (Democratic and Republican) tend to spend the most money, which makes sense. However, there is not a clear difference in spending between the two parties, except perhaps geographically. There are a few years where one party spends more than the other, presumably because it is a year they see as an opportunity, but overall the two major political parties seem to spend about the same amount of money. There might also be other factors such as world events that influence patterns of spending and contributions, but these are not reflected in the data currently. These results show that there is a lot of nuance to this issue, and that it is difficult to pinpoint any sort of simple cause of trends, partisan or otherwise.

Citations

Campaign Finance Summary

Federal Election Campaign Laws History

Donors Powering the Campaign

Most expensive congressional races of the last decade Article

NBC News Article

Washington elections, 2013

Washington elections, 2015

Campaign finance requirements in Washington