Assessing U.S. Senators' Response to a Competitive Primary Challenge with Increased Partisan Roll Call Voting

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ABSTRACT

Much of the political punditry in the United States discusses the notion that facing a primary election results in legislators voting in a more partisan fashion in the legislature. A common refrain of this analysis is that facing the primary election constituency (Fenno 1978) or even the threat of facing the primary election constituency causes the senator to vote with the ideological extremes of the party in following sessions of congress. The literature on congressional elections has examined this area of research as it applies to the U.S. House, but few studies fully examine the impact of primary elections on roll call voting in the Senate. This study examines Senate primary elections to see how facing a primary, specifically a competitive primary, influences how a senator votes in the legislature in the first term following the election. This study specifically asks if senators who face a competitive primary challenge and win reelection vote with their party more often in subsequent congresses than senators who do not face a competitive primary challenge. Using OLS regressions and a number of control variables shown in the literature to impact roll call voting patterns, I examine the percentage of the vote that a senator received in her primary election compared to her party unity score in the Senate after the election. While my models demonstrate that facing a competitive primary correlates with a senator having a higher party unity score than senators who do not face a competitive primary, in all of my models the coefficient on this variable is not statistically significant. However, serving in the majority party and being elected in certain election years did have a statistically significant impact on a senator's partisan voting behavior. When testing an interaction effect between facing a competitive primary and serving in the majority party after the election, I also did not find a significant relationship between the interaction and a senator's change in party unity score. These findings add to our understanding of congressional elections by exploring an under-studied aspect of elections in the United States, and future research that adapts and refines the methodology of this study could further develop these results.

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GENERAL AUDIENCE ABSTRACT

There is a common perception that facing a primary election makes it more likely that a member of congress votes with her party more often. The idea is that the primary voters want their representatives to be more radical, and therefore push incumbents to the extremes, resulting in more polarization in the legislature. While studies on elections to the House have shown mixed results when examining this question, few studies examine if these patterns exist in elections to the Senate. This study examines Senate primary elections to see how facing a primary influences how a senator votes in the legislature. However, because of limited data, this study examines competitive primaries, based on how much of the vote the senator receives in her election, rather than ideological primaries, based on the senator being challenged from the extremes of the party. This study specifically asks how facing a competitive primary influences a senator's partisan voting patterns in subsequent congresses after their election. In order to study this, I examine the percentage of the vote that a senator received in her primary election compared to her partisan voting patterns in the Senate after the election. I did not find that senators who face a competitive primary respond by voting in a more partisan fashion in the congressional sessions following the election. However, serving in the majority party and being elected in certain election years did have a significant impact on a senator's partisan voting behavior. When testing if the impact of facing a competitive primary was conditioned by serving in the majority party, I also did not find that serving in the majority party conditions the impact of facing a competitive primary on a senator's partisan voting patterns. While these findings did not support the notion that facing a competitive primary influences a senator's partisan voting behavior, future research could alter this study to further examine this question. Such additional research is necessary in order to more fully understand Senate elections.

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The seeds of the idea for this thesis were planted in Fall 2018 when I was a Senior in Dr. Goedert's Senior Seminar on American Political Institutions. While I in no way had my research question narrowed down, the research proposal assignment in his class sparked an interest in furthering my political science research interests at a time when I was unsure of what I wanted to do after graduation. That assignment grew and developed into this thesis, with changes made along the way based on the suggestions of all three of my committee members. As I started in the graduate program, Dr. Goedert's mentorship was a welcome foundation to help me keep my balance in a challenging academic setting.

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-Payne Tarkenton

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Introduction

After progressive darling Alexandria Ocasio-Cortez's victory over incumbent Rep. Joe Crowley in 2018, along with similar results in other races that summer, many began to wonder if leftwing challengers defeating more centrist candidates favored by the Democratic Party establishment would become something of a trend. The 2020 primary season had results in notable races that seemed to continue this trend. Jamaal Bowman, a school principal with no previous government experience, defeated Democratic Rep. Eliot Engel in New York's 16th district in another win for progressive challengers over longtime Democratic incumbents in the House (McKinley 2020). As primary contests in Kentucky and Colorado in the summer of 2020 offered a similar dynamic of progressive versus establishment – though without the challenge to an incumbent – some began to ask if this pattern would extend to the Senate. Indeed, even Majority Leader Chuck Schumer's name has been thrown around as a potential target for a primary challenge by a progressive challenger when he is up for reelection in 2022 (Robillard 2020). While defeating Sen. Schumer would be a difficult feat for a challenger, the seeming rise of a progressive flank of the Democratic Party has put the idea into the public consciousness and at least raised alarms among some Democratic incumbents and consultants (Robillard 2020).

Surprising primary upsets by challengers representing the ideological flanks of both parties are not only a phenomenon in the Democratic Party – one need think of Dave Brat's stunning victory over then-Republican Majority Leader Rep. Eric Cantor in the Virginia 7th District in 2014 or the several primary challenges and victories by candidates who associated with the Tea Party movement in 2010 as examples in recent years. However, potential challengers who seek to take on a member of congress must face a certain reality about her challenge: most members of congress are reelected, and even those who face a primary are still typically reelected. The high reelection rates for members of congress does not stop the discussion of the potential of future challenges, however.

Indeed, it is a common aspect of American political reporting that as soon as one election closes the political commentariat fire away with predictions about who might be vulnerable to a challenge in the next congressional elections. FiveThirtyEight did so barely a month after the 2018 midterms, with a post outlining the senators who could be vulnerable to a primary challenge in 2020. This analysis focused on senators whose last primary election (2014 for those who would be up for election in 2020) was competitive, defined by the percentage of the vote the senator won. The underlying question of this piece was whether or not the senators who faced these competitive primaries would vote in a more partisan manner in the run-up to the next election as a way to appease their primary bases (Skelley 2018).

Given that most members of congress, even those who face a primary challenge, are reelected more often than not, it would be beneficial to determine if facing a primary challenge causes a member of congress to adjust her voting behavior in congress in subsequent years. While it is not possible to conclusively prove that incumbents adjust their behavior in congress as a result of a primary challenge in order to prevent primary challenges in the future (an idea that is common among political pundits), it is possible to measure if members of congress are responding to primary challenges (Boatright 2013). One easily quantifiable method of measuring a legislator's behavior is examining her party unity scores, which measure the percent of time the legislator votes with her fellow partisans in congress. If a member of congress adjusts her partisan voting behavior in Washington following a primary challenge, as seen in her party unity score, using methodology from the numerous studies on congressional elections can help isolate other potential explanations and infer that the competitive primary challenge likely influenced the legislator to act that way. If facing a competitive primary does create an incentive in a member of congress's mind to act in a more partisan manner, as the pieces like the FiveThirtyEight piece above suggest, then we should be able to see that members of congress are responding to a competitive primary challenge by voting in a more partisan fashion in congress after that challenge occurs.

In this project, I seek to examine the relationship between facing a competitive primary and voting in a more partisan manner. Specifically, I ask if a senator who faces a competitive primary challenge and wins reelection votes with her party more often in subsequent congresses than when she does not face a competitive primary. Following examples from the robust literature on congressional primary and general elections, congressional roll call voting behavior, congressional polarization, and constituency representation in congress, I use similar methodology to explore an area of research that has typically not received as much attention. When studying elections to congress, researchers tend to focus more on the United States House of Representatives rather than the United States Senate. This project seeks to serve as a bridge connecting these fields of research, taking what researchers know about elections to the House and applying it to the upper chamber. Focusing on the Senate, specifically, also advances the field of political science by helping understand whether the patterns that exist in the House exist in the Senate as well. Doing so helps us understand the electoral context surrounding the Senate and the phenomena that lead to how legislators act when representing the people.

Methodologically, I use ordinary least squares regression models to assess the degree to which, if at all, facing a competitive challenge in a primary election influences a senator to vote with her party more often in subsequent congressional sessions following the competitive primary challenge. My results prove to be non-definitive – while I find that for the most part a senator who faces a competitive primary does vote with her party more often than when she does not face a competitive primary, in none of these models is the coefficient statistically significant. As such, the results that I have are not distinguishable from random chance, and I cannot definitively say that facing a competitive primary makes a senator more likely to vote in a more partisan manner in congresses following the election. Additionally, serving in the majority party had a positive and statistically significant impact on how a senator changes her partisan voting behavior. The magnitude of this impact varied across the models, but in all it was larger than the effect of a senator facing a competitive primary and positive, meaning that a senator serving in the majority votes with her party more often than when she is serving in the minority.

When testing an interaction term to see if the effect of facing a competitive primary is conditional on being in the majority party, along the lines of findings by Jewitt and Treul (2018; 2019), I did not find a statistically significant relationship between the interaction term and a senator's party unity voting changes. This means that the effects of facing a competitive primary on the change in a senator's party unity score are not conditional on majority party status, according to my results. Lastly, being elected in certain years had positive and statistically significant impacts on a senator's party unity score voting. In summary, I cannot conclude that facing a primary results in a senator being more likely to vote in a more partisan manner in the first congress following the election. Nor can I conclude that the effect of facing a competitive primary is conditional on serving in the majority party during that first congress. However, serving in the majority party does, by itself, have a positive impact on a senator's partisan voting patterns after the election. Being elected in certain election years also has a positive effect on a senator's roll call voting in the congress following that election.

The rest of this paper is structured as follows. In Section I, I review a portion of the literature on congressional primary elections, congressional general elections, roll call voting behavior in congress, polarization in congress, and the interplay between each of these aspects of congressional elections in general. In Section II, I discuss the concepts that form the foundation of this project, outline the specific research question that forms the basis of this project, and discuss my theoretical framework about the relationship between facing a competitive primary challenge and a senator's roll call voting behavior. In Section III, I detail the methodology I used in order to answer my research question, give more specified definitions of the concepts outlined in Section II, and discuss my hypothesis. In Section IV, I lay out the results of my regression models. I describe what this project can add to the literature on congress, outline some of the limitations of this study, and offer concluding remarks in Section V.

Section I: Literature Review

This study is an attempt to apply the robust literature on congressional elections to examine if senators respond to facing a competitive primary challenge by voting in a more partisan manner in subsequent congresses. As such, the theoretical and methodological framework that serves as the foundation of this study comes from the literature on the roll call voting behavior of members of congress on the floor of the legislature, the literature on constituency representation in Washington, D.C., the literature on congressional primary and general elections, and the literature on polarization of congress and congressional elections. While this literature is in many ways related, the vast scholarship on congress that applies to my research question specifically can be broadly broken down into various subsections, each demonstrating a particular aspect of the relationship between primary elections and senatorial roll call voting. The first aspect of the literature on congress demonstrates that senators, like all legislators, are focused on ensuring their continued reelection to office. The easiest way to do this is to take constituency opinion into consideration when casting votes on the floor of the legislature.

Constituency Opinion and Congressional Behavior

Perhaps the seminal studies of congressional reelection are the works by Mayhew (1974) and Fenno (1978). In a theoretical essay examining the policymaking facets of congress as well as the electoral forces that get men and women into congress, Mayhew (1974) comes to the conclusion that members of congress are singularly focused on reelection more than any other goal – including the adoption of their preferred policy choices. As such, Mayhew argues that members of congress tailor their actions in Washington – including their votes on the floor – in ways that they believe will secure their continued reelection. In *Home Style: House Members* *and Their Districts*, Fenno (1978) studies members of the House of Representatives on the campaign trail and in the halls of congress in order to explore the relations that they had with their constituents while back home in the districts and their behavior in Washington. Fenno explains how members of congress face multiple constituencies in order to win reelection, which can be broadly divided into their general election and primary election constituencies. These constituencies, while being a part of the same district, do not necessarily overlap in demographic, partisan, and ideological makeup and thus necessitate a member of congress taking different priorities in order to appease the different constituencies they must face. Accordingly, Fenno supports Mayhew's conclusions about the degree to which members of congress focus on reelection and incorporates the fact that members of congress seek to represent their constituents in order to achieve this end.

More contemporary literature on congress supports the assertion in these works that members of congress tailor their roll call voting on the floor of the legislature in order to maintain their electoral appeal. Examining the role that presidential popularity plays in determining senator's support for president-backed legislation, Dwyer and Treul (2012) show that senators take presidential approval ratings and presidential popularity within their state constituencies into consideration while determining how to cast roll call votes, especially as presidential approval increases. Toll (2019) demonstrates that members of the House of Representatives who represent cross-pressured districts vote in a more moderate fashion compared to the median party member in their party caucus in congress as a result of trying to appeal to their constituencies. Harden and Carsey (2012) demonstrate that senators representing states that are homogenous respond to the median voter in the state when making decisions about roll call voting behavior. Kastellec et al. (2010) showcase that constituent's opinions matter more when determining if a senator will cast a vote in support of a Supreme Court nominee than ideological distance between a senator and the nominee, the party of the senator, and the quality of the nominee, all of which represent the scholastic consensus of factors that determine support for Supreme Court nominees by senators.

Additional research makes the connection between constituency opinion and senators' actions in the chamber even more explicit. Thomas (1985) demonstrates that not only do senators adjust their roll call voting behavior to better line-up with constituency opinion, but that within the six-year Senate term a senator adjusts her roll call voting patterns as the next election approaches. In this study, Thomas (1985) demonstrates that during the final year of the term, when the elections are occurring, senators from both parties converge to the center of the ideological spectrum, hypothesizing that shifting in such a direction is to the electoral benefit of the senator. Erikson and Wright (2017) update Thomas's study and find similar results – senators shift their roll call voting patterns in the direction of likely general election opponents in the concluding years of the senator's term.

Expanding beyond just the use of roll call voting to gauge constituent opinion, research on pork barrel spending also suggests that reelection considerations play a significant role in shaping senators' actions in the chamber. Looking specifically at pork barrel spending for the 2008 election, Lazarus and Steigerwalt (2009) demonstrate that senators who were up for reelection in 2008 received on average a 25% greater share of appropriations for their states than senators who were not up for reelection. Examining the phenomenon from the other angle, Crespin and Finocchiaro (2013) examine how pork barrel spending in the form of line items inserted into bills directly by senators impacts electoral performance. The authors of that study identify that the effect of securing earmarks has positive electoral results for senators, the effects of which are on the magnitude of traditional measures like the presence of a quality challenger, but that these positive results are conditioned by factors such as the size of the state, the ideology of the senator, and the ideological congruence between state and senator.

When examining these studies, it becomes clear that members of congress tailor their behavior to match the preferences of the constituents. Legislators act in this way because they wish to continually secure their reelection to the chamber, and pleasing the constituents is obviously the easiest way to do this. Considering Fenno's (1978) assertion of facing both a primary and a general election constituency, members of congress have two constituencies to whom they must answer. This study is specifically concerned with how senators consider the opinions of their primary election constituency. However, a question that results from an examination of these studies is: how do senators determine what their constituents' preferences are? The clearest and most drastic way for constituents to express their views on a legislator's performance is through voting.

Congressional Elections as Avenues for Accountability

The second aspect of the literature on congress that is relevant for this study is the notion that congressional elections serve as a method for voters to hold their representatives accountable. Much of the literature on congressional elections operates based on this assumption. Using survey data taken from surveys conducted by MIT and the CCES, Ansolabehere and Jones (2010) suggest that constituents do in fact hold their member of congress accountable for that member's roll call voting behavior based on the constituents' partisan and policy preferences via the ballot box. Nyhan et al. (2012) demonstrate that even a single salient roll call vote that was out-of-step with constituency preferences on consequential policy issues could result in a member of the House of Representatives losing her bid for reelection in the following election.

Much of the literature examining how constituents hold members of congress accountable uses the electoral performance of legislators as a measure of constituent approval. Indeed, examining the relationship between extremity in roll call voting and the legislator's chances of reelection is a staple of the literature on congressional voting behavior and elections. In their oft-cited study examining the impact that ideological extremity in roll call voting has on the probability of receiving fewer votes in the next election, Canes-Wrone et al. (2002) detail how members of the House of Representatives who vote with the ideological extreme of their party on roll call votes receive a decreased share of the two-party vote in the next election, whereas members who vote in a moderate fashion on roll-call votes are not penalized at the ballot box. Kassow and Finocchiaro (2011) refine the methods of Canes-Wrone et al. and demonstrate that senators who vote in an ideologically incongruent way with their states suffer at the polls in the next election through decreased probability of being reelected. Pyeatt (2014) demonstrates that members of congress who represent ideologically extreme districts benefit from ideologically extreme voting, but members of congress who represent cross-pressured districts have an incentive to moderate their roll call voting behavior or face a higher quality challenger in the next election – a phenomenon that scholars agree results in a tougher reelection fight and a greater likelihood of being defeated.

However, the relationship between ideological extremity in roll call voting and electoral fortunes in the next election is not entirely settled. Hollibaugh et al. (2013) examine the 2006 and 2008 elections in the House of Representatives and demonstrate that a Representative voting in an ideologically extreme fashion during roll call votes only negatively impacts her chances of reelection if a high-quality challenger (defined by whether or not the challenger had held elected office, a standard definition in the literature) was present in the race. In addition, Toll (2019) continued his analysis and found that those cross-pressured members of the House of Representatives who chose to moderate their behavior did not see electoral benefits and were just as likely to be defeated as those who did not choose to moderate. Looking specifically at elections to the Senate from 1974 to 2004, Carson (2008) finds that there is only modest support for the notion that senators are electorally punished for voting in an ideologically extreme fashion, contrary to the findings of Canes-Wrone et al. (2002) for the House. Other studies examining the Senate have found that voting along party lines to an increasing degree has a much more significant impact on a senator's electoral fortunes than ideologically extreme voting (Carson, 2008; Carson et al. 2010).

While the specific patterns are not as clear, and there are notable differences in the variables examined, what cannot be argued is that congressional general elections do serve as a mechanism for constituents to express their opinions of a legislator, typically by punishing a legislator who is out of step with the district by giving the legislator fewer votes. I examine how congressional primary elections fit in to this phenomenon to greater detail below, but this notion has important ramifications for my specific question. Namely, if a legislator's constituents feel that she is not in-line with the preferences of the district (be those preferences ideological or partisan), the constituents will punish the legislator electorally by voting for her in fewer numbers. This has had important implications for American politics in recent years given the rising polarization of the electorate and congressional elections.

Polarization and Congressional Primaries

The third aspect of the literature on congress that is relevant for this study concerns the increasing polarization of the national legislature and elections to it in recent decades. Much of the literature on congressional elections points to the median voter theorem – the notion that congressional candidates will converge toward the median voter in their district in order to best secure the chance of winning the election – being at least partially the case given different electoral circumstances. However, as any observer of American politics will point out, elections in the United States have become exceptionally polarized to the point that candidates are likely not converging toward the middle on the campaign trail or in the halls of congress. Research has supported this belief, as Jordan et al. (2017) demonstrate that the traditional models of constituency representation which form the foundations of the literature on congress do not apply in a highly polarized environment. Ansolabehere et al. (2001) note that across electoral history for congressional elections from 1874-1996 the two parties do not converge and in fact have received electoral benefits from diverging their policy positions. Bartels (2000) shows that partisanship's impact on Americans' vote in presidential elections increased in each election from 1952-1996 and that partisanship is also becoming much more important in determining how Americans vote. American voters across elections are now more partisan and have deeper ideological attachments to partisanship than in years past (Bafumi and Shapiro 2009). In their 2008 book *Polarized America,* McCarty et al. (2008) use DW-NOMINATE scores to show how members of congress are voting in a more polarized manner on the floor. Looking at the Senate specifically, Pearson (2008) demonstrates that while the Senate is still much more individualistic than the House, senators have increased their partisan voting behavior and their partisan fundraising in order to toe the party line at the behest of party leaders to benefit their fellow partisans on the campaign trail. Senators also still have somewhat of a capability to build a personal brand that can benefit them in reelection, but polarization has played an increasing role in Senate elections in recent years (Algara 2019).

Frances Lee, in her 2016 book *Insecure Majorities*, points out that over the last 40 years competition for majority control of both houses of congress has gotten much sharper. We no longer live in the days of semi-permanent Democratic majorities in both houses – both the Democrats and Republicans have realistic chances of taking the majority in either house in a given election (Lee 2016). More than just asserting that partisan competition exists, however, Lee also asserts that this high degree of partisan competition changes the incentives for members of the legislative parties. According to Lee (2016), when majority control of the chamber is in play, the parties are incentivized to act in a more partisan manner. This way, the voters can more clearly differentiate governing programs at the ballot box and reward or punish incumbents running for reelection accordingly. This framework is a shift from the more traditional approach of spatial models of roll call voting (see, for example, Canes-Wrone et al. 2002), which suggest that members of congress are voting based on genuinely held policy beliefs and/or ideological preferences.

Lee (2016) focuses on general election competition as the basis for her assertions, but her insight about legislators acting in a more partisan manner in a more competitive general election environment does give some further support to the idea that members of congress generally and senators specifically respond to higher competitive elections by acting in a more partisan fashion. Kirkland and Slapin (2017) highlight a similar development in recent congressional roll call voting patterns – they discern that roll call voting in the U.S. House starting in 1995 much more closely mirrors the voting patterns of Westminster-style parliamentary parties: highly partisan votes and legislators acting in a manner consistent with the conditional party government model. Smith and Gamm (2017) demonstrate a similar phenomenon, noting that, for both the U.S. House and the Senate, when majority control of the chamber is competitive both parties seek to increase their partisan organizational capacity (though these effects are stronger for the House than the Senate). Likewise, Sinclair (2017) demonstrates that as partisan polarization in the Senate has increased, members of both parties have used the procedural rules of the chamber in order to achieve a partisan advantage for their party. What all of this literature combines to say is that legislating in the Senate has increasingly been done in a partisan fashion, and the context of American elections has likely changed to incentivize this kind of partisanship on the chamber floor.

When looking for explanations for why congressional polarization has increased, researchers and political commentators alike often point to one very important culprit: congressional primary elections. Theriault (2006; 2008) blames primaries for pulling members of the two parties toward the ideological flanks and resulting in about one-third of the polarization in recent congresses. Research has also suggested that candidates who face weaker general election competition and who face stiffer primary competition are also among those who are more likely to diverge from the median voter (Burden 2004). A state's primary laws have also come under scrutiny, as research has shown that states with closed primaries produce members of congress being more partisan than other primary laws (Gerber and Morton 1997).

Research has also suggested that congressional primary elections provide candidates with incentives to not moderate their behavior. Brady et al. (2007) demonstrate that congressional legislators with more moderate voting records perform worse in primary elections and are more likely to lose than those with records closer to the primary election constituency. Pyeatt (2015) demonstrates that House incumbents from 1956-2012 receive electoral benefits in primaries from being more partisan – interestingly enough, however, he also observes that incumbents do not receive the same benefits from being more ideologically extreme. Hall and Snyder (2015) demonstrate that more extreme legislators are rewarded in the primary compared to more moderate legislators (though the differences are small), but the more extreme legislators are harmed in the general election.

The notion that congressional primaries are to blame for this increase in polarization in recent years is disputed, however. Abramowitz (2008) uses CCES data to point out that primary voters are not distinctly more partisan than general election voters and primary voters are not driving polarization. Cantor and Herrnson (1997) show that there is little evidence that parties are rewarding their more rigid partisans with campaign funding and resources more than those who are not as staunchly partisan. Pearson and Lawless (2008) note that members of congress who were less loyal to the party were not more likely to face a quality challenger in the primary and that there were not statistically significant differences in a member's party unity voting for those who faced a competitive primary. Hirano et al. (2010) demonstrate that there is little evidence that primaries, primary turnout, or the threat of primary competition are associated with polarization in congress.

There is also evidence that parties could be disincentivized from nominating an extreme candidate. Hall (2015) notes that nominating a more extreme legislator results in the party's vote share decreasing by about 9-13% points and the probability of victory decreases by 35-54%. A study by Hall and Thompson (2018) indicated similar results, specifically that extremist nominees hurt parties electorally, reflected in a decrease in the party's share of the general election vote. This area of research suggests that parties, in an attempt to maximize their success in gaining a majority of the legislative chamber, could try to prevent ideologically extreme members from engaging in primary fights with incumbent legislators.

Therefore, while it seems clear that Senate elections and Senate floor procedures are increasingly polarized between the two major parties, the relationship that Senate primary elections have to this increasingly partisan context is not yet settled. A study such as this one, which seeks to further illuminate how primary elections impact voting can add to these robust studies and examine an area of the literature that is not often studied. What we can gleam from this is that it seems more likely than not that Senate primary election constituencies look for their elected representatives to act as part of the partisan team and will likely reward those senators who do so and punish those who do not, following a similar pattern – but with opposite partisan goals – to how general election constituencies reward and punish senators. In order to fully understand this, we can examine the literature that does exist that investigates the effects of primaries.

The Effects of Congressional Primaries

As noted above, it seems clear from this literature that the effects that congressional primaries have on polarization is mixed. There are, however, demonstrable effects of congressional primaries that the literature on congress does demonstrate. Much of the focus on the effects of primaries in the literature examines how primaries, particularly competitive primaries, affect congressional elections.[1] For the Senate specifically, divisive primaries from 1956-1972 did seem to harm the senator's chances of winning the general election (Bernstein 1977). Kenney and Rice (1984; 1987) show that divisive primaries have negative effects on the general election outcome (more so for senators than governors and Democrats than

[1] There is not a universal pattern in the literature to describe the phenomenon when a member of congress is elected in a primary with a lower percentage of the vote than is typical. Some studies use the term "competitive primary" to describe this sort of election, while other studies use the term "divisive primary." For the purposes of this literature review, please note that a "divisive primary" does not necessarily mean one that is particularly nasty for those in the race. The term merely refers to a primary in which the vote share of the winner and the vote share of the loser(s) was closer than is typical for congressional elections.

Republicans), but that the negative effects have to be considered in the context of how divisive the other party's primary was. Fouirnaies and Hall (2020) suggest that divisive primaries decrease a party's vote share by approximately 6% points and decrease the likelihood of winning by about 21%.

However, like the links between primaries and polarization, the effects of competitive primaries on electoral competitiveness are not settled in the literature. Kenney (1988) also finds that when controlling for additional factors that impact how a general election race turns out, the negative effects of divisive primaries are likely overstated. Ansolabehere et al. (2010), in a groundbreaking study that collected data on the effects of primaries since the inception of the direct primary in the 1910s, find that along with the competitiveness of general elections in the United States, the competitiveness of primaries has decreased beginning in the 1940s and through contemporary primaries. Examining the 2010 midterm elections, specifically Tea Party challenges in Republican races, Jewitt and Treul (2014) note that a district having a divisive primary actually increased turnout in the general election, and the presence of a divisive Republican primary this year actually increased the vote share for the Republican candidate. Boatright and Moscardelli (2018) demonstrate a similar result – that the incidence of competitive primaries is much more likely in years where it is expected that the party is going to benefit from a wave election.

While this study does not examine the effect of a competitive primary on a senator's general election, it is important to consider these studies given the previous discussion of a legislator's desire to stay in office. If, in fact, facing a competitive primary could have negative repercussions on a senator's chance of reelection, the senator will likely have an incentive to act in a way to prevent a fellow partisan challenging them and weakening her general election campaign. Based on the previous discussion about the partisan make-up of the primary electorate, and the primary election constituency's desire for increased partisan fealty, the best method to please the base could very well be to vote in a more partisan manner on the floor of the Senate. This is what I am exploring in my thesis.

There is also, albeit somewhat limited, literature that examines what effects primaries have on roll call voting in congress. Of particular interest to this study is Boatright's 2013 book *Getting Primaried*. Among other things, Boatright (2013) details that, contrary to the conventional wisdom about primaries occurring more often in recent years, the trend of competitive primary challenges has not been consistent from 1970-2010 but has instead grown and shrunk depending on the context of the specific elections. According to Boatright (2013) there is no concrete evidence that primaries are pulling members of congress to the flanks of the parties and making congress more partisan. Turning to the effects of primaries, Boatright (2013) says that while the existing literature shows that there are small changes in members of congress's voting behavior after facing a primary, these results are not necessarily consistent across the board and do not necessarily hold for all primaries. For Boatright (2013), there is no statistically significant ideological movement among incumbents for any of the reasons of a primary challenge used in his study. The overall effects of a primary challenge are small (when they even exist), and there is not much evidence to support the notion that it is primaries that are contributing to polarization. The main takeaway from *Getting Primaried* is that the notion that primaries are consequential is likely a self-fulfilling prophecy – members of congress appear to be acting in a way that suggests they *believe* facing a primary is an important determinant of their ability to secure reelection, so in effect the threat of facing a primary becomes an important determinant of congressional behavior (Boatright 2013).

In addition to the work of Boatright (2013), work on the effects of congressional primaries by Jewitt and Treul (2018; 2019) also serves as a foundation of the thinking behind this study. In their 2018 study, Jewitt and Treul suggest that there is no significant difference in the propensity for a member of congress to vote with the minority leader after facing a competitive primary. They also find that ideological primary challenges do result in a member of congress voting with the minority leader more often, and the impact of facing an ideological primary challenge is tempered by if the member of congress serves in the majority party. In 2019, Jewitt and Treul continued their analysis and found that the effects of an ideological primary challenge on a member of congress's roll call voting are conditioned by if the member of congress is in the majority or not. In addition, Jewitt and Treul (2019) found that a member of congress who faces a competitive primary votes with the minority leader less often than those members of congress who do not face a competitive primary.

What matters most about this aspect of the literature on congress is that there is some evidence of the effects of facing a primary on roll call voting in congress among House members. Few of these studies discuss the impact of primaries on roll call voting in the Senate. These effects are not necessarily consistent between facing a competitive primary and an ideological primary, however (see Section II below for more on this distinction). In addition, the studies mentioned here almost exclusively examined the House rather than the Senate – Boatright briefly examines the Senate in *Getting Primaried* but focuses much more of his analysis on the House in the text – so further research is necessary before we can definitively say what effects facing a primary might have on the Senate. The literature seems to suggest that there might be legislative consequences of some kind for a senator facing a competitive primary. We can infer, based on the previous discussions on partisanship and polarization, that those consequences might be increased partisan voting by the senator, given that elections across the United States regardless of the office sought in the race follow similar patterns regarding the degrees and impacts of polarization. However, given that general elections to the Senate are in general more competitive than general elections to the House, the pull of the general election constituency might be greater in the Senate than the primary election constituency. Alternatively, because the benefits of individualism that the Senate offers have begun to lose electoral power (see Pearson 2008), we might expect the same electoral phenomena to appear in Senate elections as in House elections. Given the uncertainty around this, a study such as this one that further examines Senate elections is necessary in order to more fully understand elections in the United States.

Section II: Theoretical Framework

After examining the broad findings of this literature, a certain picture of congressional primaries and how they impact legislators' behavior begins to emerge. I break down the general patterns described in the literature review above into four assumptions that guide my theoretical thinking for this study. Those assumptions are as follows:

1. Senators, as legislators, have a primary goal of maintaining their career in the legislature. In order to secure their continued reelection, and thus their career, senators take the views of their constituents into consideration when acting in official capacities as legislators. This applies to both the general election constituency and the primary election constituency (Fenno 1978). For the Senate specifically, there is evidence that, within the senator's term, the senator changes her voting behavior as the general election approaches in an attempt to appease constituents (Thomas 1985).
2. Constituents reward and/or punish legislators for their actions in office based on the degree to which the legislators are in-step with the preferences of the constituents. These rewards and/or punishments can come via the ballot box, even if the legislator is still reelected in the end, in the form of giving the legislator fewer votes. This also applies to the general election constituency and the primary election constituency.
3. Looking specifically at primary election constituents, the main desire of the electorate is partisan fealty. While the literature assigning blame to primary voters for increased polarization is mixed to say the least, the literature on why members of congress are electorally punished by their primary electorates shows a clearer pattern – primary voters care more for partisan loyalty than ideological loyalty. As such, the desires of the primary election constituency are likely to be increased partisan fealty and the rewards and/or punishments the primary voters give out are likely to be based on that. Furthermore, the nature of polarized partisan electoral conflict that has characterized congressional elections in the U.S. over the last 40 years encourages such behavior.
4. Facing a primary can have tangible effects on a legislator's behavior following the primary. Facing a competitive primary could have negative repercussions on a legislator's chances at reelection, thus compromising her primary goal from Point 1. This can impact the legislator's calculus on what to do to keep herself in her constituents' good graces. Facing a competitive primary, especially an ideological primary, also has some effects on a legislator's subsequent voting record, possibly as an attempt to maintain the favor of her reelection constituencies.

While these assumptions make sense for primary challenges that are ideological challenges, not all primaries actually consist of a legislator being challenged by a fellow partisan for not being ideological or partisan enough. For primary challenges that are ideological in nature – that is, to say, a Republican being challenged from the right or a Democrat being challenged from the left – the relationship between primary margins and partisan voting in congress is quite simple to understand. If a senator faces a competitive ideological primary challenge, that will likely send a signal to the senator that her fellow partisans in the state are not satisfied with the senator's behavior in the nation's capital. Therefore, senators who face a competitive ideological primary challenge would likely take away the message that their primary election constituency (Fenno 1978) wants them to act in a more partisan manner (Carson 2008; Carson et al. 2010), or else the senator will risk not being able to secure reelection and going on to run in the general. As a result, the senator would adjust her behavior in the halls of congress to show that they are indeed acting in a more partisan fashion in order to please the primary voters.

The theoretical explanation for ideological primary challenges and their relation to partisan roll call voting is relatively straightforward. However, there are some notable points where the literature on these phenomena is not as full. For one, much of this literature does not focus on the U.S. Senate and those studies that do (for example, Boatright 2013; Hirano et al. 2010) only give a cursory explanation. Hirano et al. (2010) show little evidence that competitive and ideological primaries result in a House member voting in a more polarized fashion; they extend their analysis to the Senate and find similar results, but do not go as in detail as they do the House. Similarly, Boatright (2013) suggests that facing an ideological primary does not impact a member of the House's voting behavior in a statistically significant manner; he likewise extends his analysis to the Senate and finds similar results. The main issue with trying to examine how ideological primaries impact roll call voting in the Senate, which these studies mention, is the rarity that senators face an ideological primary. Using a similar classification scheme of the kinds of primary challenge in Boatright (2013) – for example a challenge based on ideology, competence, age, scandal, redistricting, and various other reasons why someone might challenge an incumbent – data from Boatright et al. (2019) contains a variable that notes the reason for a primary challenge. For the vast majority of observations in the Boatright et al. (2019) data, no information on why the senator was challenged is available.

Ideological primary challenges to incumbents are, therefore, exceedingly rare. Turning to the variable on the reasons for a primary challenge from Boatright et al. (2019), among Senators who won reelection from 1970-2012 only 11 out of 470 observations represented a senator facing an ideological challenge. However, 430 out of 470 observations had no data available on the reason the senator faced a primary challenge. The limited sample size of reasons for primary challenges makes it impossible to test the effects of ideological primary challenges on a senator's roll call voting behavior using this data. To understand how, if at all, senators respond to primary challenges, I must expand beyond just ideological challenges. I decided to expand my analysis to any challenge that is competitive, partially because of the sample size issues and because the rarity of facing a competitive primary can still signal that the primary voters that make up a senator's base are unsatisfied with how the senator is representing them in Washington. There are more senators who face a competitive primary than face an ideological primary (see Table 1 in the Methodology section below), so focusing on competitive primaries rather than ideological primaries serves as a base for the study of congressional elections to expand.

This study seeks to make comparisons between senators who face a competitive primary challenge and senators who do not face a competitive primary challenge. The specific research question that will form the basis of this project is: do senators who face a competitive primary challenge and win reelection vote with their party more often in subsequent congresses than senators who do not face a competitive primary challenge? For the purposes of this study, I am defining a competitive primary challenge using the percentage of the vote the senator receives in the primary challenge. I am using a senator's party unity score to measure how the senator responds to facing a competitive primary challenge. In the Methodology section, I provide a detailed discussion of how these variables are measured.

Turning back to the broad assumptions discussed above, I can lay out what relationship I expect to see between facing a competitive primary and a senator's roll call voting behavior. First, a senator has strong incentives to please her primary election constituency in order to remain in office, particularly in the context of competitive and polarized elections such as those that exist for the U.S. Senate. Because the primary election occurs before the general election, if the senator does not appease her fellow partisans in the state to a satisfactory degree, they cannot compete in the general and have no possible way of remaining in office. The primary election constituency has different desires of a senator than the general election constituency – whereas it is generally the case that general election voters punish ideological and/or partisan extremism, primary election voters reward such behavior. Therefore, in order to please her primary voters, a senator is going to have to act more like a partisan, which would manifest in her partisan unity score being higher.

Second, because it is well established in the literature on congressional elections that a legislator receiving fewer votes, even if the legislator is reelected, is a mechanism for constituents to hold legislators accountable, a senator who faces a competitive primary challenge can take a signal that a sizeable enough contingent of primary voters is unsatisfied with the senator's behavior in Washington. Because facing a competitive primary can negatively impact a senator's primary goal of securing reelection, a senator who is reelected after facing a competitive primary challenge is likely to act in a manner that tries to prevent additional competitive primaries in the future. In order to please the primary voters, this will likely manifest in the senator voting in a more partisan fashion after facing a competitive primary. This is because voting in a more partisan manner is a clear indicator to the primary voters of the senator's partisan bona fides.

Third, there is indeed evidence that senators adjust their roll call voting behavior to adhere to the wishes of constituents. As noted above, Thomas (1985) demonstrates that in the final year of a senator's term, during which the senator is up for reelection, a senator shifts her roll call voting patterns toward the center in an attempt to please the general election constituency. Thomas (1985) specifically measures change in roll call voting by comparing the sixth year of the senator's term to the third year of the senator's term. Erikson and Wright (2017) show similar patterns with updated data. If these patterns exist for the general election constituency, a logical question is whether or not they exist for the primary election constituency. Given that a senator has to please both constituencies in order to secure election, it makes sense that the same pattern of adjusting in response to constituent desires would be present, although using the different wishes of the different constituencies.

Given these phenomena, I expect that a senator who faces a competitive primary challenge and wins reelection will adjust her voting behavior in subsequent congressional sessions by voting with her party more often than a senator who does not face a competitive primary. This will be represented by that senator's party unity score in the congresses that follow the election increasing compared to the congresses before the election took place. In order to test this theory, I applied similar methodology to many of the studies listed in the literature review above. I discuss my methodology in the next section, beginning with a description of the variables I used, followed by my hypotheses, and concluding with a discussion of the statistical methods used to test the hypotheses.

Section III: Methodology

Variables

The main datasets which I am using to test the relationship between primary competitiveness and a senator's roll call voting patterns come from Boatright et al. (2019) and Lewis et al. (2015). Boatright et al.'s (2019) Primary Timing Project offers researchers files that contain a wealth of data on congressional primary elections. In addition to providing updated DW-NOMINATE scores on their website voteview.com, Lewis et al. (2015) provide researchers with data files containing a senator's party unity scores measured by *Congressional Quarterly* for all members of congress from 1857-2015. The independent variable, whether or not a senator faced a competitive primary, as well as the control variables discussed below, come from Boatright et al. (2019). The dependent variable, change in party unity scores, comes from Lewis et al. (2015).

The literature on primary challenges differs in defining what constitutes a competitive primary challenge. I determine what constitutes a competitive primary challenge via the threshold method. The threshold method measures the competitiveness of a primary based on the percentage of the vote the eventual winner of the primary received (see Boatright 2013; Ansolabehere et al. 2010; and Hirano et al. 2010). This study uses a 75% threshold to determine if a primary is competitive. While notable studies on primaries (see Ansolabehere et al. 2010; Hirano et al. 2010) use a 60% threshold as the definition of a competitive primary, Boatright (2013) uses a 75% threshold for two reasons. First, a member of congress receiving 75% of the vote or less in a primary is notable given the limited number of primaries faced by members of congress and the frequency with which members of congress are elected with more than 75% of the vote in a primary. Second, using a 75% threshold is overinclusive of members of congress who could be scared enough by a competitive primary challenge to reflect a greater proclivity toward partisanship in subsequent years compared to the stricter 60% threshold (Boatright 2013). I use the 75% threshold for these same reasons for the purposes of my analysis. To test for any effects that the stricter 60% threshold might produce, I also included additional models that test the results using the 60% threshold in Appendix B.[2] I coded this variable as a dummy variable taking on a value of 1 if the senator received 75% of the vote or less (or 60% of the vote or less) using the threshold in question for that specific model. If a senator faced a primary but received more than 75% (or 60%) of the vote, I coded the value for the competitiveness variable as 0. Based on my definition of what constitutes a competitive primary, that senator did not face a competitive primary. If a senator did not face a primary at all, that senator's primary competitiveness was also coded as 0, as they too did not face a competitive primary in the same way as senators who received more than 75% or 60% of the vote.

To measure senators' response to facing a competitive primary, I use party unity scores. Using party unity scores to measure roll call voting behavior is a well-established method in the literature. In addition, measuring senatorial responses to facing a primary challenge by examining party unity scores meshes well with the assumptions that flow from the literature above. In the context of highly competitive electoral environments and high polarization in congress, legislators have an incentive to act in a more partisan manner (Jordan et al. 2017; Kirkland and Slapin 2017; Lee 2016; Smith and Gamm 2017). When coupled with the fact that primary voters of both parties respond to partisan voting much more than ideological voting (Carson 2008; Carson et al. 2010), using a measure such as party unity scores reflects to a much

[2] Following the methodology of Boatright (2013), if a senator faced a primary challenge that went to a runoff, I used the share of the vote the senator received in the initial primary rather than the share of the vote in the runoff, which is bound to be more competitive because the race is typically only between 2 candidates, in order to determine the threshold. Likewise, if a senator participates in a jungle or blanket primary, I determined the threshold based on the percentage of the vote received by the candidate who finished in first place (Boatright 2013).

better degree the reality of congressional primary voting than a measure such as McCarty et al. (2008)'s DW-NOMINATE scores. Furthermore, because of the constraints of how DW-NOMINATE scores are coded, DW-NOMINATE scores cannot reflect ideological movement in more than one direction. As such, the scores cannot vary across time as party unity scores can and would thus be an inappropriate measure for a question such as this.

Furthermore, alternative measures of legislative responsiveness to constituents are less clear. Mayhew (1974) and Fenno (1978) both point to district behavior on the campaign trail, in addition to roll call voting, as one method of ensuring electoral success for incumbents in congress. Sierra (1994) examines this avenue as it applies to the House and shows that constituency services, also known as casework, does improve a House member's standing in the eyes of her constituents. However, these evaluations are still conditional on partisanship. Measuring senatorial responsiveness through a measure such as bill sponsorship can be troublesome because of the vast number of inconsequential bills that get passed in a given congressional session and the difficulties that legislating on substantial matters presents in times of high polarization (Dodd and Schraufnagel 2017). In addition, using a measure like pork barrel spending to gauge how well a senator responds to constituent demands is not a perfect solution, as the electoral repercussions of pork barrel spending are still conditional on factors such as a senator's congruence with the state (Crespin and Finocchiaro 2013). Therefore, because using party unity scores as the measure of response to a competitive primary offers an easily quantifiable measure of legislator responsiveness that places this study well within the methodological framework of the existing literature on the impact of congressional elections on roll call voting, it is likely the most methodologically robust option available.

This dependent variable is not easily quantified at first glance. Measuring change in a senator's party unity score is simple enough, but what you are measuring the change against is the significant question. This study is novel because of this issue of how to measure change in a senator's party unity score. While the 6-year Senate term provides challenges for isolating the effect of any given election, the obstacle is not insurmountable. The data in Lewis et al. (2015) shows a senator's party unity score in each congress of note for this study. Each senator's term is broken into three 2-year sessions of congress, for a total of six years. I called each of these breakdowns congress 1, congress 2, and congress 3 of the term. These congresses represent years 1-2, 3-4, and 5-6, respectively, out of the 6-year Senate term. In order to measure the change in a senator's party unity score, I am taking the senator's party unity score in the first congress of a term (congress 1) **after** the year of her election and subtracting her party unity score from the first congress of the term (congress 1) **before** the year of her election.[3] For example, for a senator who ran for reelection in 1970 and won, I calculated change in party unity score by taking that senator's party unity score in the 92nd congress (1971-1973), the first congress of the senator's term after the 1970 election, and subtracting her party unity score in the 89th congress (1965-1967), the first congress of the senator's term before the 1970 election.

I expect that the senator's response to the primary will be in congress 1 of the term following the election. If a senator faced a competitive primary in the election prior to the term, those primary voters are going to want to see that the senator responded accordingly. Because of the recency of the primary challenge, if the senator responds to an intraparty challenge, it will likely be done during the congress immediately following the challenge in question in order to

[3] I also created models that use alternative calculations of change in a senator's party unity score. These alternative models differ based on which congress post-election is being compared to which congress pre-election. The naming conventions for all dependent variable calculations that I chose were DV #-#. For the DV calculation described in this section, the name is DV 1-1 (congress 1 post-election-congress 1 pre-election). For the alternative models use the names DV 1-2, 1-3, 2-1, . . . DV 3-3, alternating the congresses being compared.

quickly stamp out any potential primary competition in the future. These years represent the most likely available information for potential primary challengers when deciding if they should challenge a senator. If a senator waits until congress 3, which consists of years 5 and 6 of the term and is the congress in which the primary and general election occurs, to adjust her partisan voting behavior that would be too late to prevent a competitive rival for the nomination from emerging. The costs associated with a Senate campaign and the need for a statewide campaign infrastructure necessitate considerable planning by those who wish to be serious contenders for the office. As such, the decision by potential challengers to enter the race will likely come before congress 3 of the senator's term. Therefore, a serious candidate for a Senate nomination will likely make the decision to run during congress 2 of a senator's term (years 3 and 4). As such, the senator's party unity score during the first congress of the term likely represents the most complete partisan voting activity that is available to potential primary challengers. Therefore, examining a senator's party unity score during the first congress following a primary challenge offers the best available method of determining how (if at all) a senator responds to competitive primary challenge.

Senators who win reelection during the election years 1970-2012, and thus who serve in the Senate during the 1971-2015 period, will be the unit of analysis for this study. I chose this date range mainly for two reasons. First, following the reforms to presidential primary elections that state legislatures began to enact as a result of recommendations by the McGovern-Fraser Commission, primary elections for all offices for both parties beginning in 1970 became more uniform across states than in previous years (Boatright 2013). These changes made for presidential primaries had a trickle-down effect on primary elections for other offices. As such, 1970 provides a starting point that offers an electoral context that most similarly matches the current state of primary elections in the United States. I chose the 2012 election as the endpoint because the 113th congress (elected in 2012; served from January 2013-January 2015) is the final congress available in the Lewis et al. (2015) dataset containing party unity scores. While *Congressional Quarterly* has calculated party unity scores for congresses following the 113th congress, I was not able to locate party unity scores broken down by senator for congresses after the 113th in a manner that matched the data from Lewis et al. (2015). The years available from the Lewis et al. (2015) dataset still offer a robust sample size that will allow analysis of the impact that competitive primary challenges have on a senator's party unity scores in statistically meaningful ways.

The Boatright et al. (2019) data sets contain data for each candidate who competed in a primary for both major parties from 1970-2016, with each candidate serving as an observation in the data. Because of this, the initial Boatright et al. (2019) data files contain 4,565 observations of Senate candidates specifically. For example, if there were 4 candidates running for the Democratic nomination for a Senate seat in Virginia in 1970 and 4 candidates running for the Republican nomination for a Senate seat in Virginia in 1970, there would be a total of 8 observations from Virginia for 1970 for 1 Senate seat. Obviously, not all 8 of these candidates would go on to be the senator from Virginia after the 1970 election and receive a party unity score from *Congressional Quarterly*; only 1 would do so. Since this study is interested in a senators' behavior in congress before and after elections, only incumbent senators who went on to win the general election are necessary to examine. Table 1 shows the frequency of competitive primaries that occurred among the incumbent senators in my sample, along with the sample sizes of each.[4]

Table 1: Senators who won Reelection and Faced a Competitive Primary, 1970-2012

Did not face a Competitive Primary (% of Sample)	Faced a Competitive Primary (% of Sample)	Sample Size
425 (90.43%)	45 (9.57%)	470

As you can see from this table, the sample size of incumbent senators that I was working with was 470 observations, keeping in mind the discussion from the previous paragraph of what constitutes an observation in the Boatright et al. 2019 data. Of these 470 observations, 45 represent a senator who received 75% of the vote or less in the primary and thus faced a competitive primary based on my definition. There were 425 observations in this sample where a senator did not face a competitive primary. As noted before, this means that the senator in question either faced a primary but received more than 75% of the vote or did not face a primary at all.

Table 2: Measures of Central Tendency – Incumbent Senators' Change in Party Unity Scores, 92nd Congress-113th Congress

Min.	25th Percentile	Median	Mean	75th Percentile	Max.	Standard Deviation
-29.57	-2.74	1.25	1.01	5.15	26.75	8.53

We can also examine how the dependent variable, change in party unity scores, changes across the sample. Table 3 provides measures of central tendency for the dependent variable change in party unity score. As is apparently obvious from this table, party unity scores changed wildly across all years during the period I am studying. The mean change in a senator's party unity score is 1.01, meaning that senators on average voted in a more partisan fashion on key

[4] See Table A1 and Table A2 in Appendix A for sample sizes of the other samples using alternative calculations of my dependent variable as well as the samples using the 60% Threshold. See Note 3 above for descriptions of the alternative DV calculations.

votes in the Senate after the election approximately 1% more often. The median value for change in a senator's party unity score is 1.25, which suggests a similar pattern. According to this value, 50% of the senators in my sample voted in a more partisan fashion after reelection by at least 1.25%. Furthermore, senators' changes in their partisan voting patterns ranged substantially. One senator, Gale W. McGee (D-WY) following reelection in 1970, voted with his party 29.57% less often in the 92nd Congress compared to the 89th Congress. Another senator, Robert Stafford (R-VT), after reelection in 1982, voted with his party 26.75% more often in the 98th Congress compared to the 95th Congress.

Following the methodology of the literature on congressional primaries and roll call voting behavior, I included a number of control variables which will help isolate the effect of facing a competitive primary challenge on a senator's party unity scores. Table 3 describes these variables and how they are calculated in further detail. See Appendix A for tables listing descriptive statistics for these control variables. First, controlling for the partisanship of the state or district is a necessary consideration when examining a member of Congress's roll call voting behavior, and using the share of the two-party vote won by the Democratic candidate for president in the state or district in recent elections is an accepted measure of state or district partisanship (Canes-Wrone et al. 2002; Carson et al. 2010; Jewitt & Treul 2018; Jewitt & Treul 2019). *State Partisanship* measures the ideological leaning of the state a senator represents, using the average of the two-party vote received by the Democratic candidate for president in the two most recent presidential elections. The openness of a state's primary laws has also been shown to have an effect on how the results of that primary impact a member of Congress's voting behavior in subsequent years (Gerber & Morton 1998; Jewitt & Treul 2018; Jewitt & Treul 2019). *Open Primary* is a dummy variable that denotes whether a state's primary laws are open, semi-open, or a blanket primary compared to a closed or semi-closed primary. Region is also likely to be an important factor in measuring a senator's party unity scores, particularly among Southern senators who are likely to be more conservative across the board and less likely to vote with their party if they are Democrats (Pyeatt 2015). *South* is a dummy variable that notes whether or not the senator served from a southern state.

Jewitt and Treul (2018; 2019) also note that factors from the incumbent's general election campaign have an effect on the incumbent's behavior in Congress in subsequent years. *General Election Vote Share* controls for this and takes the share of the two-party vote the senator received in the general election for the election year in question. McDermott and Jones (2005) demonstrate how serving in the majority party makes it more likely that a member of Congress votes with her party. Jewitt and Treul (2018; 2019), also, demonstrate that for House members serving from 2002-2012 the effects of an ideological primary challenge on roll call voting behavior are conditional upon the member of Congress being in the majority party. *Majority* is a dummy variable that notes if the senator served in the majority during congress 1 of the term following the election.[5] Serving in the same party as the president is likely to encourage partisan voting, as senators will either want to vote with the party on the president's proposals when he is a member the senator's party and against the proposals when he is not in order to give the president legislative victories on which the party can run. *Same Party President* is a dummy variable that notes if the senator belonged to the president's party during congress 1 of the term following the election. If a senator chooses to retire during the term being studied, that could impact her party unity score by freeing her partisan obligations – as she no longer has to face election, she no longer has to vote in a manner that satisfies constituents of any partisan stripe.

[5] Likewise, for the additional DV calculations, *Majority* uses either congress 2 or congress 3 to determine majority status, depending on which calculation was used. The same is true for *Same Party President*.

Retire is a dummy variable that denotes if a senator retired, resigned, did not seek reelection, or otherwise voluntarily left office during the term following the election year in question.

The kind of election in which a senator is elected, by which I mean a presidential election or a midterm election, could also impact her party unity score in subsequent Congresses. Research has demonstrated that senators elected in midterm years are more likely to have an independent streak in their voting behavior (Jacobson and Carson 2016). *Presidential Election* is a dummy variable notes if the election occurred in a presidential election year or a midterm election year. Demographic variables likely also have an impact on a senator's party unity voting behavior; Winer (2016) shows how more heterogenous states tend to have more competitive elections. Therefore, a senator from a more heterogenous state will be likely to vote with her party more often if my expectations about the relationship between competitive primary elections and Senate roll call voting is correct. *% State African American* measures the percentage of the state that is African American. *% State Latino* measures the percentage of the state that is Latino. If a senator represents a more educated state, she is likely going to face more competitive elections given the relationship between education and likelihood of turning out. *% State College Educated* measures the state population that is 25 years old and older who has a 4-year college education.

Finally, controlling for campaign spending is a prerequisite for any study that examines roll call voting behavior in congress (Canes-Wrone et al. 2002; Carson et al. 2008; Hirano et al. 2010; Jewitt and Treul 2018). *Campaign Finance* measures the amount of money spent by the senator during her general election campaign beginning 20 days before the primary through the November election. For the models that incorporate this campaign finance variable, I took the natural logarithm of the candidate general election spending in order to properly make comparisons between states with different populations.[6]

Hypothesis

Using these variables, I can now turn to discussing my hypothesis based on the theoretical framework discussed above. Based on the theoretical framework laid out above, I expect the following hypothesis to be supported:

> **Hypothesis**: For senators serving from 1971 to 2015, those who face a competitive primary challenge and win reelection will vote with their party more often in congress 1 of the term following the competitive primary challenge than Senators who do not face a competitive primary challenge, all else equal.

Statistical Analyses

For the statistical analyses of this study, I first performed ordinary least squares regressions with robust standard errors using the variables described above. I created several models – bivariate models, multivariate models without campaign finance data, and multivariate models with campaign finance data.[7] The reason for excluding the campaign finance variable in some multivariate models was that campaign finance reporting was not mandatory until 1979 (Boatright 2013). As such, the regression models that included campaign finance data had to exclude the 1970s because the data was not available. The sample sizes for the various multivariate regressions also shrink notably because of missing values for the state primary laws

[6] As some observations in the Boatright et al. (2019) data files had a value of 0 for the campaign finance variable, which unrealistically suggests the candidate spent $0 on her general election reelection campaigns, and the natural logarithm of 0 is infinite, I removed those observations from the samples when running the regression equations that included the campaign finance data.

[7] I ran models with the 75% threshold and the 60% threshold to test if a stricter definition of competitiveness impacted the results. I also ran regressions using the congress 2 and congress 3 comparisons. See Appendix B for these regression tables. The results discussed in Section IV generally hold, though there are not consistent patterns across the samples using congress 2 and congress 3. See Section V for further discussion of these models.

Table 3: Description of Variables

Variable	Measurement	Quantification
Primary Competitiveness	75% threshold	1 = faced a competitive primary; 0 = did not face a competitive primary
Change in Party Unity Score	Difference in Party Unity Scores between congress 1 after election and congress 1 before election	Min: -29.57 Max: 26.75 Mean: 1.01 Median: 1.25
State Partisanship	Average between most recent Democratic share of presidential vote in the state and second most recent Democratic share of presidential vote in the state	Min: 0.22 Max: 0.72 Mean: 0.46 Median: 0.45
Open Primary	Open primary (1), closed primary (2), semi-open primary (3), semi-closed primary (4), blanket primary (5)	1 = Open primary, semi-open primary, blanket primary; 0 = closed primary, semi-closed primary
South	11 states that made up the Confederacy (AL, AR, FL, GA, LA, MS, NC, SC, TN, TX, VA)	1 = southern state; 0 = non-southern state
General Election Vote Share	Percent of the two-party vote received by the incumbent in the general election	Min: 0.40 Max: 1.00 Mean: 0.64 Median: 0.62
Campaign Finance	Spending by the incumbent candidate starting 20 days before the primary through the general election	Min: 0 Max: 32276268 Mean: 2164263 Median: 1190818
Majority	Whether the senator serves in the majority party during the congress following the election	1= in the majority party; 0 = in the minority party
Same Party President	Whether the senator is a member of the same party as the president during the congress following the election	1 = in the president's party; 0 = not in the president's party
Retire	Whether the senator retired, resigned, or otherwise voluntarily left office during the term that followed the election in question	1 = senator did voluntarily leave office; 0 = senator did not voluntarily leave office
Presidential Election	Whether the election in question occurred during a presidential year or a midterm year	1 = election occurred in a presidential year; 0 = election occurred in a midterm year
% State African American	Percent of the state that is African American	Min: 0.00 Max: 0.58 Mean: 0.10 Median: 0.06
% State Latino	Percent of the state that is Latino	Min: 0.00 Max: 0.44 Mean: 0.06 Median: 0.03
% State College Educated	Percent of the state that is age 25 and older and has a 4-year college education	Min: 0.07 Max: 0.38 Mean: 0.21 Median: 0.21

and/or demographic variables as well. Because the data that I am working with are panel data, I included dummy variables to control for years in the sample. Because of missing data from the various sources, the multivariate regression models without campaign finance data had a sample of election years 1978-2008. For the multivariate regression models with campaign finance data, the election years in the sample were 1980-2008.[8] When using these year dummy variables, I excluded the 2008 election as the basis for comparison. I also ran models excluding the 1978 election (or the 1980 election for the models with campaign finance data) to check for the robustness of this decision. The bivariate regression models were still 1970-2012 as described above.

[8] The multivariate regressions using congress 2 as the congress of comparison had samples for election years 1978-2006 and 1980-2006, and the multivariate regressions with congress 3 as the comparison had samples for election years 1978-2004 and 1980-2004 respectively.

Section IV: Results

Table 4 shows the regression coefficients for my bivariate regression. According to this model, facing a competitive primary results in a senator voting with her party over a full point (1.33%) less often than when she does not face a competitive primary. For example, a senator who had a party unity score of 75 out of 100 in congress 1 prior to her election would have a party unity score of 73.67 in congress 1 after the election if she faced a competitive primary, according to these results. The magnitude of this change is small, being on a scale of -29.57 to 26.75 based on the sample, but the pattern represents the opposite effect of what I expected. Of note as well is the fact that the variable for facing a competitive primary does not reach statistical significance in this model, meaning that the results of this bivariate regression are not statistically different from random chance. It is also important to note that this model by itself does not fully explain the factors that impact a senator's party unity scores, with very small values for both r-squared and adjusted r-squared. For models that do a better job explaining what factors influence how a senator responds to facing a competitive primary, I turn to my multivariate models, beginning with models that exclude campaign finance data.

Table 4: Effects of Facing a Competitive Primary on Change in a Senator's Party Unity Score, Bivariate Regression

Variable	Coefficient
Faced Competitive Primary	-1.33
	(2.00)
Constant	1.14**
	(0.38)
Number of Cases	468
R-Squared	0.00
Adjusted R-Squared	-0.00

Robust standard errors in parentheses
\# - p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table 5 depicts the regression coefficients for my multivariate model that excludes campaign finance data, for the methodological reasons described above. Upon first glance, what is immediately noticeable is that the results for facing a competitive primary are flipped from the bivariate regression. According to this model, a senator who faces a competitive primary votes with her party 1.20% more often in congress 1 post-election compared to congress 1 pre-election than senators who do not face a competitive primary. However, because the coefficient on this variable does not reach statistical significance like the bivariate regression, the model does not support the conclusion that senators vote with their party more often. As with the bivariate regression, the positive effect of facing a competitive primary on the change in a senator's party unity score is not discernable from random chance because the coefficient does not reach statistical significance.

In addition, very few control variables reach statistical significance in this model. Among the control variables described in Table 3, only *Majority Party* reaches statistical significance ($p < 0.001$). According to this model, if a senator serves in the majority party her party unity score grows by 4.85 percentage points more than when she serves in the minority party during the first congress after the election, holding all else constant. This effect is substantively higher than the effect of facing a competitive primary and suggests that senators in the majority party vote in a more partisan manner than when they are in the minority party. Some of the year dummy variables also reach statistical significance. The year dummy variables for 1982, 1994, 1998, and 2002 all reach statistical significance ($p < 0.05$) according to this model. It is interesting to note that all of the years that reach statistical significance are midterm election years. While one should not read too much into the statistical significance of year fixed effect variables, perhaps it is the case that midterm election years produce increased partisan unity voting among senators, but the inclusion of other variables in this model such as Presidential Election are absorbing some of the effects. Future research is likely necessary to examine this phenomenon in greater detail.

The 2008 election is the election I choose as the basis for comparison against the other dummy years. Accordingly, a senator elected in 1982 voted with her party 7.63 points more often in congress 1 post-election compared to congress 1 pre-election than a senator elected in 2008. A senator elected in 1994 voted with her party 5.49 points more often than a senators elected in 2008. Lastly, senators elected in 2002 voted with their party 5.28 points more often than senators elected in 2008. The variable for 1990 also reaches statistical significance, but at a lower level ($p < 0.1$). As with the coefficient on *Majority Party*, the coefficients on these variables are substantively larger than the coefficient on facing a competitive primary, meaning that in addition to being statistically significant the impact of being elected in these years is larger on the change in a senator's party unity score than facing a competitive primary. This model altogether suggests that facing a competitive primary does not significantly impact a senator's party unity score but being in the majority party and being elected in 1982, 1994, 1998, and/or 2002 does have an impact on a senator's party unity score.[9]

Table 6 depicts the multivariate model that incorporates controls for campaign finance.[10] Upon first glance, we see a similar pattern to the initial multivariate model emerge. According to this model, a senator who faces a competitive primary will vote with her party 1.97% more often than a senator who does not face a competitive primary. However, as with the two previous models, this effect is not statistically significant and thus the model does not support the

[9] When using 1978 as the fixed-effects comparison year instead of 2008, the results reported here were slightly altered. The coefficient on Majority is still statistically significant ($p<0.001$), as are the coefficients for 1982 ($p<0.05$), 1994 ($p<0.05$), 1998 ($p<0.05$), and 2002 ($p<0.05$). The coefficient on % State College Educated is statistically significant ($p<0.1$). The coefficients for the years 1988 ($p<0.1$), 1990 ($p<0.1$), 1996 ($p<0.05$), and 2004 ($p<0.05$) are also statistically significant.
[10] The years available in this sample are 1980-2008 because of missing data for some control variables, and once again 2008 was the year I used as the base for comparisons.

Table 5: Effects of Facing a Competitive Primary on Change in a Senator's Party Unity Score, Multivariate Regression, No Campaign Finance Data

Variable	Coefficient	Robust Standard Errors
Faced Competitive Primary	1.20	2.21
State Partisanship	3.93	5.34
Open Primary	-0.01	0.80
South	0.01	1.40
General Election Vote Share	-2.85	3.92
Majority	4.85***	0.75
Same Party President	-1.09	0.75
Retire	-1.13	0.92
Presidential Election	1.69	2.17
% State African American	-1.52	5.82
% State Latino	3.36	4.27
% State College Educated	-10.30	8.32
Dummy 1978	2.42	3.13
Dummy 1980	1.98	2.67
Dummy 1982	7.63*	3.44
Dummy 1984	1.01	1.89
Dummy 1986	0.11	2.85
Dummy 1988	-1.54	1.89
Dummy 1990	4.20#	2.18
Dummy 1992	1.47	2.18
Dummy 1994	5.49*	2.32
Dummy 1996	-2.03	1.79
Dummy 1998	4.63*	2.13
Dummy 2000	0.49	1.57
Dummy 2002	5.28*	2.09
Dummy 2004	-1.07	1.35
Dummy 2006	-0.09	2.53
Constant	-0.32	5.30
Number of Cases	363	
R-Squared	0.19	
Adjusted R-Squared	0.13	

- $p<0.1$ ** - $p<0.01$
* - $p<0.05$ *** - $p<0.001$
As noted above, because of missing data the sample for this model runs from 1978-2008

conclusion that facing a competitive primary results in a senator voting in a more partisan fashion in the first congress after the election, even when accounting for the control variables listed and campaign finance data.

According to this model, serving in the majority party once again has a positive and statistically significant ($p < 0.001$) impact on the change in a senator's party unity score in congress 1 following an election compared to serving in the minority party. This effect is of a similar magnitude in this model compared to the first multivariate model, 4.81 points. As before, no other control variables from Table 3 reach statistical significance. Also similar to the initial multivariate model, certain year dummy variables have a positive and statistically significant impact on a senator's party unity score. Interestingly enough, these years are almost exactly the same as in the initial multivariate model – 1982, 1994, and 2002 all reach statistical significance ($p < 0.05$) while 1998 is statistically significant at a lower level ($p < 0.1$).[11]

A senator elected in 1982 had a party unity score that grew by 8.01 points more than a senator elected in 2008. For senators elected in 1994, party unity scores increased by 5.10 points higher than senators elected in 2008. And senators elected in 2002 have party unity voted with their party 4.83 points more often than senators elected in 2008. As with the initial multivariate model, the impact of these years (and the majority party variable) is both statistically significant and substantively larger than the coefficient on facing a competitive primary. When considering this model, I come to a similar conclusion as with the initial multivariate model. According to this model, facing a competitive primary does not have significant impact on a senator's partisan voting behavior in subsequent congresses. Serving in the majority party and being elected in 1982, 1994, and/or 2002, however, all result in a senator voting with her party more often in the chamber.[12]

[11] As noted above, when using 1978 as the fixed-effects comparison year instead of 2008, the results reported here were slightly altered. The coefficient on Majority is still statistically significant ($p<0.001$), as are the coefficients for 1982 ($p<0.05$), 1994 ($p<0.05$), 1998 ($p<0.1$), and 2002 ($p<0.05$). In this model, the coefficient on Presidential Election Year is statistically significant ($p<0.1$). The coefficient on % State College Educated is statistically significant ($p<0.1$). The coefficients for the years 1988 ($p<0.05$), 1996 ($p<0.05$), and 2004 ($p<0.05$) are also statistically significant.

[12] As with the initial multivariate models, Appendix B also contains regression tables that demonstrate the results of models using the alternative dependent variable calculations and using the 60% threshold as well as the 75% threshold for the competitiveness of a primary. Similar to the initial multivariate models, there are not clear patterns across the various sample but facing a competitive primary rarely has a statistically significant effect on a senator's party unity score. Serving in the majority party is positive and statistically significant in all of these models as well.

Table 6: Effects of Facing a Competitive Primary on Change in a Senator's Party Unity Score, Multivariate Regression, Including Campaign Finance Data

Variable	Coefficient	Robust Standard Errors
Faced Competitive Primary	1.97	2.45
State Partisanship	7.50	5.57
Open Primary	0.01	0.84
South	0.27	1.55
General Election Vote Share	-5.38	4.62
Majority	4.81***	0.78
Same Party President	-1.00	0.80
Retire	-0.59	0.93
Presidential Election	1.99	2.58
% State African American	-0.96	6.37
% State Latino	4.32	4.67
% State College Educated	-15.50#	8.61
Campaign Finance	-0.37	0.30
Dummy 1980	0.87	2.84
Dummy 1982	8.01*	3.52
Dummy 1984	0.66	2.22
Dummy 1986	0.19	2.98
Dummy 1988	-1.76	2.22
Dummy 1990	3.30	2.27
Dummy 1992	2.17	2.34
Dummy 1994	5.10*	2.40
Dummy 1996	-2.09	2.18
Dummy 1998	4.47#	2.34
Dummy 2000	0.27	1.98
Dummy 2002	4.83*	2.20
Dummy 2004	-0.73	1.72
Dummy 2006	1.02	2.55
Constant	5.96	8.24
Number of Cases	316	
R-Squared	0.22	
Adjusted R-Squared	0.15	

\# - p<0.1   ** - p<0.01
* - p<0.05   *** - p<0.001
As noted above, because of missing data the sample for this model runs from 1980-2008

Because serving in the majority party had a statistically significant and positive effect on a senator's party unity score in both of the multivariate models, I was curious if perhaps the effect of facing a competitive primary is conditional on a senator serving in the majority party. Jewitt and Treul (2018; 2019) find that, for House members from 2002 to 2012, facing an ideological primary challenge has a negative and significant impact on legislator's party unity scores for majority party members, but not for minority party members. That is, if a member serves in the majority party after facing an ideological primary challenge her party unity score decreases, but these effects are not present for House members who serve in the minority party. Jewitt and Treul (2018; 2019) suggest that this effect is present because majority party members can signal their ideological purity to primary voters by voting against the party's legislative accomplishments for not being ideological enough. Minority party members, however, do not have the same luxury. Given that serving in the majority party had a statistically significant impact on a senator's party unity score in both of my multivariate models, could a similar phenomenon exist in the Senate as in the House?

To test this, I ran additional models that added an interaction term between the variable that notes facing a competitive primary and the variable that notes whether the senator served in the majority party. The regression coefficients for these models can be found in Tables 7 and 9. Tables 8 and 10 show the linear combinations of facing a competitive primary and a senator serving in the majority party that result from these regressions. Tables 7 and 8 show the model that includes the interaction term but does not include campaign finance data. While the coefficients are slightly different, the patterns of which variables are significant is the same in this model as the model in Table 5. Facing a competitive primary is not a statistically significant predictor of the change in a senator's party unity score, as before. The effective of serving in the majority party once again is statistically significant and positive, as is a senator being elected in 1982, 1994, 1998, and/or 2002.[13]

[13] For this model, using 1978 as the fixed-effects comparison year instead of 2008 alters the results in a fashion that is similar to those found in Note 9 above. The coefficient on Majority is still statistically significant ($p<0.001$), as are the coefficients for 1982 ($p<0.05$), 1994 ($p<0.05$), 1998 ($p<0.1$), and 2002 ($p<0.05$). The coefficient on % State College Educated is statistically significant ($p<0.1$). The coefficients for the years 1988 ($p<0.1$), 1990 ($p<0.1$), 1996 ($p<0.05$), and 2004 ($p<0.1$) are also statistically significant.

Table 7: Effects of Facing a Competitive Primary on Change in a Senator's Party Unity Score Multivariate Regression, No Campaign Finance Data, Primary-Majority Interaction

Variable	Coefficient	Robust Standard Errors
Faced Competitive Primary	1.62	4.16
Majority	4.90***	0.74
State Partisanship	4.03	5.33
Open Primary	-0.02	0.81
South	0.01	1.42
General Election Vote Share	-2.80	3.92
Same Party President	-1.07	0.75
Retire	-1.12	0.92
Presidential Election	1.72	2.16
% State African American	-1.44	5.79
% State Latino	3.32	4.30
% State College Educated	-10.34	8.33
Dummy 1978	2.44	3.14
Dummy 1980	2.00	2.68
Dummy 1982	7.69*	3.43
Dummy 1984	1.02	1.89
Dummy 1986	0.14	2.93
Dummy 1988	-1.53	1.89
Dummy 1990	4.22#	2.19
Dummy 1992	1.48	2.19
Dummy 1994	5.50*	2.35
Dummy 1996	-1.98	1.82
Dummy 1998	4.69*	2.09
Dummy 2000	0.50	1.57
Dummy 2002	5.31*	2.07
Dummy 2004	-1.04	1.37
Dummy 2006	-0.02	2.47
Faced Competitive Primary * Majority	-0.72	4.74
Constant	-0.48	5.19
Number of Cases	362	
R-Squared	0.19	
Adjusted R-Squared	0.13	

- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001
As noted above, because of missing data the sample for this model runs from 1978-2008

The variable of interest for this model, specifically, is the variable showing the interaction term between facing a competitive primary and serving in the majority party and the resulting linear combinations. According to this model, a senator who both faced a competitive primary and served in the majority in congress 1 of the term following the election voted with their party 5.32 percentage points more often than senators who did not match those criteria. A senator who faced a competitive primary but served in the minority party in congress 1 following the election voted with her party 1.14% more often than a senator who did not match those parameters. Senators who did not face a competitive primary but served in the majority party voted with their party 4.42% more often compared to the congress before election than senators who were not in the majority party. Finally, a senator who did not face a competitive primary and served in the minority party voted less often with her party in congress 1 of the following term by 0.48%, the coefficient for the constant of this model. However, as the coefficient for the interaction term is not statistically significant, I cannot conclude based on this model that the impact of facing a competitive primary on the change in a senator's party unity voting in subsequent congresses is conditional on whether or not she serves in the majority party.

Table 8: Linear Combinations – Regression Equation in Table 7

	Senator in Majority Party in Congress 1 Post-Election	Senator in Minority Party in Congress 1 Post-Election
Faced a Competitive Primary	5.32	1.14
Did Not Face a Competitive Primary	4.42	-0.48

Table 9 shows the regression coefficients for the model that contains an interaction term between facing a competitive primary and serving in the majority party as well as the control for campaign finance data. Table 10 shows the resulting linear combinations. As with the model shown in Table 7, the patterns for which variables are statistically significant according to Table 9 are the same – facing a competitive primary has a positive but not significant effect on the change in a senator's party unity score, serving in the majority party has a positive and statistically significant impact on the change in a senator's party unity score, and being elected in 1982, 1994, and 2002 also have positive and statistically significant effects on the change in a senator's party unity score. The coefficients on these variables are slightly different, which is to be expected given the different number of cases, but the pattern matches the multivariate model encompassing campaign finance data without the interaction term.[14]

Table 9: Effects of Facing a Competitive Primary on Change in a Senator's Party Unity Score Multivariate Regression, Including Campaign Finance Data, Primary-Majority Interaction

Variable	Coefficient	Robust Standard Errors
Faced Competitive Primary	0.73	4.44
Majority	4.63***	0.77
State Partisanship	6.99	5.45
Open Primary	0.03	0.85
South	0.29	1.55
General Election Vote Share	-5.55	4.56
Same Party President	-1.05	0.79
Retire	-0.61	0.92
Presidential Election	1.88	2.52
% State African American	-1.15	6.32
% State Latino	4.56	4.74
% State College Educated	-15.37#	8.64
Campaign Finance	-0.37	0.31
Dummy 1980	0.83	2.80
Dummy 1982	7.81*	3.47
Dummy 1984	0.68	2.23
Dummy 1986	0.08	2.96
Dummy 1988	-1.75	2.24
Dummy 1990	3.25	2.25
Dummy 1992	2.29	2.40
Dummy 1994	5.06*	2.38
Dummy 1996	-2.22	2.24
Dummy 1998	4.31#	2.28
Dummy 2000	0.29	1.99
Dummy 2002	4.72*	2.15
Dummy 2004	-0.77	1.75
Dummy 2006	0.84	2.48
Faced Competitive Primary * Majority	2.33	4.98
Constant	6.33	8.08
Number of Cases	315	
R-Squared	0.22	
Adjusted R-Squared	0.15	

- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001
As noted above, because of missing data the sample for this model runs from 1978-2008

[14] When using 1978 as the fixed-effects comparison year instead of 2008 for this model, the results are similar to those found in Note 11 above. The coefficient on Majority is statistically significant (p<0.001), as are the coefficients for 1982 (p<0.05), 1994 (p<0.05), 1998 (p<0.1), and 2002 (p<0.05). The coefficient on Presidential Election Year is statistically significant (p<0.1). The coefficient on % State College Educated is statistically significant (p<0.1). The coefficients for the years 1988 (p<0.05), 1996 (p<0.05), and 2004 (p<0.05) are also statistically significant.

Table 10: Linear Combinations – Regression Equation in Table 9

	Senator in Majority Party in Congress 1 Post-Election	Senator in Minority Party in Congress 1 Post-Election
Faced a Competitive Primary	14.02	7.06
Did Not Face a Competitive Primary	10.96	6.33

Once again, the interaction term and the resulting linear combinations are specifically what I am interested in from this model. According to the model, a senator who serves in the majority party in congress 1 after facing a competitive primary votes with her party 14.02% more often in congress 1 post-election compared to congress 1 pre-election. A senator who serves in the minority party after facing a competitive primary votes with her party 7.06% more often in congress 1 of the following election. Senators who do not face a competitive primary also saw noticeable growth in their party unity voting behavior. For those senators who did not face a competitive primary and served in the majority party, their party unity score grew by 10.96 percentage points compared to congress 1 of the term prior to the election. Lastly, a senator who serves in the minority party and did not face a competitive primary still votes with her party 6.33% more often in congress 1 of the term following the election according to this model. These effects are substantively larger than the impact of just facing a competitive primary and is the opposite effect of what Jewitt and Treul (2018; 2019) demonstrate. However, as with the other model that incorporates the interaction term, the coefficient on the interaction term is not statistically significant and therefore the effects could very well be the result of random chance. Taking both of these models together, I cannot conclude that the effect of facing a competitive primary on the change in a senator's party unity score is conditional on a senator serving in the majority party.

Section V: Discussion and Conclusion

Do senators who face a competitive primary challenge and win reelection vote with their party more often in subsequent congresses than senators who do not face a competitive primary challenge? Based on the results discussed above, I cannot conclude that they do. While in each of the multivariate models that I have included here the coefficient for facing a competitive primary is positive, in none of these models was the coefficient statistically significant. Furthermore, in the bivariate regression, facing a competitive primary actually had a negative effect on the change in a senator's party unity score (though, again, without reaching statistical significance). While the multivariate models suggest that senators who face a competitive primary do vote with their party more often in subsequent congresses than they had in past congresses compared to senators who did not face a competitive primary, the fact that the coefficients do not reach statistical significance means that the results that I found are not statistically different than the results that would come from random chance.[15]

Additionally, very few of the control variables had a statistically significant impact on the change in a senator's party unity score. In all the multivariate models, a senator serving in the majority party had a positive and statistically significant impact on how a senator adjusts their partisan voting pattern. The magnitude of this impact varied across the models, but in all it was larger than the effect of a senator facing a competitive primary. When testing an interaction term to see if the effect of facing a competitive primary is conditional on being in the majority party, along the lines of findings by Jewitt and Treul (2018; 2019), I did not find a statistically significant relationship between the interaction term and the change in a senator's party unity

[15] See Appendix B for regression tables using alternative operationalizations of my independent and dependent variables. No consistent patterns exist in these models, but future research is needed to better examine these alternative operationalizations before any definitive statements about them can be made.

score. Lastly, being elected in certain years had positive and statistically significant impacts on a senator's party unity score voting.

What might be the reason that my results differ than the results that generally apply to the House? There are a number of factors that come to mind. The first is the limitations that a study such as this one presents. As with any study that uses observational data, the main limitation of a project such as this is attributing causation to the phenomena examined. As Boatright (2013) noted, it is impossible to definitively determine if senators or representatives adjust their voting behavior in congress to ward off future primaries; one cannot make observations about events which do not occur. While this study has made observations on if senators respond to a competitive primary challenge by voting more often with their party, a study such as this cannot definitively say that the competitive primary challenge is indeed causing the senators to vote with their party more or less often than senators who do not face a competitive primary challenge. This study is also limited in that the idiosyncrasies of any given Senate race and the many reasons that challengers give for entering a primary (see Boatright 2013) could be impacting a senator's voting behavior more than facing a competitive primary. As noted above, I also dealt with the issue of a smaller sample size of elections in the Senate compared to the House. One reason House elections are more often studied in the literature compared to Senate elections is that House elections occur much more frequently. Furthermore, considering that much of the research examining the impact of primaries on congressional roll call voting behavior examine ideological primary challenges – that is, a Republican being challenged from the right or a Democrat being challenged from the left – and I had to examine competitive primaries because of, among other reasons, a lack of available data on the frequency of ideological challenges specifically in the Senate, my models could have very well influenced my results.

The institutional design of the Senate also likely influences the results of this study when compared to elections to the House. The Senate term was specifically designed to serve as a buffer for legislators to act in a more independent fashion. In many ways, the actions of senators in Washington, D.C. support the notion that the Senate remains and individualistic chamber compared to the House that gives senators this greater degree of freedom. It is much easier for an individual senator in either party to impact the legislative calendar of the Senate and make disciplined partisan voting less likely. This is not to say that the Senate does not see high levels of partisan voting. However, the design of the Senate does make it easier for senators to create a collective identity beyond just partisan voting. Similarly, the leadership of the House has considerable more power to control what gets voted on in the legislature. This makes it much easier for the kind of partisan voting patterns that make up a model of legislating like the conditional party government model to emerge in the House than in the Senate. There is a reason that much of the literature that examines the U.S. Congress from the standpoint of the conditional party government model examines the House rather than the Senate.

The nature of Senate elections also likely provides some of the differences reported here when compared to the results of analyses that examine the House. While I included comparisons of numerous congress-to-congress comparisons in the Senate term in this study, the nature of the six-year Senate term makes it difficult to attribute the impact of a single congress on a Senate election. The longer period between elections gives voters more opportunities to forget actions that they might have otherwise wanted to punish a senator for. The length also provides senators with the opportunity to build up their reputation in a way that the constituents will appreciate when considering the aggregate of their work in the nation's capital. Senate elections are also made up of different electorates than House elections. Aside from those representing the few states with a single state-wide Representative, most senators will face a larger and more diverse electorate than their colleagues in the House. This heterogeneity is a key factor in explaining why Senate general elections are much more competitive overall than House general elections. Perhaps it could be the case that the powerful pull of the general election constituency is what drives senators' voting behavior on the floor rather than the primary election constituency.

Another aspect of this study that might produce different results than those found in the literature is different operationalizations of the variables of interest. Thomas (1985) suggests that in year 6 of the term, senators converge toward the center compared to year 3 of the term. Erikson and Wright (2017) support this finding as well. One important difference between these studies and mine that could explain the differing results is that Thomas and I are measuring different phenomena. Thomas (1985) is measuring responses within a single term, whereas I am measuring how a senator responds in one term following an election from the term prior to the election. In addition, Thomas (1985) and I use slightly different measurements of Senate roll call voting. Thomas uses conservative coalition support scores from *Congressional Quarterly* for senators serving from 1959 to 1976. I am measuring senators' responses using party unity scores for incumbent senators serving from 1971 to 2015. These differing samples and differing measurements of Senate roll call voting response will not necessarily produce the same results, and indeed they do not. While the models in this study do not show a statistically significant relationship between facing a competitive primary and a senator's roll call voting, the relationship that I do find is in the opposite direction of that noted by Thomas (1985). He finds that senators converge toward the center as the general election approaches, while the models in this study suggest that senators vote in a slightly more partisan fashion following a competitive primary.

Along similar lines, altering the outcome variable might produce different results. Given that House leaders have greater control over the floor agenda than Senate leaders, the fact that I chose to use party unity scores as my dependent variable could have impacted the results that I found in this study. While using party unity scores as a measurement of legislator responsiveness in the legislature occurs frequently in the literature on congressional elections, studies using alternative measurements of legislator responsiveness might produce different results than those presented here. Research in the future could also use alternative methods to gauge how senators respond to facing a competitive primary. Research studies by Lazarus and Steigerwalt (2009) and Crespin and Finocchiaro (2013) measure the relationship between pork barrel spending and senators' electoral fortunes. Future research could replace party unity scores with appropriations that the senators bring back to the states following the methodology of these studies as an alternative measure of senatorial responsiveness to their voters.

Future studies could also alter the operationalization of the independent variable that I use. While using the competitive threshold method is a practice used in several studies, the explanatory power of this variable is disputed. For one, Hirano et al. (2010) create an alternative measure of competitiveness that takes into account the challenges made to downballot statewide and congressional candidates rather than using the percent of the vote the individual legislator receives. For Hirano et al. (2010) using the percentage of the vote that the senator receives, as I do here, would not produce a consistent estimate. Furthermore, while I include models that test the threshold method with a 60% threshold, using the 75% threshold as I do here might not lead to meaningful results because it is over-inclusive. Future research could also separate the independent variable that I have even more by parsing out whether facing a competitive primary, facing a non-competitive primary, and/or facing no primary at all impacts how a senator votes in subsequent congresses in notable ways. In my measurement of the independent variable, I combined senators who faced a non-competitive primary and senators who did not face a primary at all into a single measurement. These two circumstances are very different electoral contexts for senators to face. Perhaps facing any primary makes senators change their voting behavior compared to senators who do not face primaries at all. This would be another fruitful avenue for future research.

One obvious path for alternative models would be to more fully examine the interactive relationship that facing a competitive primary and serving in the majority party might have on a senator's party unity score. As noted above, Jewitt and Treul (2018; 2019) demonstrate that, for members of the House, increased partisan voting after facing an ideological primary is conditional on a Representative being in the majority party. I included an interaction term that measured this in two models and did not find a statistically significant relationship between the interaction term and a senator's party unity score. However, I only included this interaction term for the models presented in this thesis. Future research on the relationship between facing a competitive primary and senatorial roll call voting behavior could interact facing a competitive primary with majority party status using alternative methods of measuring the independent and dependent variables that I have described so far, similar to Jewitt and Treul (2018; 2019), to further test the potential relationship between this interaction and a senator's roll call voting.

Altering how the independent and dependent variables are measured and fully studying them might produce different results as well. This study used a 75% threshold to measure competitiveness and the change in a senator's party unity score from congress 1 of the terms preand post-election to measure how a senator responds to these competitive primaries. While I included additional models that alter these variables (see Appendix B), I did not fully analyze these models and the relationship between facing a competitive primary and party unity score voting that these alternative models might show. Additional research that more fully examines these models would be useful to more fully understand the relationship between a senator facing a competitive primary and her party unity score voting.

Regardless of what additional paths may or may not come from future research, this project has examined an under-studied aspect of the literature on congress and offers a first-step application of the methodology for studying congressional elections and roll call voting to the Senate specifically. Despite the lack of support for the hypothesis, the results do not definitely suggest that my hypothesis is incorrect. The results presented here do not support my hypothesis because of a lack of statistical significance rather than by suggesting that an opposite trend is present. However, as I have repeatedly pointed out, additional study is needed before anyone can definitively say what the relationship is between facing a competitive primary and a senator's party unity score. Furthermore, this study gives an answer to the question of the relationship between Senate primary elections and partisan voting in a manner that represents more than just the conjecture of political pundits noted in the Introduction. The answer is not complete, but such is the nature of research. This study is not the definitive answer to this question, but it does add to the conversation that will likely continue to develop as long as elections to and floor voting in congress remain highly partisan and polarized.

This study also provides benefits to the advancement of the political science literature. As noted above, Senate elections are much less frequently studied than House elections, so this study represents research into a body whose elections do not receive as much attention. In addition, most studies that examine the impact of competitive primaries, specifically, focus on the electoral fortunes of those who go through the competitive primaries (Kenney 1988; Kenney & Rice 1984; Kenney & Rice 1987). A study such as this, which examines how competitive primaries impact a legislator's roll call voting behavior, is much less common and offers another avenue of research that is not typically studied in the literature on congress.

Appendix A – Additional Descriptive Statistics

Table A1: Competitive and Non-Competitive Primaries among Senators who won Reelection, 1970-2012 – 75% Threshold

Dependent Variable Calculation	Non-Competitive Primaries (% of Sample)	Competitive Primaries (% of Sample)	Sample Size
1-2	433 (90.21%)	47 (9.79%)	480
1-3	438 (89.94%)	49 (10.06%)	487
2-1	395 (90.39%)	42 (9.61%)	437
2-2	401 (90.11%)	44 (9.89%)	445
2-3	405 (89.80%)	46 (10.20%)	451
3-1	368 (90.64%)	38 (9.36%)	406
3-2	374 (90.34%)	40 (9.67%)	414
3-3	378 (90.22%)	41 (9.78%)	419
Average	**399 (90.19%)**	**43.38 (9.81%)**	**442.75**

Table A2: Competitive and Non-Competitive Primaries Among Senators who won Reelection, 1970-2012 – 60% Threshold

Dependent Variable Calculation	Non-Competitive Primaries (% of Sample)	Competitive Primaries (% of Sample)	Sample Size
1-1	453 (96.38%)	17 (3.62%)	470
1-2	462 (96.25%)	18 (3.75%)	480
1-3	468 (96.10%)	19 (3.90%)	487
2-1	420 (96.11%)	17 (3.89%)	437
2-2	427 (95.96%)	18 (4.04%)	445
2-3	432 (95.79%)	19 (4.21%)	451
3-1	392 (96.55%)	14 (3.45%)	406
3-2	399 (96.38%)	15 (3.62%)	414
3-3	404 (96.42%)	15 (3.58%)	419
Average	**425.50 (96.10%)**	**16.88 (3.81%)**	**442.75**

Table A3: Measures of Central Tendency – Incumbent Senators' Change in Party Unity Scores, 92nd Congress-113th Congress

Dependent Variable Calculation	Min.	25th Percentile	Median	Mean	75th Percentile	Max.	Standard Deviation
1-2	-32.19	-2.42	0.92	1.10	4.49	29.19	7.78
1-3	-17.28	-1.49	1.87	2.40	6.62	29.01	6.96
2-1	-41.13	-2.95	1.44	1.31	5.65	34.73	9.91
2-2	-25.80	-2.92	1.13	1.48	5.82	32.69	8.86
2-3	-28.80	-1.81	2.14	2.82	6.73	47.74	8.73
3-1	-34.64	-4.82	0.73	0.35	5.38	44.80	10.31
3-2	-35.72	-4.30	0.93	0.57	6.29	35.16	9.89
3-3	-30.77	-2.91	1.82	2.08	6.53	53.17	10.03
Average	**-30.79**	**-2.95**	**1.37**	**1.51**	**5.94**	**38.31**	**9.06**

Table A4: Measures of Central Tendency – State Partisanship, 1970-2012

Dependent Variable Calculation	Min.	25th Percentile	Median	Mean	75th Percentile	Max.	Standard Deviation
1-1	0.22	0.41	0.46	0.46	0.53	0.73	0.09
1-2	0.22	0.41	0.46	0.46	0.53	0.73	0.09
1-3	0.22	0.41	0.46	0.47	0.53	0.73	0.09
2-1	0.22	0.40	0.46	0.46	0.53	0.69	0.09
2-2	0.22	0.41	0.46	0.46	0.52	0.69	0.09
2-3	0.22	0.41	0.46	0.46	0.52	0.69	0.09
3-1	0.22	0.41	0.46	0.46	0.52	0.67	0.09
3-2	0.22	0.41	0.46	0.46	0.52	0.67	0.09
3-3	0.22	0.41	0.46	0.46	0.52	0.67	0.09
Average	**0.22**	**0.41**	**0.46**	**0.46**	**0.52**	**0.70**	**0.09**

Table A5: Frequency of State Primary Laws, 1970-2012

Dependent Variable Calculation	Open Primary (%)	Closed Primary (%)	Semi-Open (%)	Semi-Closed (%)	Blanket Primary (%)	NA	Sample Size
1-1	101 (21.49%)	205 (43.62%)	31 (6.60%)	27 (5.75%)	27 (5.75%)	79 (16.81%)	470
1-2	103 (21.46%)	207 (43.12%)	32 (6.67%)	30 (6.25%)	27 (5.63%)	81 (16.86%)	480
1-3	103 (21.15%)	211 (43.33%)	35 (7.19%)	31 (6.37%)	27 (5.54%)	80 (16.43%)	487
2-1	90 (20.60%	191 (43.71%	27 (6.18%)	27 (6.18%)	25 (5.72%)	77 (17.62%)	437
2-2	92 (20.67%)	192 (34.15%)	28 (6.30%)	29 (6.52%)	25 (5.62%)	79 (17.75%)	445
2-3	92 (20.40%)	195 (43.24%)	31 (6.87%)	30 (6.65%)	25 (5.54%)	78 (17.30%)	451
3-1	85 (20.94%)	176 (43.35%)	26 (6.40%)	25 (6.16%)	20 (4.93%)	74 (18.23%)	406
3-2	87 (21.01%)	177 (42.75%)	27 (6.52%)	27 (6.52%)	20 (4.83%)	76 (18.36%)	414
3-3	87 (20.76%)	180 (42.96%)	29 (6.92%)	28 (6.68%)	20 (4.77%)	75 (17.90%)	419
Average	**93.33 (20.95%)**	**171.44 (38.49%)**	**29.56 (6.64%)**	**28.22 (6.34%)**	**24.00 (5.39%)**	**69.11 (15.51%)**	**445.44**

Table A6: Regional Frequency – Incumbent Senators Who won Reelection, 1970-2012

Dependent Variable Calculation	Non-South (% of Sample)	South (% of Sample)	Sample Size
1-1	376 (80.00%)	94 (20.00%)	470
1-2	385 (80.21%)	95 (19.79%)	480
1-3	390 (80.08%)	97 (19.92%)	487
2-1	351 (80.32%)	86 (19.68%)	437
2-2	358 (80.45%)	87 (19.55%)	445
2-3	362 (80.27%)	89 (19.73%)	451
3-1	326 (80.30%)	80 (19.70%)	406
3-2	333 (80.43%)	81 (19.57%)	414
3-3	336 (80.19%)	83 (19.81%)	419
Average	**357.44 (80.24%)**	**88.00 (19.76%)**	**445.44**

Table A7: General Election Vote Share (2-Party) – Senators Who won Reelection, 1970-2012

Dependent Variable Calculation	Min.	25th Percentile	Median	Mean	75th Percentile	Max.	Standard Deviation
1-1	0.40	0.56	0.62	0.64	0.69	1.00	0.11
1-2	0.40	0.56	0.62	0.64	0.69	1.00	0.11
1-3	0.40	0.56	0.62	0.64	0.69	1.00	0.11
2-1	0.40	0.56	0.62	0.64	0.69	1.00	0.11
2-2	0.40	0.56	0.62	0.64	0.69	1.00	0.11
2-3	0.40	0.56	0.62	0.64	0.69	1.00	0.11
3-1	0.47	0.56	0.62	0.64	0.69	1.00	0.11
3-2	0.47	0.56	0.62	0.64	0.69	1.00	0.10
3-3	0.47	0.56	0.62	0.64	0.69	1.00	0.11
Average	**0.42**	**0.56**	**0.62**	**0.64**	**0.69**	**1.00**	**0.11**

Table A8: Measures of Central Tendency – General Election Candidate Spending, Senators Who won Reelection, 1970-2012

Dependent Variable Calculation	Min.	25th Percentile	Median	Mean	75th Percentile	Max.	NA
1-1	0	442294	1190818	2,164,263	2603710	32276268	96
1-2	0	446960	1207963	2154435	2603710	32276268	98
1-3	0	463330	1232852	2288896	2757052	3227668	98
2-1	0	470320	1185529	1982236	2329505	16244343	94
2-2	0	477310	1187714	1971762	2296584	16244343	96
2-3	0	480420	1194122	2105273	2380926	17394960	96
3-1	0	470320	1165563	1900993	2217257	16244343	91
3-2	0	477310	1179048	1891124	2209442	16244343	93
3-3	0	479989	1189131	200402	2251527	17394960	93
Average	**0**	**467583.67**	**1192526.67**	**1851042.67**	**2405523.67**	**18616388.44**	**95**

Table A9: Majority Party Status – Incumbent Senators who Won Reelection, 92nd Congress-113th Congress

Dependent Variable Calculation	Minority Party (% of Sample)	Majority Party (% of Sample)	Sample Size
1-1	221 (47.02%)	249 (52.98%)	470
1-2	225 (46.88%)	255 (53.12%)	480
1-3	227 (46.61%)	260 (53.39%)	487
2-1	205 (46.91%)	232 (53.09%)	437
2-2	209 (46.97%)	236 (53.03%)	445
2-3	211 (46.78%)	240 (53.22%)	451
3-1	205 (50.49%)	201 (49.51%)	406
3-2	209 (50.48%)	205 (49.52%)	414
3-3	211 (50.36%)	208 (49.64%)	419
Average	**213.67 (47.97%)**	**231.78 (52.03%)**	**445.44**

Table A10: Same Party as the President, Senators who Won Reelection, 92nd Congress-113th Congress

Dependent Variable Calculation	Not President's Party (% of Sample)	President's Party (% of Sample)	Sample Size
1-1	237 (50.43%)	233 (49.57%)	470
1-2	241 (50.21%)	239 (49.79%)	480
1-3	247 (50.72%)	240 (49.28%)	487
2-1	214 (48.97%)	223 (51.03%)	437
2-2	217 (48.76%)	228 (51.24%)	445
2-3	220 (48.78%)	231 (51.22%)	451
3-1	199 (49.01%)	207 (50.99%)	406
3-2	204 (49.28%)	210 (50.72%)	414
3-3	204 (48.69%)	214 (51.31%)	419
Average	**220.33 (49.46%)**	**225 (50.51%)**	**445.44**

Table A11: Number of Retirements – Senators Who won Reelection, 1970-2012

Dependent Variable Calculation	Not Retire (% of Sample)	Retire (% of Sample)	Sample Size
1-1	364 (77.45%)	106 (22.55%)	470
1-2	372 (77.50%)	108 (22.50%)	480
1-3	378 (77.62%)	109 (22.38%)	487
2-1	333 (76.20%)	104 (23.8%)	437
2-2	339 (76.18%)	106 (23.82%)	445
2-3	344 (76.27%)	107 (23.73%)	451
3-1	305 (75.12%)	101 (24.88%)	406
3-2	311 (75.12%)	103 (24.88%)	414
3-3	315 (75.18%)	104 (24.82%)	419
Average	**340.11 (76.35%)**	**105.33 (23.65%)**	**445.44**

Table A12: Incumbent Senators Reelected During Presidential Years, 1970-2012

Dependent Variable Calculation	Midterm Elections (% of Sample)	Presidential Elections (% of Sample)	Sample Size
1-1	246 (52.34%)	224 (47.66%)	470
1-2	251 (52.29%)	229 (47.71%)	480
1-3	255 (52.36%)	232 (47.64%)	487
2-1	236 (54%)	201 (46%)	437
2-2	241 (54.16%)	204 (45.84%)	445
2-3	245 (54.32%)	206 (45.68%)	451
3-1	213 (52.46%)	193 (47.54%)	406
3-2	218 (52.66%)	196 (47.34%)	414
3-3	221 (52.74%)	198 (47.26%)	419
Average	**236.22 (53.03%)**	**209.22 (46.97%)**	**445.44**

Table A13: Measures of Central Tendency – Percentage of State that is African American, 1970-2012

Dependent Variable Calculation	Min.	25th Percentile	Median	Mean	75th Percentile	Max.	Standard Deviation
1-1	0.00	0.02	0.07	0.10	0.15	0.58	0.11
1-2	0.00	0.02	0.07	0.10	0.15	0.58	0.11
1-3	0.00	0.02	0.07	0.10	0.15	0.58	0.11
2-1	0.00	0.02	0.07	0.10	0.14	0.58	0.11
2-2	0.00	0.02	0.06	0.10	0.14	0.58	0.11
2-3	0.00	0.02	0.06	0.10	0.14	0.58	0.11
3-1	0.00	0.02	0.07	0.10	0.14	0.58	0.11
3-2	0.00	0.02	0.07	0.10	0.14	0.58	0.11
3-3	0.00	0.02	0.07	0.10	0.14	0.58	0.11
Average	**0.00**	**0.02**	**0.07**	**0.10**	**0.14**	**0.58**	**0.11**

Table A14: Measures of Central Tendency – Percentage of State that is Latino, 1970-2012

Dependent Variable Calculation	Min.	25th Percentile	Median	Mean	75th Percentile	Max.	NA
1-1	0.00	0.01	0.03	0.06	0.08	0.44	68
1-2	0.00	0.01	0.03	0.06	0.08	0.44	69
1-3	0.00	0.01	0.03	0.07	0.08	0.44	69
2-1	0.00	0.01	0.03	0.06	0.07	0.44	66
2-2	0.00	0.01	0.03	0.06	0.07	0.44	67
2-3	0.00	0.01	0.03	0.06	0.07	0.44	67
3-1	0.00	0.01	0.03	0.06	0.07	0.44	63
3-2	0.00	0.01	0.03	0.06	0.07	0.44	64
3-3	0.00	0.01	0.03	0.06	0.07	0.44	64
Average	**0.00**	**0.01**	**0.03**	**0.06**	**0.07**	**0.44**	**66.33**

Table A15: Measures of Central Tendency – Percentage of the State that is College Educated, 1970-2012

Dependent Variable Calculation	Min.	25th Percentile	Median	Mean	75th Percentile	Max.	NA
1-1	0.07	0.18	0.22	0.22	0.26	0.38	49
1-2	0.07	0.18	0.22	0.22	0.26	0.38	49
1-3	0.07	0.18	0.22	0.22	0.26	0.38	49
2-1	0.07	0.17	0.21	0.21	0.25	0.38	47
2-2	0.07	0.17	0.21	0.21	0.25	0.38	47
2-3	0.07	0.18	0.21	0.22	0.25	0.38	47
3-1	0.07	0.17	0.21	0.21	0.25	0.37	45
3-2	0.07	0.17	0.21	0.21	0.25	0.37	45
3-3	0.07	0.17	0.21	0.21	0.25	0.37	45
Average	**0.07**	**0.17**	**0.21**	**0.21**	**0.25**	**0.37**	**47**

Appendix B – Additional Regression Tables

Table B1: Bivariate Regressions, 75% Threshold

Variable	DV 1-2	DV 1-3
Faced Competitive Primary	0.78 (1.54)	-2.38 (1.57)
Constant	1.03** (0.36)	2.64*** (0.31)
Number of Cases	478	485
R-Squared	0.00	0.01
Adjusted R-Squared	-0.00	0.01

Robust standard errors in parentheses
\# - p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B2: Bivariate Regressions, 75% Threshold

Variable	DV 2-1	DV 2-2	DV 2-3
Faced Competitive Primary	-1.04 (2.43)	1.01 (1.80)	-2.58 (1.93)
Constant	1.40** (0.46)	1.37** (0.42)	3.08*** (0.40)
Number of Cases	435	443	449
R-Squared	0.00	0.00	0.00
Adjusted R-Squared	-0.00	-0.00	0.00

Robust standard errors in parentheses
\# - p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B3: Bivariate Regressions, 75% Threshold

Variable	DV 3-1	DV 3-2	DV 3-3
Faced Competitive Primary	1.58 (1.90)	3.70* (1.65)	0.06 (2.32)
Constant	0.19 (0.53)	0.21 (0.50)	2.07*** (0.48)
Number of Cases	404	412	417
R-Squared	0.00	0.01	0.00
Adjusted R-Squared	-0.00	0.00	-0.00

Robust standard errors in parentheses
\# - p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B4: Bivariate Regressions, 60% Threshold

Variable	DV 1-1	DV 1-2	DV 3-3
Faced Competitive Primary	-1.78	1.37	-4.53
	(4.03)	(3.01)	(2.94)
Constant	1.07**	1.05**	2.57***
	(0.38)	(0.35)	(0.30)
Number of Cases	468	478	485
R-Squared	0.00	0.00	0.01
Adjusted R-Squared	-0.00	-0.00	0.01

Robust standard errors in parentheses
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B5: Bivariate Regressions, 60% Threshold

Variable	DV 2-1	DV 2-2	DV 2-3
Faced Competitive Primary	-3.84	-0.75	-7.51*
	(4.77)	(3.56)	(3.73)
Constant	1.45**	1.50***	3.13***
	(0.45)	(0.41)	(0.39)
Number of Cases	435	443	449
R-Squared	0.00	0.00	0.02
Adjusted R-Squared	0.00	-0.00	0.02

Robust standard errors in parentheses
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B6: Bivariate Regressions, 60% Threshold

Variable	DV 3-1	DV 3-2	DV 3-3
Faced Competitive Primary	-0.34	3.06	-4.47
	(2.67)	(2.86)	(4.41)
Constant	0.35	0.46	2.24***
	(0.52)	(0.49)	0.48
Number of Cases	404	412	417
R-Squared	0.00	0.00	0.00
Adjusted R-Squared	-0.00	0.00	0.00

Robust standard errors in parentheses
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B7: Multivariate Regressions, No Campaign Finance Data, 75% Threshold

Variable	DV 1-2	DV 1-3
Faced Competitive Primary	2.35	-2.25
	(1.76)	(1.98)
State Partisanship	6.66	9.03#
	(4.80)	(4.66)
Open Primary	-0.01	-0.36
	(0.78)	(0.73)
South	0.35	0.38
	(1.52)	(1.31)
General Election Vote Share	-3.74	-8.91*
	(4.26)	(3.76)
Majority	3.02***	2.28***
	(0.76)	(0.66)
Same Party President	1.60*	1.43*
	(0.73)	(0.68)
Retire	-1.40	-0.93
	(0.90)	(0.87)
Presidential Election	0.21	4.80**
	(1.60)	(1.68)
% State African American	-4.27	-3.03
	(5.88)	(5.56)
% State Latino	3.80	-3.58
	(4.09)	(3.83)
% State College Educated	-14.31#	-16.28*
	(8.64)	(8.03)
Constant	-0.11	-2.67
	(4.86)	(4.86)
Number of Cases	370	378
R-Squared	0.18	0.24
Adjusted R-Squared	0.12	0.18

Robust standard errors in parentheses
Year dummy variables included but not reported. Years 1978-2008
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B8: Multivariate Regressions, No Campaign Finance Data, 75% Threshold

Variable	DV 2-1	DV 2-2	DV 2-3
Faced Competitive Primary	0.99 (2.79)	2.11 (2.03)	-3.14 (2.14)
State Partisanship	5.10 (6.73)	7.30 (5.59)	15.72** (5.34)
Open Primary	0.44 (1.00)	0.49 (0.94)	0.50 (0.90)
South	-0.40 (1.73)	-0.30 (1.71)	0.58 (1.64)
General Election Vote Share	1.22 (4.79)	-0.23 (4.46)	-4.72 (3.80)
Majority	5.87*** (0.91)	4.57*** (0.86)	3.01*** (0.79)
Same Party President	0.12 (0.94)	-0.48 (0.86)	0.89 (0.81)
Retire	-0.62 (1.06)	-0.63 (0.94)	-0.26 (0.96)
Presidential Election	-3.56 (3.62)	-0.58 (2.86)	2.55 (2.17)
% State African American	0.37 (7.49)	-3.60 (7.07)	-5.44 (6.59)
% State Latino	1.36 (5.10)	1.71 (5.51)	-6.79 (4.13)
% State College Educated	-4.01 (10.06)	-8.03 (10.43)	-5.63 (9.09)
Constant	-2.27 (10.04)	-2.62 (7.64)	-8.41 (6.59)
Number of Cases	332	338	345
R-Squared	0.23	0.19	0.27
Adjusted R-Squared	0.17	0.13	0.22

Robust standard errors in parentheses
Year dummy variables included but not reported. Years 1978-2006
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B9: Multivariate Regressions, No Campaign Finance Data, 75% Threshold

Variable	DV 3-1	DV 3-2	DV 3-3
Faced Competitive Primary	2.34 (1.84)	3.20# (1.63)	-2.26 (2.53)
State Partisanship	-5.48 (6.80)	-3.10 (6.45)	1.02 (6.74)
Open Primary	0.28 (1.06)	-0.18 (1.07)	-0.65 (1.18)
South	-0.25 (2.09)	-0.21 (1.89)	1.18 (2.05)
General Election Vote Share	4.39 (4.10)	4.48 (4.83)	0.47 (4.48)
Majority	5.65*** (1.04)	4.93*** (1.00)	5.14*** (1.00)
Same Party President	-0.13 (1.06)	-0.83 (1.05)	-1.39 (1.08)
Retire	0.91 (1.24)	0.47 (1.16)	0.95 (1.33)
Presidential Election	-2.34 (3.23)	3.70 (3.39)	-1.91 (2.97)
% State African American	4.83 (7.99)	0.60 (7.42)	-2.94 (7.63)
% State Latino	8.07 (5.78)	8.18 (6.77)	-1.49 (5.58)
% State College Educated	8.08 (11.31)	0.41 (11.36)	6.37 (11.29)
Constant	-4.05 (7.34)	-10.91 (7.83)	1.58 (7.56)
Number of Cases	305	311	317
R-Squared	0.25	0.22	0.24
Adjusted R-Squared	0.18	0.16	0.18

Robust standard errors in parentheses
Year dummy variables included but not reported. Years 1978-2004
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B10: Multivariate Regressions, No Campaign Finance Data, 60% Threshold

Variable	DV 1-1	DV 1-2	DV 1-3
Faced Competitive Primary	0.88 (4.11)	2.35 (1.76)	-2.25 (1.98)
State Partisanship	3.37 (5.43)	6.66 (4.80)	9.03# (4.66)
Open Primary	-0.12 (0.81)	-0.01 (0.78)	-0.36 (0.73)
South	0.15 (1.40)	0.35 (1.52)	0.38 (1.31)
General Election Vote Share	-2.84 (3.94)	-3.74 (4.26)	-8.91* (3.76)
Majority	4.81*** (0.76)	3.02*** (0.76)	2.28*** (0.66)
Same Party President	-1.18 (0.76)	1.60* (0.73)	1.43* (0.68)
Retire	-1.08 (0.92)	-1.40 (0.90)	-0.93 (0.87)
Presidential Election	3.28# (1.95)	0.21 (1.60)	4.80** (1.68)
% State African American	-1.86 (5.86)	-4.27 (5.88)	-3.03 (5.56)
% State Latino	2.80 (4.29)	3.80 (4.09)	-3.58 (3.83)
% State College Educated	-10.59 (8.20)	-14.31# (8.64)	-16.28* (8.03)
Constant	-3.03 (6.76)	-0.11 (4.86)	-2.67 (4.86)
Number of Cases	362	370	378
R-Squared	0.19	0.18	0.24
Adjusted R-Squared	0.13	0.12	0.18

Robust standard errors in parentheses
Year dummy variables included but not reported. Years 1978-2008
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B11: Multivariate Regressions, No Campaign Finance Data, 60% Threshold

Variable	DV 2-1	DV 2-2	DV 2-3
Faced Competitive Primary	-0.88	0.61	-7.37*
	(4.94)	(3.62)	(3.64)
State Partisanship	5.27	7.34	16.13**
	(6.77)	(5.61)	(5.18)
Open Primary	0.44	0.44	0.70
	(1.01)	(0.94)	(0.91)
South	-0.35	-0.19	0.36
	(1.73)	(1.72)	(1.67)
General Election Vote Share	0.89	-0.59	-5.22
	(4.74)	(4.45)	(3.85)
Majority	5.86***	4.58***	2.90***
	(0.92)	(0.87)	(0.80)
Same Party President	0.15	-0.46	0.96
	(0.96)	(0.88)	(0.81)
Retire	-0.60	-0.60	-0.22
	(1.08)	(0.95)	(0.95)
Presidential Election	-3.59	-0.49	1.85
	(3.46)	(2.74)	(2.06)
% State African American	0.48	-3.67	-4.40
	(7.63)	(7.19)	(6.82)
% State Latino	1.12	1.23	-6.29
	(5.18)	(5.52)	(4.13)
% State College Educated	-2.93	-6.28	-5.79
	(10.08)	(10.43)	(8.91)
Constant	-2.20	-2.75	-7.08
	(9.79)	(7.42)	(6.20)
Number of Cases	332	338	345
R-Squared	0.23	0.19	0.29
Adjusted R-Squared	0.17	0.13	0.24

Robust standard errors in parentheses
Year dummy variables included but not reported. Years 1978-2006
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B12: Multivariate Regressions, No Campaign Finance Data, 60% Threshold

Variable	DV 3-1	DV 3-2	DV 3-3
Faced Competitive Primary	-0.08 (2.83)	1.72 (2.67)	-7.23# (4.13)
State Partisanship	-5.13 (6.83)	-3.15 (6.50)	1.85 (6.56)
Open Primary	0.26 (1.07)	-0.25 (1.07)	-0.49 (1.15)
South	-0.15 (2.12)	-0.05 (1.91)	1.04 (2.09)
General Election Vote Share	4.07 (4.12)	4.17 (4.91)	0.20 (4.76)
Majority	5.63*** (1.05)	4.96*** (1.01)	4.98*** (0.98)
Same Party President	-0.01 (1.07)	-0.70 (1.05)	-1.43 (1.06)
Retire	0.96 (1.25)	0.52 (1.16)	1.06 (1.30)
Presidential Election	-2.37 (3.19)	3.79 (3.37)	-2.35 (3.01)
% State African American	5.03 (8.10)	0.54 (7.52)	-1.82 (7.81)
% State Latino	7.41 (5.76)	7.40 (6.74)	-1.51 (5.60)
% State College Educated	9.59 (11.26)	2.27 (11.37)	7.51 (11.03)
Constant	-4.09 (7.31)	-11.09 (7.81)	1.99 (7.63)
Number of Cases	305	311	317
R-Squared	0.24	0.22	0.26
Adjusted R-Squared	0.18	0.15	0.20

Robust standard errors in parentheses
Year dummy variables included but not reported. Years 1978-2004
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B13: Multivariate Regressions, Including Campaign Finance Data, 75% Threshold

Variable	DV 1-1	DV 1-2	DV 1-3
Faced Competitive Primary	2.06 (2.47)	2.55 (1.81)	-2.44 (2.16)
State Partisanship	7.16 (5.56)	8.36 (5.09)	9.98 (4.58)
Open Primary	-0.13 (0.84)	0.01 (0.83)	-0.50 (0.76)
South	0.41 (1.50)	0.50 (1.71)	1.22 (1.36)
General Election Vote Share	-5.43 (4.66)	-6.89 (4.50)	-13.94** (3.84)
Majority	4.73*** (0.78)	2.75*** (0.79)	2.09** (0.69)
Same Party President	-1.09 (0.80)	1.48# (0.76)	1.16 (0.71)
Retire	-0.57 (0.93)	-1.26 (1.01)	-1.02 (0.95)
Presidential Election	4.18# (2.36)	1.32 (1.81)	6.11*** (1.64)
% State African American	-1.59 (6.27)	-5.88 (6.27)	-6.50 (5.44)
% State Latino	3.58 (4.61)	3.70 (4.49)	-3.26 (3.89)
% State College Educated	-16.42# (8.60)	-15.29# (9.15)	-13.53# (8.07)
Campaign Finance	-0.03 (0.30)	-0.47 (0.31)	-0.52 (0.32)
Constant	2.49 (9.60)	7.23 (7.90)	6.00 (7.63)
Number of Cases	315	322	329
R-Squared	0.23	0.19	0.27
Adjusted R-Squared	0.16	0.12	0.20

Robust standard errors in parentheses
Year dummy variables included but not reported. Years 1980-2008
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B14: Multivariate Regressions, Including Campaign Finance Data, 75% Threshold

Variable	DV 2-1	DV 2-2	DV 2-3
Faced Competitive Primary	1.06 (3.07)	1.61 (2.28)	-3.60 (2.40)
State Partisanship	8.93 (7.02)	8.36 (5.97)	16.18** (5.60)
Open Primary	0.48 (1.02)	0.35 (0.99)	0.19 (0.92)
South	0.18 (1.81)	0.35 (1.84)	1.87 (1.68)
General Election Vote Share	0.69 (5.41)	-2.02 (5.11)	-7.75# (4.33)
Majority	5.46*** (0.97)	4.58*** (0.92)	3.16*** (0.82)
Same Party President	-0.60 (1.01)	-0.85 (0.91)	0.80 (0.84)
Retire	0.50 (1.12)	-0.09 (1.04)	-0.13 (1.04)
Presidential Election	-4.35 (4.58)	-0.88 (3.55)	2.20 (2.53)
% State African American	0.42 (7.74)	-5.76 (7.49)	-8.65 (6.74)
% State Latino	-0.97 (5.43)	-1.60 (5.44)	-8.86* (4.20)
% State College Educated	-7.02 (10.31)	-6.77 (11.12)	-3.00 (9.77)
Campaign Finance	0.08 (0.38)	-0.04 (0.36)	-0.08 (0.31)
Constant	-3.13 (13.68)	-0.82 (10.58)	-5.37 (8.96)
Number of Cases	290	295	301
R-Squared	0.24	0.21	0.28
Adjusted R-Squared	0.17	0.13	0.22

Robust standard errors in parentheses
Year dummy variables included but not reported. Years 1980-2006
\# - p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B15: Multivariate Regressions, Including Campaign Finance Data, 75% Threshold

Variable	DV 3-1	DV 3-2	DV 3-3
Faced Competitive Primary	2.37 (2.15)	2.52 (1.87)	-2.88 (2.86)
State Partisanship	-2.23 (7.32)	-2.46 (7.01)	0.00 (7.31)
Open Primary	-0.18 (1.15)	-0.68 (1.13)	-1.38 (1.23)
South	1.49 (2.32)	1.56 (1.96)	3.68# (2.17)
General Election Vote Share	4.40 (5.65)	3.09 (6.42)	-2.31 (5.82)
Majority	5.46*** (1.11)	5.23*** (1.10)	5.56*** (1.08)
Same Party President	-0.39 (1.14)	-0.59 (1.10)	-1.11 (1.12)
Retire	1.62 (1.40)	0.80 (1.30)	0.96 (1.47)
Presidential Election	-5.53 (4.40)	1.68 (4.33)	-3.56 (3.69)
% State African American	2.42 (8.82)	-3.95 (7.84)	-8.81 (7.91)
% State Latino	6.11 (6.22)	5.06 (6.73)	-3.68 (5.53)
% State College Educated	9.35 (11.92)	5.89 (12.20)	13.94 (12.15)
Campaign Finance	-0.07 (0.69)	-0.16 (0.74)	-0.20 (0.67)
Constant	-0.55 (15.63)	-5.30 (15.81)	7.93 (15.24)
Number of Cases	264	269	274
R-Squared	0.26	0.24	0.27
Adjusted R-Squared	0.19	0.16	0.21

Robust standard errors in parentheses
Year dummy variables included but not reported. Years 1980-2004
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B16: Multivariate Regressions, Including Campaign Finance Data, 60% Threshold

Variable	DV 1-1	DV 1-2	DV 1-3
Faced Competitive Primary	1.53 (5.03)	1.42 (3.56)	-6.67# (3.70)
State Partisanship	7.12 (5.64)	8.25 (5.09)	10.18* (4.48)
Open Primary	-0.14 (0.85)	-0.01 (0.84)	-0.38 (0.74)
South	0.43 (1.52)	0.55 (1.72)	1.20 (1.38)
General Election Vote Share	-5.52 (4.65)	-7.10 (4.55)	-14.98*** (3.97)
Majority	4.77*** (0.78)	2.81*** (0.79)	2.06** (0.69)
Same Party President	-1.11 (0.81)	1.42# (0.76)	1.24# (0.71)
Retire	-0.52 (0.93)	-1.15 (1.00)	-1.03 (0.93)
Presidential Election	4.39* (2.14)	1.49 (1.73)	5.18** (1.74)
% State African American	-1.49 (6.33)	-5.82 (6.36)	-6.46 (5.66)
% State Latino	3.24 (4.67)	3.25 (4.49)	-3.12 (3.90)
% State College Educated	-15.30# (8.59)	-13.31 (9.17)	-13.51# (7.84)
Campaign Finance	-0.37 (0.30)	-0.45 (0.31)	-0.51 (0.32)
Constant	2.00 (9.37)	6.66 (7.82)	7.87 (7.59)
Number of Cases	315	322	329
R-Squared	0.22	0.18	0.29
Adjusted R-Squared	0.15	0.11	0.23

Robust standard errors in parentheses
Year dummy variables included but not reported. Years 1980-2008
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B17: Multivariate Regressions, Including Campaign Finance Data, 60% Threshold

Variable	DV 2-1	DV 2-2	DV 2-3
Faced Competitive Primary	1.32	1.49	-8.03#
	(6.07)	(4.57)	(4.52)
State Partisanship	8.94	8.37	16.34**
	(7.16)	(6.04)	(5.37)
Open Primary	0.46	0.32	0.36
	(1.03)	(0.99)	(0.93)
South	0.21	0.42	1.75
	(1.81)	(1.84)	(1.71)
General Election Vote Share	0.72	-2.07	-8.73*
	(5.38)	(5.12)	(4.27)
Majority	5.47***	4.59***	3.10***
	(0.97)	(0.93)	(0.84)
Same Party President	-0.61	-0.85	0.86
	(1.04)	(0.93)	(0.84)
Retire	0.51	-0.06	-0.13
	(1.12)	(1.04)	(1.02)
Presidential Election	-4.21	-0.68	1.35
	(4.42)	(3.45)	(2.45)
% State African American	0.35	-5.89	-8.26
	(7.81)	(7.56)	(7.08)
% State Latino	-1.17	-1.92	-8.53*
	(5.49)	(5.44)	(4.20)
% State College Educated	-6.79	-5.93	-2.96
	(10.32)	(11.17)	(9.53)
Campaign Finance	0.09	-0.02	-0.08
	(0.37)	(0.36)	(0.30)
Constant	-3.43	-1.35	-3.35
	(13.55)	(10.44)	(8.46)
Number of Cases	290	295	301
R-Squared	0.24	0.20	0.30
Adjusted R-Squared	0.17	0.13	0.24

Robust standard errors in parentheses
Year dummy variables included but not reported. Years 1980-2006
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

Table B18: Multivariate Regressions, Including Campaign Finance Data, 60% Threshold

Variable	DV 3-1	DV 3-2	DV 3-3
Faced Competitive Primary	0.80 (3.80)	0.99 (3.10)	-10.28* (4.47)
State Partisanship	-1.94 (7.42)	-2.29 (7.11)	1.11 (7.05)
Open Primary	-0.18 (1.16)	-0.69 (1.13)	-1.18 (1.18)
South	1.59 (2.33)	1.68 (1.98)	3.71# (2.23)
General Election Vote Share	4.13 (5.70)	2.84 (6.47)	-3.31 (5.84)
Majority	5.48*** (1.17)	5.28*** (1.11)	5.38*** (1.07)
Same Party President	-0.29 (1.16)	-0.47 (1.10)	-1.15 (1.10)
Retire	1.69 (1.41)	0.90 (1.29)	1.10 (1.42)
Presidential Election	-5.34 (4.37)	1.91 (4.30)	-3.81 (3.82)
% State African American	2.47 (8.90)	-3.99 (7.90)	-8.15 (8.04)
% State Latino	5.53 (6.21)	4.45 (6.71)	-4.02 (5.54)
% State College Educated	10.30 (11.95)	7.30 (12.25)	16.41 (11.84)
Campaign Finance	-0.06 (0.69)	-0.15 (0.74)	-0.22 (0.66)
Constant	0.10 (15.60)	-5.97 (15.78)	8.53 (15.21)
Number of Cases	264	269	274
R-Squared	0.26	0.23	0.30
Adjusted R-Squared	0.19	0.16	0.23

Robust standard errors in parentheses
Year dummy variables included but not reported. Years 1980-2008
- p<0.1 ** - p<0.01
* - p<0.05 *** - p<0.001

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