An Analysis of State Heterogeneity and Voting Patterns in the United States Senate

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AN ANALYSIS OF STATE HETEROGENEITY AND VOTING PATTERNS IN THE UNITED STATES SENATE

by

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Thesis submitted in partial fulfillment of the requirements for the degree of

University Honors in

Political Science

In the Department of Political Science

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Abstract

The United States Senate is one of the major legislating forces in the United States and can make policy impacts that can have significant impacts for the entire nation. The two major political parties in the U.S. have significant influence on the members of this body, yet they are elected to represent each of the different states. Previous research has shown that states and districts can vary significantly in their political leanings and preferences, even from the party that is considered the majority in that area. The purpose of this study is to investigate several forces that may influence members’ of the U.S. Senate voting patterns – specifically how frequently they vote with their party. The main variables in question are the individual state ideology and the state ideological heterogeneity, or how diverse the ideological viewpoints are of those in each state. Other factors used in this analysis are the ideology and ideological heterogeneity of each of the major political parties in the state, the previous election margins of victory for incumbent Senators, and leadership positions of the Senators. Over the course of this research, it was found that there are major differences between the two parties in how they respond to each of these variables. Republicans were more responsive to increases in homogeneity among their constituents. Democrats didn’t seem to respond at all. Both parties did vote more frequently with their parties as they became ideologically extreme. Overall, this study has important implications for how individuals are represented by their elected officials, how changing political demographics may affect representation, and it gives greater insight into how U.S. Senators choose to balance competing interests.
Acknowledgements

I would like to formally express my immense gratitude to all those who supported me as I worked on this project. First and foremost, thank you to Dr. Damon Cann for the countless hours of mentorship over the past four years of my undergraduate career. The listening ear, wise counsel, and teaching through example taught me more than any class could have. Dr. Michael Lyons and Dr. Veronica Ward were also extremely supportive and patient through this process, and I am so grateful I had the chance to work with them on my Thesis Board. I would also like to thank the Political Science Department in the College of Humanities and Social Sciences, and the Economics and Finance Department in the Jon M. Huntsman School of Business. I feel so lucky to have been able to rub shoulders with such great academics and gain such a great education. Finally, I would be remiss to leave out any mention of my parents, who for the past 22 years have consistently encouraged me and helped me have the confidence to do difficult things. The times I called telling them I would never graduate is numberless, yet they always reassured me and supported me. Without them, I would not be close to where I am now.
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The 2010 Alaskan Senate Election was certainly momentous, to say nothing of its historical implications. Republican Senator Lisa Murkowski, had been appointed to be Senator by her father in 2002, and won reelection in 2004. But during the Tea Party upheaval of the Republican Party in 2010, Murkowski was defeated in her primary election to Joe Miller, who was backed by the current Governor of Alaska, Sarah Palin. She was one of several incumbent Senators to lose their primary to Tea Party candidates. However, for Murkowski the fight did not end there. She decided to run as a write-in, independent candidate, and barnstormed the state, giving bracelets out to constituents so they could remember how to spell her name. While Alaskan politics are unique, the results were meteoric. Murkowski defeated Miller, the Republican nominee who was expected to win, as well as the Democratic nominee Scott McAdams. She was the first individual to win a Senate seat by write-in in 50 years, and the first-ever incumbent Senator to win their seat back by write-in election. While elections like this are very rare, there are important features of this election that made the circumstances and outcome possible; examining some of them will help current Senatorial elections and voting patterns become more understandable and hopefully provide insight into this elected body.

First of all, it should be noted that the political climate was right for incumbents to lose reelection in primary elections, particularly incumbents who were considered “moderates.” But Alaska itself has some unique features that made such a dramatic election possible. Some of these features have to do with the homogeneity of the ideology of the citizens of the state, or the diversity of political views among the constituencies being represented, as well as the extremity of those views. In Alaska, the Republican Party is slightly more extreme than the average Republican Party in each state, and is one of the most heterogeneous. Murkowski, a political moderate, facing reelection in a party that is diverse, but slightly more extreme than most Republican parties, and riding the national Tea Party wave put her in a very vulnerable position. The fact that the popular sitting governor Sarah Palin, a Tea Party Darling and dynastic figure in Alaskan politics, backed Joe Miller only added to Murkowski’s woes. Miller narrowly defeated Murkowski, with 51% of the vote. Following this close primary election, Senator Murkowski made the decision to run as an independent write-in candidate in the general election. Alaska is a moderate state that leans conservative and typically votes Republican in major elections. However, when you look at the ideological heterogeneity of the viewpoints in Alaska as a whole, they actually tend to be one of the most politically diverse states in the nation. This is not a political climate that is very welcoming to partisan extremists - the likes of Joe Miller - in a general election, because on average the public does not reach consensus very frequently, and there is obviously a strong coalition of dissenting voices from the opposing party. This unique electoral environment, combined with name recognition, and major election spending helped propel Murkowski to victory in the general election in 2010.

While there are many reasons that this remarkable election occurred, and this story may appear anecdotal, electoral attitudes of the voting population are significant, and likely played a major role in this election. Those we elect to public office are often strongly motivated by reelection, and understanding how the public perceives them may influence how they choose to represent the public. Representation is a major topic of study by political scientists, and by understanding how constituency ideology and
diversity influences that, we can gain greater insight into how our elected officials are influenced by those factors.

The United States has several representative bodies, one of which is the Senate. The U.S. Senate is a unique governing institution for several reasons, including the independence of the members due to their longer terms, and the influence given to each of them by Senate rules, among other things. However, the members are still charged with representing constituents in their states, and most belong to political parties based on their ideological views and policy goals. The states they represent are themselves very unique, and the constituents’ views vary greatly state to state, even if party affiliation is the same, and there is significant ideological variation within the state (Levendusky and Pope 2010). Not only must legislators gain an understanding of their constituents’ political preferences, but also legislators face other pressures, the most commanding coming from their political party. Parties are nearly essential for election to major political office, and play major administrative roles in the Senate. Senators rely on the party for resources required for election, and the party needs the Senators to help them make their desired policies law.

We have already seen that elected officials can face difficult demands from their constituents that they are charged with representing. They also must balance demands from the political party that often provides basic support, and many have an unclear idea of what it means to be a representative. In this study, I will work to unravel how elected officials make decisions in their roles by studying how ideological heterogeneity in states influences party loyalty in the United States Senate. To begin, I will examine literature regarding representation, ideological heterogeneity, and party loyalty in Congress.

Starting in the 1960’s with Miller and Stokes, political scientists have been working to study how constituent preferences influence Congressional voting patterns. In a refinement of their work, Robert Erikson found that constituent preferences played an even larger role than previously predicted in influencing their representatives. He also sought to clarify whether or not a representative is more likely than the loser in an election to vote with the electorate because they are selected from within the electorate. The alternative is that they were selected because their views are more congruent with the constituency’s, and thus they were selected, notwithstanding their previous voting block. Erikson reached the conclusion that while elected officials can be more effective representatives because they are selected from the constituency, the constituency will often exert more control over the representative by their electoral behavior, and by selecting officials that represent their preferences. (Erikson 1978)

Building on this theory, Joshua Clinton sought to understand partisan differences in how elected officials – specifically House Members – represent their constituents. He also looked at different sub-constituencies that could be represented, which he identified as same-party constituents or nonsame-party constituents. Overall, the different sub-constituencies are not represented differently in a meaningful way. But when you look at how each party responds to sub-constituencies, there are important differences. The Republicans, who were the majority party for the Congress that was studied, were more responsive to same-party constituencies, while Democrats were more responsive to nonsame-party constituencies. Because this was not over an extended period of time, it is difficult to say whether these differences were because of party or majority status, but
they do provide significant insight into sub-constituencies, and how these groups may influence voting patterns for those selected to represent certain areas. (Clinton 2006)

One of the most widely acknowledged theories of representation is the median voter theorem (Downs 1957). This theory predicts that legislators will vote according to the preferences of the ideological median among voters in their district, in order to maximize the number of constituents they are appealing to, and increase their electoral success. This is because the median voter's preferences are closer to all other voters' preferences than any other single voter. There are variations on this theory, such as the idea that legislators represent the median voter in their constituency, but not necessarily among their entire district (Levitt 1996). This means that among the voters who elected them, the median voter is represented. There are also some theories that directly contradict the median voter theory, like the one proposed by Bafumi and Herron, called Leapfrog Representation. This is defined as the trend of “when a congressional legislator is replaced by a new member of the opposite party, one relative extremist is replaced by an opposing extremist.” This theory holds that the median voter is altogether skipped over each time a new representative is elected, and is minimally represented. At the same time, extreme views are over represented, creating backlash from the opposing party, which causes an electoral swing to the other extreme. (Bafumi and Herron 2010)

On an even more fundamental level, there is a theoretical basis suggesting that individuals interpret their role of representative differently. Some legislators act as delegates, directly representing the will of the people. Some choose to act as a trustee, acting in what they believe to be the best interest of those they represent. Finally, there is a cohort called politicos who fluctuate between the aforementioned styles of representation. (Gross 1978) The style an individual takes to represent their constituency is a key factor in understanding how the public is represented at large.

There are practical challenges to representation as well. Published in American Economic Review, Steven Levitt attempts to break down what factors influence how a Senator votes. He argues that personal ideology is one of the most important considerations a Senator makes when deciding how to cast a vote. He also makes the point that support constituency plays a more important role than the median voter. One final important result he highlights is that legislators become more sensitive to voter preference as elections draw closer. (Levitt 1996) While this study uses a more economic approach, and several of the points he makes are contested, it highlights the fact that representation is not a simple task, and is variable across time and between legislators. Levitt also highlights the importance of a voting constituency in representation, and how partisans, or partisan-leaners may play an important role in influencing legislators.

The major issue that representatives and voters face when making public policy decisions in a representative government is communication (Gastil and Black 2007). Legislators must be able to effectively communicate their views and the policy decisions they make to voters in order to campaign effectively. It is also imperative that they understand their voters’ preferences in order to legislate accordingly. Voters hold their legislators accountable for their voting behavior (Grynaviski 2010). When a representative is seeking reelection, they must be able to show their constituents that they are effectively representing them, whether that is by voting according to the constituents’ preferences as a delegate, or by successfully communicating that they are voting in the best interest of the constituents as a trustee. However, a major inhibitor to understanding
voter preferences is diversity among the constituency.

Diversity can be demographic or ideological, and Bishin et al. found that both types of diversity influence the ability of representatives to understand voter preferences. While all senatorial candidates show some responsiveness to voter preferences, Bishin found that it is much more common among individuals in states with demographic and ideological homogeneity. In fact, they found that, “Citizens in homogenous states seem to obtain the same representational benefits as do those living in House Districts designed to maximize descriptive representation of a particular racial or ethnic minority group.” (Bishin, Dow and Adams 2006) These results are noteworthy. It is extremely significant that some states naturally have the same level of ideological homogeneity such that they are being represented at the same level as a House district that is meant to maximize representation. Similar results were found in other studies, although for most studies, the main variable studied is ideological heterogeneity. In a study done by Gerber and Lewis, it was found that in ideological heterogeneous districts, representatives are less constrained by the median voter, and vote more frequently with their party (Gerber and Lewis 2004). In another study regarding ideological heterogeneity, Harden and Carsey argue that in heterogeneous states, Senators attempt to balance constituent and party pressures (Harden and Carsey 2012). This differs from most of the other literature because they argue that in heterogeneous states, diversity is a balancing mechanism, rather than a weakening influence on constituent representation. They, too, found that the median voter has little impact on Senators from heterogeneous states, while party influences exert a much stronger role.

My study will look at responses to ideology through the lens of party loyalty. The American two party system is very unique, and has critical electoral and legislative impacts. In 2010, Jamie Carson, along with several others, published an article studying how party unity voting affected electoral outcomes for incumbent Congressmen. Using both experimental data, and data from the House of Representatives, they found that voters punish Congressmen in general elections for being too partisan, by voting for them less frequently. However, Congressmen are not punished for being too ideologically extreme. (Carson, et al. 2010) This suggests the American public is unsupportive of overt partisanship. However, in response to this article, Nicholas Pyeatt did a study on how partisanship influences primary election results for incumbent Congressmen and found that more partisan members of Congress were less likely to face a primary challenger, and more likely to receive a higher percentage of the vote share. He also found that more ideologically extreme members of Congress were more likely to have a primary challenger. Primary voters, who are typically more politically active, but a smaller portion of the population, seem to reward partisan behavior. (Pyeatt 2015) The results of these studies have remarkable implications for Congressmen. They must walk a fine line of partisanship, and know their constituency well enough to know how to balance their partisanship. In some states, the primary elections are far more competitive than the general election, and in others the general election is the more competitive election (Turner 1953). It is also noteworthy that partisanship has increased in recent history. This could be related to an increase in primary elections rather than convention nominations, or it could be a result of other historical trends and electoral outcomes in modern history.

Partisanship and party loyalty are not static variables that are only influenced by
electoral odds for each Congressman. At a macro-level, party realignment between the 1950s through the 1980s had a significant impact on party loyalty in Congress, as the parties became more ideologically similar through a process of sorting, and thus Congressmen voted with their party more frequently (Brewer and Stonecash 2009). On a more micro-level, Volden and Bergman found that party cohesion is strongly influenced by majority or minority status, the cohesion of the other party, and shifts in the median in the Senate, and varies each Congress. (Volden and Bergman 2006) Indeed, other studies as well have found that party unity voting on an individual level is very strategic. Both moderates and extremists at various times will use disloyalty to garner support from their constituencies (Slapin and Kirkland 2014), but ideological extremists are more likely to vote with their party when party leaders are seeking votes (Minozzi and Volden 2013).

Although party members can be cohesive while representing the states in Congress, a defining feature of American government is federalism, allowing for fifty unique States. This, in turn, creates unique differences at a state level between the major political parties. These differences can stem from policies of the state, such as campaign finance laws or voter registration laws. State culture can also play a major role in creating differences between the same parties in different states. One more important factor is how the party itself is organized and run in each state. Each state party makes decisions about organizational structure, electoral strategies, and nominating mechanisms, such as caucuses, closed primaries, or open primary elections. These factors that influence the state party, and the state party itself likely have an impact on party ideological heterogeneity in each state. (Gray and Hanson 2004)

Hypotheses and Methods

While there are several studies on ideological heterogeneity, few focus on the effects that has on party loyalty among legislators, although party loyalty and polarization are increasingly relevant topics. I will study how state ideological heterogeneity influences Senators’ party unity voting. The main topic of study will most likely result in one of two outcomes. First we could observe that Senators from states that are more ideologically heterogeneous will vote more frequently with their party, while Senators from states that are ideologically homogenous will have lower party unity scores. This reflects the theory that in homogenous states, legislators are better able to receive cues from voters on their preferences and it is simpler to maximize benefits, while in heterogeneous states, legislators have a more difficult time deciphering voter preferences, and thus take cues or give in to pressure from their respective parties, because they cannot maximize benefits to their constituency. Though the aforementioned hypothesis is commonly accepted, the reasonable alternative is that Senators from more homogenous states will vote more frequently with their party because, except in rare cases, states have partisan preferences. Thus, a homogenous population would belong to the same party and Senators would choose to represent that party. In this case, Senators from heterogeneous states may have lower party unity scores because they are making a conscious effort to represent a more ideologically diverse population. I will make these observations about the differences in party unity voting as influenced by state ideological heterogeneity in the context of comparing results from Senators belonging to the Democratic and Republican parties. I will also examine how state party ideology and ideological
heterogeneity influences party unity. The hypothesis in these cases would be similar. It may be that Senators from homogeneous state parties will vote less frequently with the party in the Senate because they can take cues from their unique party in their state. It could also be the case that Senators from states with homogenous state parties have higher party unity scores because their state party has clear preferences that are likely in line with the national party sentiment. Both outcomes seem equally possible because the research on this specific topic is so sparse.

*State ideology* and *ideological heterogeneity* are the independent variables in this study, and are central to understanding the ideological attitudes in each state. In this field of study, these variables have been measured in a variety of ways. Presidential vote percent by state has been used as a measure, but this is a fairly unspecific measure and may measure state partisanship and mood more so than ideology (Carson, et al. 2010). Another measure has been policy mood polling, but polling and sampling varies state to state, making it a poor measure when using it as a comparison between states (Harden and Carsey 2012). Ross, Cann, and Burt established the method I used in this study, and similar methods have been used in other studies. This method uses data from the nationally distributed The Cooperative Congressional Election Survey (CCES). The ideology data comes from aggregating data from the CCES in the years 2009, 2010, 2011, 2012, and 2014. The questions used covered a range of issues including abortion, taxes, the War in Afghanistan, and other major issues in current politics. Individual ideology scores were calculated, and after those calculations, both the average ideology for the self-identified Republicans and Democrats were calculated and the average ideology for the entire state. These are the state ideology scores, and represent general political leanings of the state. The scores range from about -1 to 1, with negative numbers being liberal, and positive numbers being conservative. The standard deviations for these groups and sub-groups were also calculated, as a measure of dispersion is extremely important for this study – this is the ideological heterogeneity variable. For example, two states could both be considered moderate on average, but one of those states could be homogeneously moderate, while another state could be could be heterogeneously moderate, meaning that there is a wide dispersion of ideologies in the state. Individuals were considered Republicans if on the survey they reported being a “Strong Republican,” “Weak Republican,” or “Leaning Republican.” They were classified as a Democrat if they reported being a “Strong Democrat,” “Weak Democrat,” or “Leaning Democrat.”

The dependent variable for this study is *party unity scores* of individual Senators. Annually, Congressional Quarterly publishes party unity scores for each individual Senator. These scores are the percentage of times a member voted in agreement with their party. They are based on votes cast, and so not voting does not influence a member’s party unity score. I used data from the years 2007-2016. While there has been some criticism of party unity as an effective measure of partisanship, overall it has been used by many scholars to measure party loyalty without major issue (Krehbiel 2000). Part of its strength comes from the fact that voting is the primary data source from each Senator, and it is a relatively unambiguous source when interpreting for meaning, because it is a strong indicator of each Senator’s preference. It can reflect a Senator’s willingness and electoral freedom to buck their party, or a strong commitment to a certain party’s values and goals.

To test the hypothesis, I ran multivariate regression models on the data, for
Republican and Democratic Senators. I ran different models by party because of the nature of the ideological heterogeneity data, and to make comparisons between Republicans and Democrats. In order to gain the most accurate representation possible, I used a number of control variables in my analysis. I will briefly explain each of those variables and their importance. Later, I will also discuss the partisan results in the context of these variables.

**Incumbent Senators’ State Party Ideology:** This variable is the state party ideology for senators of the same party. For example, in my regression model for Democratic Senators, this is the Ideology score of those considered Democrats in each of their states. This prevents a bias due to party strength in the data, and also allows for analysis of how state party ideology influences party loyalty in the Senate.

**Incumbent Senators’ State Party Ideological Heterogeneity:** This variable is very similar to the previous variable, except rather than being an average ideology score, it is the standard deviation, or a measure of variance. This signifies the level of differences within the party, and how diverse the party is. It gives an idea of how ideological heterogeneity within a party may influence party unity voting.

**Party Leadership:** This variable is used as an indicator for whether or not each Senator belongs to the Party’s leadership. I have defined being in a leadership position as being a Majority/Minority Leader, Whip, Caucus Leader, Conference Chair, or Conference Secretary. Previous research by Harden and Carsey has shown that being in a party leadership position results in a higher likelihood to vote with the party, and thus making it an important control variable when measuring party unity (Harden and Carsey 2012).

**Primary Election Margin of Victory:** This variable is a numerical value representing the difference between the winning candidate’s and the next closest candidate’s vote percentage for Senators in the primary election previous to each year the data is gathered for. As was previously mentioned, partisan voting behavior is rewarded in primary elections, and it may be possible that Senators who faced close primary elections will display more partisan behavior following the election (Pyeatt 2015).

**General Election Margin of Victory:** Similar to the preceding variable, this is a number that is the difference between the winning candidate’s and the next highest vote getter’s percentage, from the election prior to the year of the data being collected. Research shows that legislators who vote more frequently with their party often receive a smaller vote share than those who vote less frequently with their party (Carson, et al. 2010). It may be the case that Senators who have small reelection margins will vote less frequently with their party in order to prevent punishment at the polls by voters.

**Primary Election Margin of Victory Squared:** This variable is the squared value of the winning candidate’s primary vote percentage. This is particularly important because some of those who advanced in the primaries actually lost on the first ballot, so this ensures all numbers are positive. It also highlights the effect by creating larger values.

**General Election Margin of Victory Squared:** This represents the squared value for the margin of victory in the general election for the winning candidates. Although there were no negative results for the general election, this is again an important variable because it displays a much clearer view of the results because they are exponentially larger.
Results

The results of this study differed significantly between the two major political parties, and have major implications for this field of study. In this section, I will discuss how Democrats' and Republicans' party unity was affected by their state ideology and ideological heterogeneity, and the noteworthy role other variables may have played in party unity for these groups.

Table 1: Summary Data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Party Unity Scores</td>
<td>90.86</td>
<td>10.29</td>
<td>38</td>
<td>100</td>
</tr>
<tr>
<td>State Ideology Scores</td>
<td>0.06</td>
<td>0.22</td>
<td>-0.45</td>
<td>0.44</td>
</tr>
<tr>
<td>State Ideological Heterogeneity Scores</td>
<td>1.28</td>
<td>0.05</td>
<td>1.21</td>
<td>1.46</td>
</tr>
<tr>
<td>State Democratic Party Ideology Scores</td>
<td>-0.91</td>
<td>0.18</td>
<td>-1.27</td>
<td>-0.47</td>
</tr>
<tr>
<td>State Democratic Party Ideological Heterogeneity Scores</td>
<td>0.94</td>
<td>0.04</td>
<td>0.86</td>
<td>1.04</td>
</tr>
<tr>
<td>State Republican Party Ideology Scores</td>
<td>1.10</td>
<td>0.11</td>
<td>0.82</td>
<td>1.26</td>
</tr>
<tr>
<td>Republican Party State Ideological Heterogeneity Scores</td>
<td>0.87</td>
<td>0.03</td>
<td>0.81</td>
<td>0.94</td>
</tr>
<tr>
<td>Primary Election Margin of Victory</td>
<td>70.21</td>
<td>33.25</td>
<td>-10.47</td>
<td>100</td>
</tr>
<tr>
<td>General Election Margin of Victory</td>
<td>23.21</td>
<td>17.82</td>
<td>0.01</td>
<td>100</td>
</tr>
</tbody>
</table>

I will begin my analysis by looking at the results for the Democratic Senators. During the time period that I studied, Democrats were a Senate majority for eight of the ten years. When looking at the state ideology measure, which measures the liberalness or conservativeness of the state’s population, there appears to be a negative correlation, with the correlation coefficient being -16.96. This means that when a state’s ideology score drops by one point, thus the average ideology is leaning strongly liberal, a Senator’s party unity score will increase by about 17 points. However, here it is important to note the summary data on Table 1. One standard deviation for state ideology is only about 0.22, so the typical changes in party unity scores for most of these Senators is less than 4 points. That being said, this variable does reach a level of statistical significance at the 95% confidence interval. As a state becomes more ideologically liberal, Democratic Senators from that state will vote with their state more, while Democratic Senators from more ideologically moderate, or in rare cases conservative, states will vote less frequently with their party.
Table 2: Democratic Senators' Results

Regression Table for Democratic Senators

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-value</th>
<th>P&gt;t</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Ideology*</td>
<td>-16.96</td>
<td>3.68</td>
<td>-4.61</td>
<td>0.000</td>
</tr>
<tr>
<td>State Ideological Heterogeneity</td>
<td>7.35</td>
<td>10.70</td>
<td>0.69</td>
<td>0.492</td>
</tr>
<tr>
<td>Democratic Party State Ideology</td>
<td>-0.77</td>
<td>5.51</td>
<td>-0.14</td>
<td>0.888</td>
</tr>
<tr>
<td>Democratic Party State Ideological Heterogeneity</td>
<td>-18.50</td>
<td>9.46</td>
<td>-1.96</td>
<td>0.051</td>
</tr>
<tr>
<td>Leadership</td>
<td>1.77</td>
<td>1.16</td>
<td>1.52</td>
<td>0.128</td>
</tr>
<tr>
<td>Primary Election Margin of Victory</td>
<td>-0.27</td>
<td>0.05</td>
<td>-0.57</td>
<td>0.571</td>
</tr>
<tr>
<td>General Election Margin of Victory</td>
<td>0.10</td>
<td>0.08</td>
<td>1.28</td>
<td>0.201</td>
</tr>
<tr>
<td>Primary Margin of Victory Squared</td>
<td>0.0002</td>
<td>0.0004</td>
<td>0.58</td>
<td>0.561</td>
</tr>
<tr>
<td>General Election Margin of Victory Squared</td>
<td>-0.0015</td>
<td>0.0014</td>
<td>-1.06</td>
<td>0.289</td>
</tr>
<tr>
<td>Constant</td>
<td>99.41</td>
<td>10.19</td>
<td>9.75</td>
<td>0.000</td>
</tr>
</tbody>
</table>

*Denotes Variables that reach a level of statistical significance at P>0.05 or greater.

Democrats showed a slight positive relationship between party unity voting and state ideological heterogeneity, but this did not reach a level of statistical significance. This has some important implications, not the least of which is that while Democrats are highly attentive to the overall ideological position of their state population, they do not appear to be affected by the level of diversity within the state. This could lead to a Senator from a state where the general population is moderately liberal voting in the exact same way as a Senator from a state that is moderately liberal because there are some very liberal individuals and some moderate or conservative individuals.

There was also only a very slight effect of the Democratic Party Ideology on party unity voting for Democratic Senators, and it did not reach a level of statistical significance. These findings imply that Democratic Senators place more value on the ideological views of the state population as a whole, rather than just those who identify with their party. Another valuable finding is that Democratic Party Ideological Heterogeneity has a negative relationship with party unity scores. As each state's Democratic Party becomes more homogeneous (their scores decrease) party unity voting will increase. A one-point decrease in heterogeneity is associated with about an 18-point increase in party unity voting. Again, it is important to look at the standard deviation for this independent variable on Table 1, which is about 0.044. One standard deviation change results in a less than one point change in party unity scores, because the variation
in Democratic Party Ideological Heterogeneity is so small. The level of significance for this variable is also important to note. The relationship is significant at a 94.9% confidence level. This does not reach the typical standard of significance in the field of political science. Yet to deny that there is any effect when the level of significance is so close to the threshold of 95% confidence would be unwise. So while this variable does not in fact, meet the normal standard of confidence, it does appear to have some effect on party unity voting and further research should be done to examine this relationship.

Senators with leadership roles may have been more likely to vote with their party than those who were not in leadership positions in the Senate, but the effect is slight, and does not reach a level of statistical significance. This may suggest that Senators feel most of their obligation to their state, and that being in a position of power does little to shift their priorities. However, these findings conflict with previous research and more study is necessary to reach a conclusion.

The variables Primary Election Margin of Victory and General Election Margin of Victory have some interesting implications, and will be discussed in direct comparison to the Republican results, where they can be presented with more clarity, following the overall discussion of the Republican Senators’ results.

The results for the Republican Senators differed significantly from the Democrats. As Republican Senator’s states became more ideologically conservative, the Senator’s are more likely to vote more frequently with their party. This is a positive correlation, because as a state becomes more conservative their ideology score becomes a higher, positive score. The coefficient is 41.56 for Republican Senators, meaning, as a state becomes one point more ideologically conservative, party unity scores will increase by more than 41 points. Because the standard deviation for state ideology is only about .22, the typical change in party unity scores is about 9 points for Republicans. This effect does reach a level of statistical significance at a 95% confidence level, and the effect is about twice as large for Republicans as it is for Democrats. These results indicate that Republicans may be more responsive to changes in ideology among their constituents than their Democratic counterparts. A change in ideology would only need to be half as significant for a Republican Senator to adjust their party unity voting compared to a Democrat.

State ideological heterogeneity also had a statistically significant impact on party unity voting for Senators. These two variables had a negative relationship, such that as a state became more ideologically diverse, party unity voting decreased among Republican senators. The correlation coefficient is -58.38, for every one point increase in state ideological heterogeneity. But again, it is important to look at the standard deviation of these variables to determine the real effect that we are seeing. The standard deviation for state ideological heterogeneity is 0.055, so when most of the Republican Senators’ states become more ideologically diverse, their party unity scores change only about 3 points. While this seems like a much smaller impact, it is still important to note that it did reach a confidence level above 95%. Republicans appear to be aware of the ideological diversity in their states, and voting patterns differ accordingly.

Republican Senators had a very small positive response to changes in the ideology of the state Republican Parties. The effect was minor and was not statistically significant. Similarly, Republican Senators had a slight positive response to changes in ideological heterogeneity within their party, but this too did not reach a level of 95% confidence.
It seems, at least from 2007-2016, that while Republicans seem more attuned to the policy mood and ideological diversity of the state as a whole, they are either unaware of, or apathetic to changes in their state parties’ ideological position. Contrastingly, Democrats are more aware of diversity among their party members, but may not be as aware of the state as a whole.

Senate Republicans also had a very slight increase in party unity voting when they were in a leadership position, but this change did not reach a level of statistical significance. As was the case for the Democratic Senators, leadership seemed to play a minor role in party unity voting in this study, especially when controlling for state ideology. This could be because ultimately Senators feel more obligations to their state than party, or because party leaders may be selected from states with strong ideological preferences and homogeneity, so party unity voting is unaffected.

Table 3: Republican Senators’ Results
Regression Table for Republican Senators

| Variable                                    | Coefficient | Standard Error | t-value | P>|t|
|---------------------------------------------|-------------|---------------|---------|-----|
| State Ideology*                             | 41.56       | 6.04          | 6.88    | 0.000 |
| State Ideological Heterogeneity*            | -58.38      | 15.29         | -3.82   | 0.000 |
| State Republican Party Ideology             | 7.69        | 12.77         | 0.60    | 0.547 |
| State Republican Party Ideological Heterogeneity | 25.35     | 21.94         | 1.16    | 0.249 |
| Leadership                                 | 2.45        | 1.63          | 1.50    | 0.134 |
| Primary Election Margin of Victory          | 0.11        | 0.06          | 1.96    | 0.051 |
| General Election Margin of Victory*         | -0.20       | 0.08          | 2.61    | 0.009 |
| Primary Margin of Victory Squared           | -0.0009     | 0.0005        | -1.72   | 0.086 |
| General Election Margin of Victory Squared  | 0.0013      | 0.0008        | 1.58    | 0.115 |
| Constant                                   | 125.64      | 20.52         | 6.12    | 0.000 |

* Denotes Variables that reach a level of statistical significance at P>0.05 or greater.
Primary and General Election Variable Results

As was previously mentioned, the results regarding party unity voting among Senators and the two election variables are particularly interesting because of the especially important nature of these variables. While the main purpose of this study is not to examine how election outcomes influence party unity voting in the U.S. Senate, to simply ignore the results that became available would be a waste of valuable information about election impacts on legislating, and differences between our two major parties. Elections are a huge part of American politics and culture, and examining election outcomes and the relationship between major political institutions can provide greater insight into each of these parts of American government.

Primary elections are much more party-centered, and the results seem to vary a great deal more, with some people losing the primary election, yet still receiving their party’s nomination or winning the general election. This resulted in negative margins of victory for some individuals, which made the analysis slightly more difficult. This was one reason for creating a Primary Margin of Victory Squared variable – to nullify the negative results.

For Democratic Senators, as their primary margin of victory increases, their party unity scores decrease. Yet this effect is minute, and does not reach a level of statistical significance. For Republican Senators, there is a positive relationship between primary election margin of victory and party unity score, meaning as the margin of victory increases, so will party unity score. The coefficient for this variable is 0.1146, but to put it into context, the average standard deviation for primary election margin of victory is about 33 points, so most Senators’ party unity scores will be influenced by about 3 points. This reached a level of significance at the 94.9% confidence interval, so while it was not statistically significant at the accepted level for the field, to discount a relationship between party unity scores and primary election victory margins for Republicans would be discarding what could be a valuable relationship. Neither party had statistically significant results for the Primary Margin of Victory Squared variable.

Graphs 1 and 2 give a clearer display of the actual effect we are seeing because of this variable. Holding all the other variables constant, predicted party unity scores are calculated for each member based on their margin of victory in their primary election. For members of the Democratic Party, party unity scores are highest when the margin of victory is low, and as margin of victory increases party unity scores decrease. After reaching a low point at about 60 points, party unity scores begin to ascend again as the victory margin increases. It is very important to reiterate that this effect did not reach a level of statistical significance, and that the effect is very minor. While there is a visible trend on the graph, the changes are so small that they would be almost indiscernible in comparison to real party unity scores. However, this is an important unit for comparison between parties, and it provides valuable insight into the quadratic relationship that we would otherwise be unable to see. Before discussing any implications these results may have, I will also discuss the general election results to give a clear picture of what is taking place.
Democratic Party Unity Scores and Primary Election Results

Graph 1

For Republican Senators, the graph of their predicted party unity scores and primary margin of victories are near opposite results as the Democrats. Party unity began low with those whose margins of victories were very low. It then increased as the victory margins increased, peaking between a 60 and 70 point win. However, those who truly swept the competition, or were uncontested, showed lower levels of party unity voting than some of their counterparts. These results are statistically significant.

General elections have significantly more participation, as well as a much more diverse set of individuals participating in them. Generally, the results were less dispersed than they were for primary elections. For Democrats, the General Election Margin of Victory variable had a slightly positive relationship, but was not statistically significant. The General Election Margin of Victory Squared variable had a very small negative relationship, but was also not statistically significant. This suggests that there is likely no relationship between a Democratic Senator’s party unity score and the margin of victory by which they won their election. On the other hand, Republicans had a negative relationship between party unity and general election margin of victory. This means that these Senators were less unified with their party when they won their general election by a larger percent of the vote. The opposite is also true. This did reach a level of statistical significance at the 95% confidence level. The coefficient was -0.1975, and the standard deviation for general election margin of victories was 17.8 points, so most Senator’s scores would only fall about 3 points as their election margin increased. The General Election Margin of Victory squared variable did not reach statistical significance for Republican Senators.
Graphs 3 and 4 again provide more insight into the trends we see for the Democratic and Republican Senators in regards to their party unity scores and their general election margin of victory. Graph 3 shows the predicted party unity scores for Democrats based on their general election results. Keeping in mind that these results are not statistically significant, we can see that as the margin of victory for Democratic Senators increases, they are more likely to vote with their party, with a peak just above a victory margin of 30 points. After reaching that point, party unity scores tend to decrease as the victory margin increases. The difference in party unity scores is almost indiscernible for Democratic Senators, and none in this group won by more than 60 points, so this trend line gives a bit more detail into what we may see, but can’t be used for any definitive statements or predictions.
Republicans had an opposite response as Democrats to the results of their general election margins of victory. Graph 4 displays the anticipated party unity score based on the general election margin of victory for the Republican Senators. Those competing in the closest elections seemed to have the highest party unity scores, beginning at about 85 points. Then as elections become less competitive, Republicans display less party unity, with those who had a victory margin of about 73 points having a party unity score of less than 78 points. There is a slight uptick for those with extremely high margins of victory who are Republicans. These results were statistically significant, and the range of scores is much greater for Republicans than it was for the Democrats.
Interpreting the Differences

As we have seen, Senators from each of the major political parties in the United States responded in very diverse ways to the variables that were observed in this study. This section will not seek to understand why the parties reacted this way, but rather what the differences were, and what the implications of these differences and all the results are for the study of the U.S. Senate.

State ideology is a key part of federalism and research in this field, and Senators seemed to react differently to changes in this variable depending on their partisanship. As was discussed in detail earlier, Democrats and Republicans both seemed to vote more frequently with their party when their states became more ideologically extreme, although it was not statistically significant for the Democratic Senators. So while the relationship is inconclusive for the Democrats, it was evident that Republicans were strongly influenced by the ideological viewpoints of their constituents. This variable actually had the largest impact on their party unity scores. Based on these results, state ideology is the largest factor in determining how a Republican Senator will vote, and suggests that many representatives choose to work as a delegate, representing the will of their constituents.

Ideological heterogeneity also suggests that Republicans are very sensitive to their constituents’ views, and changes in them, while no conclusions can be drawn for the
Democratic Senators. Republicans’ party unity scores would decrease as state ideological heterogeneity increased. This is the second most important factor in predicting Republicans’ party unity scores. Why Republicans are more responsive to their entire state’s ideology is unclear, but for both of the state ideological variables, the Republicans are significantly more likely to respond to constituent ideology, and make a direct effort to represent the views of the citizens of their state. If this topic is explored further, we may gain some valuable insights into the differences between parties.

Neither Democrats nor Republicans had statistically significant results when regressing party ideology on party unity scores, and Democrats were just bordering statistical significance for party ideological heterogeneity, while Republicans did not show any strong effect. It is important that Democrats are responsive to diversity and ideological shifts within their base, but it appears that neither party has strong reactions to the ideology their party. This may suggest that because they have foundational support they are less concerned with policy mood among their party loyalists, and are catering to independent and swing voters. This would probably be in an effort to maximize votes, because strong partisans will likely support the party’s nominee no matter what, but independent voters and weak partisans may be more vulnerable. However, it is important to be aware of changes in the party’s ideological mood because it may have stronger influences on primary elections that are becoming increasingly more competitive (Turner 1953).

Holding a leadership position in the Senate also had no significant impact on party unity voting for members of either party. This conflicts with other research done on this topic that states Congressional leadership votes with their party more frequently than non-leadership members. More research is necessary to evaluate the true effect of holding a leadership position on party unity voting for Senators. But the results from this study could indicate that members from both parties feel greater obligations to their states than their parties, even when in high-pressure roles where they are the party leaders. Reelection is a high priority for Senators, and this could suggest that even party leaders feel that reelection prospects are more important than party loyalty. The interpretation of these results could also be much simpler. Party leaders may just be picked from ideologically homogeneous states where the party is strongly represented, to ensure they have high reelection chances and represent the party ideologically.

The margin of victory for primary elections did not appear to have a significant effect on the party unity scores for Democrats, and while it didn’t meet the 95% confidence interval threshold for Republicans, it reached a 94.9%, which is sizable enough that it should not be dismissed. Republicans were more likely to vote with their party when they had a greater margin of victory in their primary. We cannot infer causality from this relationship, but there are a couple of things that could be taking place. First, these results could imply that Republicans who are more partisan in their voting patterns receive a greater share of the vote in their primary elections. Primary elections are more partisan in nature, and as was noted, partisan behavior is rewarded in primary elections (Price 2015). Another related implication we can take from these results is that those who receive a greater portion of the primary vote may choose to vote more frequently with the party to reflect their voter’s preferences, while those who have a very small margin of victory may not feel as strong of a connection to their party and may vote more with the diverse preferences in their states. These outcomes are not
mutually exclusive and could be working together to make an impact on how Republican Senators choose to vote. There may be a slight trend in the opposite direction for Democrats, but because the effect is so small and not statistically significant, no conclusions can be drawn. There is no clear inclination for how Democrats respond to varying margins of victory in their primary elections. More research on this topic is necessary to draw any definitive inferences about these results.

The general election margin of victory was also not statistically significant for Democrats, but it was for members of the Republican Party. However, Republicans reacted in the complete opposite way when it came to this variable. As the margin of victory increased, party unity voting decreased for these Senators. However, these results are consistent with the literature as well. Senators who vote more frequently with their party could be punished in general elections for their partisan behavior by the more diverse and independent voting population. Alternatively, Senators who are receiving a greater portion of the vote share could feel less obligated to their party, or more obligated to a heterogeneous voting block who elected them, and could choose to vote less frequently with the party because of these results. Again, it is not that these options are one or the other—these factors could be working together to create the effect we observe. But further research into the subject is necessary to gain proper insight into the subject. Interestingly, Democrats again seem to react in the opposite manner, but there is only a very slight effect that is not significant, so to make any conclusions would be presumptuous.

Addressing the Hypothesis

In regards to the hypotheses, and possible outcomes, it seems that at least for Republican Senators, the second hypothesis is true. As states became more ideologically extreme, and homogenous party unity voting actually increased among this group. This is contrary to the research that suggests that it is heterogeneity that actually increases party unity scores, as Senators will take more cues from their party and feel less restrained by their diverse constituency. On the other hand, Democrats did vote more frequently with their party as their constituency became more extreme, but constituent homogeneity had little impact on their voting patterns at all. This suggests that this group is attuned to overall policy mood, but pays little heed to diversity of viewpoint within their state. Both of these findings conflict with much of the current literature regarding the ideological heterogeneity and party unity voting, and provide avenues for future research that may provide more insight into why there are such major differences between the parties.

Conclusion

Discerning patterns in voting is a key part of studying our law making institutions here in the United States. Because parties play such a substantial role in American politics, viewing voting patterns through the lens of party unity can give insight into the influence each party has on its members. This is especially true as we investigate the varying ideological viewpoints in each state. The U.S. federal system allows for states with significant ideological differences and variance to elect their leaders which, I hypothesized, would impact their voting patterns. For Republican Senators there was an influence on party unity voting based on ideological extremity and heterogeneity. These results have critical implications for this field of study. The Republicans responsiveness –
and Democrats apparent non-responsiveness for most of the observed variables – to their constituents and the diversity within their state could have strong influences on their election outcomes. This may have been one of the major factors that made a difference for Senator Murkowski as she ran – and won – her write-in campaign in a general election. This could be the case for senators that because they are receptive in their voting patterns, it is likely that they are also receptive in their campaigning. This could draw a larger number of voters to them than would otherwise be anticipated. Currently more people identify as Democrats than Republicans, yet Republicans have control of Congress, the majority of gubernatorial positions, control of most state legislatures, and the presidency (Jones 2017). There are many factors that will influence this but the fact that Republicans in the U.S. Senate are more influenced by state ideology may be one of them. They are responding more frequently to voter preferences, and may be rewarded electorally for that response.

Another implication of this research deals with the representation of individuals. Individuals living in states represented by Republicans are more likely to have their preferences catered to if the state is diverse. However, the voting margins in these preferences is so small that the Senator will still most likely be voting with their party a majority of the time. However, Democratic Senators show no reaction to changes in ideology or diversity within each state. This is concerning for those being represented because it suggests their voices may not be heard by their elected official. Even within parties these results have interesting implications for voters. Active partisans often make up a base of the voters who vote in primaries, donate to campaigns, and volunteer for campaigns (Saunders and Abramowitz 2004). Yet neither Democrats nor Republicans had strong responses to the ideology of their state party, and Democrats may have had a slightly significant response to ideological heterogeneity within their party but Republicans did not. The voters who are exceptionally active in supporting their party, especially early on in the election cycle, may not be receiving many benefits because of the apparent indifference of Senators to the ideology of their state political parties. Most elections have much more predictable outcomes than the 2010 election in Alaska, but that doesn’t mean that electoral outcomes, or subsequent voting patterns based on the population of the state are straightforward. Elected officials have many demands upon them, including several groups they are called upon to represent. This deeper insight into how electoral factors, as well as factors related to state ideology, ideological heterogeneity, and sub-constituency ideology can, however, aid scientists, strategists, and the voting public in understanding the legislative decision making process of their Senators.
Reflective Writing

A capstone is a finishing stone added to a wall or arch in order to complete it. Completing my honors capstone has been one of the most challenging yet rewarding experiences of my undergraduate career. As I began working on it more than a year ago, I had the challenge to decide how to tackle this opportunity, and if it was something I would consider worth it. Looking back, I can easily say that it was, for innumerable reasons. I’ll go into detail about just a few to explain how I have grown through this process, and how I really view it as a “capstone” to my education.

First of all, completing this thesis really allowed me to tie together my education in a way that I think few things could. As a dual major in Political Science and Economics, which are housed in different colleges, there is little overlap in material that I am learning, although the concepts are inseparable. Writing a thesis allowed me to apply economic concepts, models, and statistical practices to my passion for studying legislative politics. It also allowed me to practice the statistical skills I had learned in both disciplines, as well as the analytical skills I have worked on through my undergraduate career. Writing a thesis was one of the closest things I got to real world experience in the field of policy analysis. This has been wonderful as I prepare for more education and to eventually enter the workforce.

Another significant benefit to writing my honors thesis was the relationship I developed with my mentor, Dr. Damon Cann. I have worked with him for three years, but as I began to work more independently on this project, I began to learn even more from him. Not only did he consistently teach me about how to run statistical models, how to write for a research audience, and how to present findings in a way that are understandable, but he taught me important lessons about character and teaching itself. He pushed me to be more than I thought I could, because he saw potential in me that I could not see. This meant stepping back even when I thought I was drowning in the work. Dr. Cann taught me that being on someone’s side means helping them to achieve all their goals, even when it is hard. He also taught me that being a good mentor, and professor, includes patience, kindness, and ways of boosting confidence. I think learning to be a good person is just as useful in higher education as the academic skills you learn. What good are academics if you won’t use them to help? Dr. Cann taught me more than anyone I know at Utah State both in academic knowledge and in positive character. This mentorship has been key to my education here at Utah State.

Another benefit that I had not anticipated from this project was how it taught me about research within my field, and research in general. As an undergraduate researcher, I felt that I had a good understanding of research – this is something that I have grown up with and been working through for the past eight years of my life. Yet, completing a project of this magnitude so independently taught me a great deal. I learned what a process it can be. I changed my ideas multiple times as I researched, looked for data, and did more background research. I then wrote and rewrote and rewrote again, trying to find the best words to say what the numbers were actually saying. The process was so much longer and more strenuous than I had imagined. I also learned how much research there is in political science and in economics, and how interrelated they are. My subject was highly specific, yet I still found related studies, and there were so many other specific studies that I needed to understand to form my hypotheses. It was fascinating. Perhaps
one of the most fun parts of this project was the discovery of information and relationships I wasn’t even looking for. The beauty of research is that we often find something valuable, even if it wasn’t what we thought. I remember when that really started to click, it was thrilling.

A project on state ideological heterogeneity and party unity voting in the United States Senate doesn’t seem very connected to the community or world around me. It is a niche subject, and the Senate is one of the most elite governing bodies in the world. This simply doesn’t seem like it applies. But discovering how it did, and how it could be important to people around me was enlightening. It was difficult at times – it takes mental stretching. But when I realized that behind the numbers, behind the state heterogeneity scores, and ideological units, and margins of victory, were real voters who cared about issues, then it became much more real. I realized that although it seems obscure, there are people who want to be represented, and it is important we know if and how that is being done. That is the first step to making sure they are being represented in the best way possible, and once we have this knowledge, we can connect people to their legislators, and hold them accountable. They can decide, but they have to know first, and what I did was start to help us know what is happening. I love being able to use my passion for research to help people work effectively in their political system.

Overall, writing a capstone was difficult and there were times I didn’t think it was possible. I didn’t think I could do it. But having done it, I can now say that it completed my education in a unique way. I developed strong relationships, connected my varying interests, gained a much deeper education on research, and found ways to help my community. These are just some of the benefits. I learned that I can do hard things, and that the results are so gratifying.

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About the Author

Tessa Ray Carver was born and raised in Ogden, Utah. She became a voracious reader after picking up her first Nancy Drew novel, and hasn’t put books down since. After graduating from Weber High School in 2014, she attended Utah State University. There, after changing majors and minors several times, she pursued a dual major in Political Science and Economics. While attending Utah State, Tessa was actively involved as an undergraduate researcher, and in the Institute of Government and Politics. She lived in Washington D.C. for a summer where she interned for United States Senator Mike Lee. She also had the opportunity to intern for Utah’s Lieutenant Governor Spencer Cox, in Salt Lake City. Following her graduation, she will attend Brigham Young University to pursue a Master of Public Administration. She hopes to work as a policy analyst or in non-profit management.