A QUANTITATIVE ANALYSIS OF THE RELATIONSHIPS BETWEEN POLITICAL
BEHAVIORS AND AGGREGATED ELECTORAL RESULTS IN THE U.S. HOUSE
OF REPRESENTATIVES, 1968-2010

by
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Abstract

This thesis uses quantitative methods to analyze the relationships between incumbent electoral results in the U.S. House of Representatives between 1968 and 2010 and various political behaviors including legislative productivity, campaign expenditures, ideological polarization, and party unity while hypothesizing that statistically significant correlations exist among these variables. Chapter 1 models expected electoral results for incumbents using a variety of political environment variables in conjunction with the political behavior variables listed above. It finds that legislative productivity is a statistically significant predictor of electoral success on both chamber and party levels and that the presence of a Democratic president harms the electoral performance of Democrats in the House. Chapter 2 analyzes how electoral results impact subsequent political behaviors. Dynamic models deployed in this chapter demonstrate that ideological polarization and approval ratings are both directly affected by incumbent electoral performance. Chapter 3 examines these relationships through the lens of high-turnover elections in the House, special cases in which incumbent candidates seeking reelection lose their bids at an unusually high rate. This chapter finds that high-turnover elections are predominately referenda on individual parties and not the behavior of the entire chamber. Taken as a whole, the chapters in this thesis demonstrate the existence of statistically significant relationships between electoral results and political behaviors in the House of Representatives.

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Introductory Comments:

The Relationships between Political Behaviors and Electoral Results

In a study of seat changes in the U.S. House of Representatives, Robin Marra and Charles Ostrom declare, "Voters are, to some degree, rational gods of vengeance and reward."[1] This profound but simple statement implies that there is a causal relationship between the behaviors of elected officials and the actions taken by the electorate when given the chance to pass judgment and affect change in government by voting. However, the key clause in this statement is "to some degree," as it is not always clear how the political behaviors of elected officials are perceived by the electorate, nor is it always apparent how effectively the electorate can impart its will on its elected officials.

This thesis clarifies and quantifies these uncertainties by presenting a multi-faceted examination of the relationships between electoral results and political behaviors in the House of Representatives. There are two central hypotheses to be tested with these analyses. The first, whether representatives reap the consequences of their behaviors in the House, is tested by quantifying political behaviors and determining if they have statistically significant effects on electoral results. The second, whether the electorate can instill fear in incumbent representatives and affect their political behaviors, is tested by measuring the effects of electoral results on political behaviors. The difference between these two hypotheses is a matter of agency – does the electorate force its will on its representatives by voting them out of office, or do the representatives change their behaviors and act on the will of the electorate by listening closely to electoral results?

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[1] Robin F. Marra and Charles W. Ostrom, Jr. Explaining Seat Change in the U.S. House of Representatives, 1950-86. American Journal of Political Science, Vol. 33, No. 3 (Aug., 1989), pp. 541-569: 541.

There is a mountain of scholarly literature addressing these questions through studies on the interplay between incumbency and various aspects of political behavior and the political process. Almost all of the variables utilized in this thesis have precedents in the literature that are discussed in greater detail in their relevant chapters and that justify their inclusion in the models constructed in this thesis. It is the unique structure of these models, however, that distinguish them from those found in the literature described below. For example, one of the most important contributions of this thesis to the literature is the expanded use of spatial voting measurements of ideological polarization and party unity to model electoral results and other aspects of political behavior. While many scholars have modeled polarization and party unity as dependent variables and discrete elements of political behavior, few of the works reviewed for this thesis use them as independent variables to model electoral success or other political behaviors and none do so in the combinations used here.

Chapter 1 of this thesis tests the first hypothesis by analyzing the effects that political behaviors and other variables have on electoral results in the House. Much of the existing literature explaining electoral results focuses on seat-level models in efforts to forecast the number of seats that are lost or gained by a party in a given election cycle. While the predictive capabilities of such models have obvious utility, they miss an opportunity for macroscopic analysis that gauges the political mood of the country as a whole. To fill this niche, the analysis in Chapter 1 utilizes two separate dependent variables that aggregate electoral results for the entirety of the House and for each of the parties specifically: incumbent vote percentage and incumbent win percentage. Modeling these quantities with political behavior variables and other political environment

variables reveals a number of statistically significant correlations including how legislative productivity is directly correlated with improved electoral results for incumbents and how sharing a party with the incumbent president hurts a party's electoral performance.

Chapter 2 reverses the direction of analysis presented in Chapter 1 and examines how electoral results impact the political behaviors and demographic characteristics of the House. This methodology is unique in the literature in that none of the works reviewed utilize electoral results as an independent variable to model specific political behaviors like legislative productivity, campaign expenditures, political polarization, and party unity. The models in this chapter utilizing electoral results via incumbent vote percentage find that it is a statistically significant predictor of both improved legislative productivity and increased polarization in the House and that it may be a useful control variable in the models where it is not statistically significant.

Chapter 3 applies the lessons of Chapter 2 to specific high-turnover elections, which are defined here as special-case elections in which incumbents lose an abnormally large percentage of their reelection bids. These include well-known elections like the post-Watergate swoon in 1974, the Ronald Reagan wave in 1980, the Gingrich revolution in 1994, and the Tea Party-fueled Republican takeover in 2010. The analysis in this chapter tests that hypothesis that high-turnover elections are identifiably unique when compared to elections with ordinary levels of incumbent turnover. There is little in the way of scholarly literature on high-turnover elections as defined here; instead, most work focuses on dramatic shifts in party division rather than changes to the entirety of the chamber. By broadening the scope of study to include the aggregated electoral

performance of the House rather than just party-level changes, this analysis allows for the possibility that the electorate is voting to punish the House as a whole rather than singling out a specific party. In Marra and Ostrom's terms, the analysis is expanded to determine who the objects of the electorate's vengeance are.

The synthesis of these three chapters paints a broad picture of the interactions between electoral results and political behaviors on a number of analytical levels. It is important to note, however, that this endeavor is not undertaken with the intent of proving any preconceived notions about these relationships. Instead, the intent is to rely on quantitative techniques and contextual analysis to uncover meaningful correlations wherever they may exist. And while the quality of the conclusions drawn in this thesis may be improved through the use of different metrics or more sophisticated techniques of statistical analysis, they are still an indication that electoral results are a useful component in analyses of political behavior and vice versa.

Chapter 1:

Using Political Behavior Variables to Model Incumbent Electoral Results in the U.S. House of Representatives, 1968-2010

With two-year election cycles, reelection is never far from the mind of a member of the House of Representatives. Even the most powerful and influential politician cannot govern to his full potential if his seat is in jeopardy or if he finds himself without a seat at all. In the age of 24-hour news cycles and constant media coverage of Congress, a representative exists in a perpetual state of campaigning, cultivating image, and strategizing to ensure that his seat at the table is safe from potential challengers. As noted by David Mayhew more than four decades ago, incumbents are extremely sensitive to how their political behaviors have potential electoral ramifications.[2] [3]

As such, it is now nearly axiomatic that the goal of reelection influences the everyday decisions and political behaviors of representatives. The reflection of these behaviors are carefully tracked by candidates and other outside observers by way of opinion polls in an effort to extrapolate a given candidate's odds of success in the coming election. As such, there is no shortage of information on individual House campaigns throughout the country. Polling firms and news outlets conduct countless surveys in an attempt to forecast the election's winners and losers. Because the actions of Congress are widely reported on a national level, even the smallest districts can have their day in the electoral sun when congressional majorities hang in the balance.

Some observers take this a step further by aggregating the results of this polling data from across the country in an attempt to predict how the election will play out on a

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[2] David Mayhew. 1974. *Congress: The Electoral Connection.* New Haven, CT: Yale University Press. (Citation pulled from the source listed in footnote [3] of this thesis.)
[3] Jamie L. Carson, Gregory Koger, Matthew J. Lebo, Everett Young. The Electoral Costs of Party Loyalty in Congress. American Journal of Political Science, Vol. 54, No. 3 (July 2010), pp. 598-616.

national scale. Can the minority party shift the balance of power in one or more chambers of Congress? Will a large number of incumbents unexpectedly lose their seats to plucky challengers? Formulating answers to these questions allows for the shaping of election narratives that settle into the nation's collective political memory.

A similar process occurs with presidential elections – sample populations are repeatedly polled in an effort to predict the results of an election to the highest possible degree of accuracy. Aside from this tracking of poll information, however, there is an entirely distinct discipline in forecasting presidential elections. Scholars and other political experts are constantly churning out new models like the Bread and Peace Model or the Time for Change Model[4] to utilize a variety of economic and political indicators to forecast the results of a presidential election.

A few questions then arise when returning to the discussion of Congress: Can these large-scale indicators by used to forecast and analyze macroscopic trends in congressional elections? Are there identifiable variables that correlate strongly with aggregate election results? The goal of this paper is to answer these questions with an approach that examines the work already accomplished by political scientists in this field and then implementing multivariate regression modeling and sound statistical analysis to draw conclusions as to which variables are statistically significant predictors of electoral success.

The first step in answering these questions is determining how to appropriately quantify trends in congressional elections. For the purposes of this chapter, these trends will be defined in two distinct but related ways: (1) the percentage of the vote received by

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[4] "Sabato's Crystal Ball." Larry J Sabatos Crystal Ball RSS. Accessed March 30, 2015. http://www.centerforpolitics.org/crystalball/articles/forecasting-the-presidential-election-other-crystal-balls/.

incumbent representatives seeking reelection; and (2) the percentage of incumbents who were successful in their reelection bids. These two metrics serve as the dependent variables in a series of regression models, each capturing a different facet of aggregate electoral performance.

With the dependent variables defined, the second step is identifying the relevant independent variables that may have significant effects on elections results; these variables will be split into groupings of political environment variables and political behavior variables. The political environment variables are factors that contribute to electoral results that are largely outside a representative's control like the state of the economy, whether the election is held in a presidential or midterm year, which party is in the majority, and others. Utilization of these variables allows for apples-to-apples comparisons across temporally- and situationally-distinct sessions of Congress.

The variables of interest, which are referred to generally as political behavior, are descriptors of the House that are directly affected by the actions of its members. These include aggregate measures of campaign spending, legislative productivity, and political polarization and party unity in legislative voting patterns. This chapter analyzes the effects these variables have on House electoral results and illuminates any correlations that may exist. The overarching hypothesis of this chapter is that the various elements of political behavior have measurable and statistically significant effects on aggregate electoral performance in the House of Representatives.

This chapter is divided into three parts. Part 1 lays out the methodology used in the chapter by describing all relevant variables and how their inclusions are grounded in the existing literature, then presenting the basic structures for models of electoral

performance that are used throughout the paper. Part 2 addresses the effects of political behaviors on the percentage of votes received by incumbent House candidates in their reelection bids. Part 3 utilizes the models to describe the percentage of incumbents who are successful re-elected. Both Parts 2 and 3 contain chamber-wide and party-level analysis. The relevant merits of each set of models are evaluated in the conclusion and suggestions for further research are provided.

Part 1: Methodology

The hypothesis that various political behaviors have statistically significant effects on electoral results is tested in this chapter by identifying and explaining the relevant variables and then estimating their coefficients in models generated using the method of ordinary least squares (OLS). Part 2 will apply these models to the first dependent variable, incumbent vote percentage, while Part 3 will apply them to incumbent win percentage.

In order to ensure the results of this chapter are relevant to current and future political climates, the timeframe of study is limited to the elections conducted between 1968 and 2010. The starting point of 1968 was chosen because it featured a presidential election without an incumbent, it was an election that saw little turnover in the House, and it allowed for a sufficiently large and balanced dataset of twenty-two elections – eleven in midterm years and eleven in presidential. The final data point used is the session elected in 2010 because it is the most recent election to have all data relevant to this study fully catalogued and ready for analysis.[5]

Dependent Variables

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[5] While the session of Congress elected in 2012 has concluded at the time of publication, much of the data based on the congressional record and other government-produced data has yet to be made public and analyzed by the various organizations referenced in this paper.

Incumbent vote percentage[6], sometimes referred to in the literature as "vote share," is the percentage of total votes cast in a congressional election that are received by incumbents. This is an aggregate measure of the votes cast in all House elections in a given cycle, which is notably different from the trend in the literature to view each contested election as a data point. A high incumbent vote percentage is taken to be a proxy indicator of strong support for the incumbent House, while a low percentage is a sign of weak support. In addition to the chamber-wide measure, incumbent vote percentage also takes two additional forms in this chapter's party-level breakdown – one as a representation of the percentage of votes won by incumbent House Republicans, the other as the percentage won by incumbent House Democrats.

Incumbent win percentage, on the other hand, is the percentage of incumbent representatives seeking reelection who are successful in their bids. This variable describes a much more tangible effect of electoral results despite having less analytical granularity than the incumbent vote percentage, and it too is utilized extensively in the literature. While electoral margins largely fade from the public consciousness, elections in which a large percentage of incumbents lose their seats have a more lasting impact on public perceptions and congressional politics by virtue of the significant shifts in party power. Still, incumbent vote percentage and win percentage each tell a different but important side of the same story and serve as sufficient measures of electoral performance.

Political Environment Variables

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[6] CQ Press, Voting and Elections Collection. Accessed through John Hopkins University Library's database interface.

The independent variables described in this section describe the basic facts of the election cycle that are outside the control of the representatives. Presidential election year[7] is a binary variable that indicates whether the congressional election cycle coincides with a presidential contest. There is debate in the literature over whether the distinction between midterm and presidential elections can be made within a single model. Ray Fair argues for the use of separate models to describe vote percentages in presidential versus midterm elections[8], while Robin Marra and Charles Ostrom contend that one model is sufficient.[9] This chapter sides with Marra and Ostrom for the sake of expediency and simplicity and notes that further research may dictate splitting the models developed in this chapter as suggested by Fair.

Incumbent president[10] is another binary variable that marks whether there is an incumbent president at the time of the election. In a presidential election year, this means a sitting president who is eligible for reelection is actively seeking a second term in office. In the case of a midterm election, a positive value for incumbent president indicates the president continues to hold his seat. The inclusion of this variable controls for the boost in support for representatives who share the same party as the incumbent president, but it also accounts for the argument made by Marra and Ostrom that congressional election results are partially referenda on the president.[11]

In line with the assertion made by Kevin Grier and Joseph McGarrity that the president's party is a statistically significant predictor in congressional incumbency

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[7] CQ Press, Voting and Elections Collection.
[8] Ray C. Fair. Presidential and Congressional Vote-Share Equations. American Journal of Political Science, Vol. 53, No. 1 (Jan., 2009), pp. 55-72: 62.
[9] Marra and Ostrom, 564.
[10] CQ Press, Voting and Elections Collection.
[11] Marra and Ostrom, 566.

models[12], the president's party[13] is included as a binary variable regardless of whether he

is seeking reelection. House majority party[14] denotes whether the House is dominated by

Republicans or Democrats. These two variables in conjunction with the incumbent

president variable further describe the effects of party influence on election outcomes.

Election turnout[15] is included as the percentage of eligible voters that vote in the election

and isolates the effects of political behavior on election results by minimizing any

potential causal relationships between voter turnout and the election of one party over the

other.

The final political environment variable is gross domestic product (GDP)

growth[16], which controls for the relative health of the economy by measuring the

percentage change in GDP over the two-year session of Congress concluding with the

election in question. The inclusion of such an economic indicator is well supported in the

literature as a relevant predictor of electoral results in Congress. Grier and McGarrity

argue that economic conditions exert "a highly significant and temporally stable

influence on House elections," although they note that the effect is stronger for win

percentage than vote percentage.[17] The use of a percentage change variable rather than a

static absolute metric is supported by Harvey Palmer and Guy Whitten, who contend that

unexpected economic changes have more impact on voters because they create effects

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[12] Kevin B. Grier and Joseph P. McGarrity, Presidential Party, Incumbency, and the Effects of Economic Fluctuations on House Elections, 1916-1996. Public Choice, Vol. 110, No. 1/2 (2002), pp. 143-162: 143.
[13] CQ Press, Voting and Elections Collection.
[14] "Party Divisions of the House of Representatives." U.S. House of Representatives: History, Art & Archives. http://history.house.gov/Institution/Party-Divisions/Party-Divisions.
[15] "United States Census Bureau." Historical Time Series Tables. Accessed March 30, 2015.http://www.census.gov/hhes/www/socdemo/voting/publications/historical/index.html.
[16] "National Economic Accounts." BEA. Accessed March 30, 2015. http://www.bea.gov/national/index.htm#gdp.
[17] Grier and McGarrity, 143.

that can be felt tangibly and immediately.[18] Furthermore, per Marra and Ostrom, the use

of an economic indicator effectively reduces the need to include a metric for the

president's approval rating as these factors are intricately intertwined.[19]

Political Behavior Variables

The following variables are instrumental to understanding what effect political

behavior has on election outcomes. They are all aggregated reflections of the decisions,

both fiscal and political, made by representatives in the session leading up to an election.

Some of these variables take on modified party-specific forms to facility party-by-party

comparisons; these modifications are explained in detail later in the chapter.

Campaign spending variables are utilized with high frequency in the literature on

incumbency. Researchers like Scott Thomas have shown that campaign expenditures are

directly related to increased vote percentages for both incumbents and challengers,

although increased spending for challengers yields a greater per-dollar return.[20] This

assertion is further supporter in the work of Alan Gerber, who argues that lessening the

gap between incumbent and challenger campaign expenditures is likely to increase the

chances of incumbent defeat.[21] Contrary to Thomas, however, Gerber contends that

campaign spending by incumbents is more electorally beneficial because they have

organizational advantages that make more effective use of the money.[22] Regardless of

who benefits more, Alan Abramowitz provides evidence that the effectiveness of

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[18] Harvey D. Palmer and Guy D. Whitten, The Electoral Impact of Unexpected Inflation and Economic Growth. British Journal of Political Science, Vol. 29, No. 4 (Oct., 1999), pp. 623-639: 623.
[19] Marra and Ostrom, 565.
[20] Scott J. Thomas, Do Incumbent Campaign Expenditures Matter? The Journal of Politics, Vol. 51, No. 4 (Nov., 19 89), pp. 965-976: 970, 971.
[21] Alan Gerber, Estimating the Effect of Campaign Spending on Senate Election Outcomes Using Instrumental Variables. The American Political Science Review, Vol. 92, No. 2 (Jun., 1998), pp. 401-411: 401.
[22] Gerber, 402.

increased campaign spending is gradually decreasing over time.[23] It is for all of these reasons that this chapter accounts for campaign spending by expressing it as a ratio of the money spent in campaigns by incumbents to that spent by challengers.[24]

Another political behavior variable included in this study is legislative productivity. The literature is littered with attempts to formulate complex models for legislative productivity by scholars such as J. Tobin Grant, Nathan Kelly, and Gary Cox, but those go beyond the scope of this chapter. Instead, legislative productivity is expressed as the simple ratio of bills passed by the House compared to the total number of bills proposed.[25] It is an imperfect measure due to the variance in non-important legislation from one session to the next, but it is a reasonable proxy for estimating how much substantive work is accomplished during a given session.

A variable that does not frequently appear in incumbency models is political polarization. In this chapter, polarization is defined by the distance between the average Republican and Democrat ideology scores in a session of Congress as measured by Keith Poole and Howard Rosenthal's DW-NOMINATE Common Space Scores.[26] These scores utilize spatial voting models to assign ideology scores to House members while minimizing subjective influences, and the Common Space versions are used to allow for comparisons across temporally disparate sessions of Congress. In a discussion on accountability by way of House elections, David Jones notes that polarization can lead to

[23] Alan I. Abramowitz, Incumbency, Campaign Spending, and the Decline of Competition in U.S. House Elections. The Journal of Politics, Vol. 53, No. 1 (Feb., 1991), pp. 34-56: 34.
[24] Norman J. Ornstein, Thomas E. Mann, Michael J. Malbin, Andrew Rugg and Raffaela Wakeman. Vital Statistics on Congress Data on the U.S. Congress. A Joint Effort from Brookings and the American Enterprise Institute, July 2013.
[25] Ibid.
[26] Keith Poole and Howard Rosenthal, et al. "DW-NOMINATE Scores with Bootstrapped Standard Errors." http://voteview.com/DWNOMIN.HTM.

increased electoral accountability for majority party members.[27] If this is accurate, it reinforces the value of including polarization as a predictor of incumbent electoral success.

The final political behavior variable included in this study is the party unity score. Another Poole and Rosenthal construct, party unity scores measure how frequently a representative votes with the other members of his party on divisive votes that feature at least 50 percent of Democrats voting against at least 50 percent of Republicans. It is utilized here on a broad scale by using the average party unity scores for the chamber as a whole for macroscopic analysis and the averages for each of the parties for a party-level analysis. The inclusion of a party unity variable is justified in the literature by the works of Jamie Carson, et al. and David Jones; Carson and Jones both demonstrate that incumbents pay an electoral price for excessive levels of party unity.[28] [29]

Development of Incumbency Models

Using the variables described above, this chapter constructs three separate models to describe election results. The first of these, which is referred to as Model 1, is the simplest – it uses only the political environment variables listed above to model election results. As such, this model may fail to produce interesting results and, more importantly, may suffer from omitted variable bias. It will, however, serve as a base comparison for the other two models. And because this model consists only of the political environment variables, it will not contain any party-specific modification in later sections of this chapter. The sample regression function for Model 1 is as follows:

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[27] David R. Jones, Partisan Polarization and Congressional Accountability in House Elections. American Journal of Political Science, Vol. 54, No. 2 (April 2010), pp. 323-337: 333.
[28] Jamie L. Carson, Gregory Koger, Matthew J. Lebo, Everett Young, The Electoral Costs of Party Loyalty in Congress. American Journal of Political Science, Vol. 54, No. 3 (July 2010), pp. 598-616: 614.
[29] Jones, 334.

$$\widehat{Electoral\ Results}$$
$$= \beta_0 + \beta_{Presidential\ Election\ Year} + \beta_{Incumbent\ President}$$
$$+ \beta_{President\ Party} + \beta_{House\ Majority\ Party} + \beta_{Election\ Turnout}$$
$$+ \beta_{GDP\ Growth} + \mu$$

Model 2 contains all of the political environment variables that comprise Model 1, but it adds two independent variables of interest: expenditure ratio and productivity, which add a great deal of strength to the model. When considering how incumbent candidates fare in an election, the literature discussed above shows that the amount of money they spend on campaigning compared to their competitors is likely to be a significant predictor or at least an important control. Likewise, legislative productivity influences public opinion of the House; if the electorate views the chamber as being deadlocked and unproductive, that could reasonably impact their willingness to re-elect the responsible incumbents. The sample regression function for Model 2 takes the following form:

$$\widehat{Electoral\ Results}$$
$$= \beta_0 + \beta_{Presidential\ Election\ Year} + \beta_{Incumbent\ President}$$
$$+ \beta_{President\ Party} + \beta_{House\ Majority\ Party} + \beta_{Election\ Turnout}$$
$$+ \beta_{GDP\ Growth} + \beta_{Expenditure\ Ratio} + \beta_{Productivity} + \mu$$

The last model, Model 3, again builds on the structures of the previous models by adding additional variables, this time adding polarization and party unity as additional metrics of political behavior. This model is not without risks, however. First, it is possible that polarization and party unity stray too far toward esoteric political metrics for them to be meaningful in an analysis predicated on popular voting – they might measure political behaviors that never enter the public consciousness. The concern over these variables is mitigated by their successful use in the examples from the literature. Second, Model 3 borders on being a "kitchen sink" model that may be too bulky and unwieldy to be useful:

$$\widehat{Electoral\ Results}$$
$$= \beta_0 + \beta_{Presidential\ Election\ Year} + \beta_{Incumbent\ President}$$
$$+ \beta_{President\ Party} + \beta_{House\ Majority\ Party} + \beta_{Election\ Turnout}$$
$$+ \beta_{GDP\ Growth} + \beta_{Expenditure\ Ratio} + \beta_{Productivity} + \beta_{Polarization}$$
$$+ \beta_{Party\ Unity} + \mu$$

Despite these concerns, all three models are viable candidates to accurately

describe electoral performance for incumbent in the House. For the purposes of this

chapter, regression coefficients on the variables in these models are judged to be

statistically significant at three different levels: 10 percent, 5 percent, and 1 percent.

Those coefficients that reject the null hypothesis[30] at the 10 percent level are considered

significant here due to the limited scope and dataset of this study; those that reject at the 5

and 1 percent levels are given additional weight in analysis.

Part 2: The Effects of Political Behavior on Incumbent Vote Percentage

The models in this section serve to uncover correlations between the aggregated

political behaviors of members of the House and the percentage of votes they receive

when seeking reelection. In alignment with the overarching hypothesis of this chapter, it

is expected that these political behaviors have demonstrable impacts on electoral results.

This is tested by applying the models developed in Part 1 to the chamber as a whole and

then to each of the major parties individually. Ultimately, the results of Part 2 will be

compared with the results in Part 3 to determine which independent variables most

accurately predict election results.

Chamber-Wide Analysis of Incumbent Vote Percentage

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[30] Null hypotheses are used in this thesis to test the statistical significance of the effects independent variables have on dependent variables. A null hypothesis is the assumption that the independent variable has zero effect on the dependent variable. If the null hypothesis can be rejected with a high degree of certainty, the effect on the dependent variable is statistically significant.

Model 1, illustrated below in Table 1, depicts the effects of only the political environment variables on expected incumbent vote percentage in the House. Both the presidential election year and election turnout variables demonstrate strong statistical significance, and the coefficient on the president's party is weakly significant. However, the significance of these variables is likely misleading due to the omission of several

Table 1: Effects of political behavior and other variables on incumbent vote percentage

	Model 1	Model 2	Model 3
Presidential Election	10.123***	-0.507	1.946
	(3.393)	(7.417)	(10.452)
Incumbent President	-1.482	-0.913	-1.395
	(2.696)	(1.873)	(2.222)
President's Party (Dem)	-3.590*	-4.572**	-4.384**
	(1.853)	(2.002)	(2.061)
House Majority (Dem)	-0.411	-2.099	-5.282*
	(1.782)	(1.968)	(3.136)
Election Turnout	-0.794***	-0.039	-0.249
	(0.190)	(.570)	(0.766)
GDP Growth	0.230	0.167	0.063
	(0.239)	(0.205)	(0.250)
Expenditure Ratio	--	-4.965*	-5.851*
		(2.632)	(3.144)
Productivity	--	103.978***	100.520**
		(30.198)	(39.982)
Polarization	--	--	-63.501
			(56.203)
Party Unity	--	--	0.766
			(0.879)
Constant	95.716***	62.344**	58.310
	(9.208)	(26.262)	(49.824)
n	22	19	19
R^2	0.498	0.658	0.706
Adjusted R^2	0.297	0.384	0.340

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

other independent variables that help to better describe vote percentage. This assertion is corroborated by Model 1's low R^2 value of 0.498, which indicates a poor fit to the data when compared to the results of Models 2 and 3. [31]

As anticipated, Model 2 is more analytically interesting than Model 1. First, presidential election year and election turnout are no longer statistically significant. And as in Model 1, the coefficients on incumbent president, House majority party, and GDP growth fail to reject the null hypothesis at the minimum acceptable level. The coefficient on the president's party, however, becomes both greater in magnitude with an increase of 27 percent and more statistically significant with the null hypothesis now rejected at a higher significance level. This result indicates that having a sitting Democratic president at the time of election leads to an expected decrease in incumbent vote percentage of over 4.57 percentage points.

What separates Model 2 from Model 1 is the addition of the expenditure ratio and productivity variables, and both are statistically significant predictors of vote percentage. Expenditure ratio rejects the null hypothesis and has a large magnitude impact on expected vote percentage. In an election where incumbents spend twice as much on campaigning as their challengers, they expect their aggregated vote percentage to decrease by nearly 10 percentage points. However, this does not indicate a causal relationship; it is possible that incumbents empty their war chests as a greater rate when poll numbers indicate the possibility of electoral upsets. In this case, it is not surprising that higher expenditure ratios correlate with worse electoral performance. Incumbents

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[31] R^2 values indicate how well a regression line fits a data set. They are noted in this thesis as one means of comparing similar models to each other, but it should be noted that they are of limited value when discussing the value of descriptive models in social science.

would not outspend their opponents to such a high degree if they were certain that their seats were safe.

The legislative productivity variable is particularly robust in this model, rejecting the null hypothesis and correlating positively with incumbent vote percentage. In a hypothetical House session in which the legislative productivity achieved its average value over the course of this study (0.11 bills passed for each bill proposed), the incumbent vote percentage would increase by over 11 percentage points. This appears to indicate that the electorate appears to notice legislative productivity and value it over partisan gridlock.

In addition to including two more relevant variables and lessening the possibility of omitted variable bias, Model 2 also represents a better fit to the dataset with an R^2 value of 0.658 compared to 0.498 for Model 1, and it also boasts an improved adjusted R^2 despite the addition of more variables. While these indicators do not necessarily imply that Model 2 is a strong model in and of itself, it is clear that it is more descriptive than Model 1.

Contrary to expectations, the inclusion of additional political behavior variables in Model 3 does not substantially alter the nature of the model. The coefficients on president's party, expenditure ratio, and legislative productivity all remain statistically significant and similar in magnitude to their counterparts in the previous models, while the coefficient on House majority party now rejects the null hypothesis at a low significance level. Also of note is that the model's constant is no longer significant at any of the desired levels.

Both the polarization and party unity variables have effects on incumbent vote percentage that appear large in magnitude, but neither rejects the null hypothesis at a desired level. This is an unexpected outcome that casts the utility of Model 3 into doubt. Furthermore, polarization has a strong negative correlation with incumbent vote percentage while party unity has a nearly equally strong positive correlation; as such, the two variables nearly cancel each other out. Upon further analysis of the model's pairwise Pearson correlation coefficients, polarization and party unity – while substantively distinct metrics – are strongly correlated with each other and share similar correlation coefficients with the dependent variable. Closer examination of these correlations in the party-level breakdown further examines whether these two political behavior variables are still worthwhile inclusions in the vote percentage model.

Analysis of Incumbent Vote Percentage by Party

The chamber-wide analysis has obvious utility when discussing macroscopic trends in election results, but it bypasses the reality that different independent variables may affect each of the major parties in different ways. Perhaps Democrats perform better in presidential election years compared to Republicans, or maybe Republicans outperform Democrats when the level of polarization is high. This section continues testing whether various political behaviors have significant impacts on incumbent vote percentages through models that specifically describe the incumbent vote percentages for each of the major parties.

To this end, while many of the variables remain consistent – all of the political environment variables as well at the productivity variable introduced in Model 2 – there are minor modifications to several of the variables in this section. The dependent

variable, incumbent vote percentage is now split into Democratic incumbent vote percentage and Republican incumbent vote percentage. The former, for example, measures only the percentage of votes received by incumbent Democrats seeking reelection. This provides for the isolation of electoral results for each of the major parties. Expenditure ratio is adjusted similarly to account for the magnitude of campaign spending by incumbents of each respective party, and party unity reflects the average party unity score in each party instead of the chamber as a whole.

The implementation of the polarization variables in this section, however, is a bit more complicated. In its chamber-wide form, polarization measures the ideological distance between the average Republican and the average Democrat. Here it measures the distance between the average of a given party and the average of the chamber as a whole. This is useful for comparing how polarization affects the vote percentages of each of the parties, but it is important to note that this change hinders direct comparison to the chamber-wide metric.

Table 2 displays the coefficients and their statistical significance for each of the three models as applied to Republicans and Democrats in the House. Of immediate note is that in each of the three models, the coefficient on the president's party for Democrats is both large in magnitude and statistically significant at a high level. For example, Model 3 predicts an estimated decrease of 9.6 percentage points in expected vote percentage for Democratic representatives when a Democratic president controls the White House and all other variables are controlled for. The significance of this variable in all three models lends credence to the oft-recited narrative that elections are referenda on the President,

and it makes sense that Democrats in the House would bear the brunt of that backlash in both midterm and presidential election years.

Table 2: Effects of political behavior and other variables on party-specific incumbent vote percentage

	Model 1		Model 2		Model 1	
	Rep	**Dem**	**Rep**	**Dem**	**Rep**	**Dem**
Presidential Election	11.103**	6.975*	7.806	-4.148	3.937	-2.001
	(4.366)	(3.986)	(15.149)	(9.765)	(21.193)	(9.988)
Incumbent President	0.626	-3.710	3.896	-6.219***	3.577	-7.156**
	(3.566)	(2.339)	(3.917)	(2.145)	(4.354)	(3.034)
President's Party (Dem)	0.275	-7.099***	-0.085	-8.420***	-0.423	-9.594***
	(2.376)	(2.261)	(2.361)	(3.249)	(2.938)	(3.130)
House Majority (Dem)	-0.735	0.361	1.049	-3.057	0.166	-12.732
	(2.765)	(2.265)	(3.984)	(2.504)	(10.937)	(10.118)
Election Turnout	-0.823***	-0.651**	-0.619	0.125	-0.345	-0.138
	(0.227)	(0.248)	(1.093)	(.755)	(1.500)	(0.738)
GDP Growth	0.250	0.227	0.135	0.205	0.185	-0.142
	(.295)	(0.288)	(0.258)	(0.274)	(0.396)	(0.347)
Expenditure Ratio	--	--	-3.201	-4.684*	-4.083	-5.723**
			(3.595)	(2.586)	(4.250)	(2.708)
Productivity	--	--	122.407***	53.036	117.427***	98.446**
			(32.904)	(34.475)	(38.595)	(48.344)
Polarization	--	--	--	--	27.261	-67.159
					(112.652)	(61.536)
Party Unity	--	--	--	--	0.042	0.107
					(0.645)	(0.456)
Constant	90.567***	92.905***	71.581	67.939	48.546	99.308**
	(11.330)	(10.677)	(49.533)	(34.634)	(62.369)	(42.397)
n	22	22	19	19	19	19
R^2	0.381	0.546	0.561	0.696	0.579	0.778
Adjusted R^2	0.134	0.365	0.209	0.453	0.052	0.501

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

The productivity variable also produces an interesting effect on incumbent vote percentage. For Republicans, legislative productivity correlates positively and significantly with expected vote percentages at high levels in both Models 2 and 3, and

the coefficient for Democrats is significant in Model 3 as well. In Model 2, it appears that the Republicans receive significantly more credit from the voters for legislative productivity than the Democrats. The gap between the parties is closed significantly in Model 3, however, once controls for political polarization and party unity are introduced. Regardless, it is readily apparent that the consistent statistical significance of the productivity variable in both the chamber-wide and party analyses demonstrates a significant correlation with incumbent vote percentage that may even hint at a causal relationship.

As with the chamber-wide metrics, neither polarization nor party unity manages to reject the null hypothesis at the minimum significance level. The gap between the parties on polarization is worth further examination, however. While not statistically significant, the magnitude of the coefficients indicates that Republicans benefit from increased polarization while Democrats are punished at a greater rate. On the other hand, Democrats can expect a larger increase in expected vote percentage as their party unity increases as compared to Republicans. These discrepancies are revisited later in this paper when the political behavior variables are analyzed through the lens of incumbent win percentage instead of vote percentage.

The most glaring problem with the application of these three models to each of the parties is that they fail to adequately describe the expected vote percentage for Republicans. For Democrats, each of the models contains at least three independent variables that reject their null hypotheses at the minimum acceptable level. Each model has an R^2 of at least 0.54 and Model 3 reaches as high as 0.778, indicating fairly strong fits to the dataset across the board. While not a guarantee that these are the best possible

models that can be constructed, they appear sufficiently capable of describing the expected vote percentages for Democrats.

The application of these models to Republican incumbent vote percentage, however, produces extremely poor results. Two of the political environment variables in Model 1 have statistically significant coefficients, but these melt away when other relevant variables are added in subsequent models. The only variable with statistically significant coefficients in Models 2 and 3 is legislative productivity; the rest fail to achieve statistical significance. Likewise, the R^2 values for each of the models fall well short of the fits for Democrats. And the adjusted R^2 for Model 3, which penalizes for excess variables, reaches only an abysmal 0.05 – a full order of magnitude worse in terms of fit than the adjusted R^2 for the Democrats.

The models applied in Part 2 of this paper successfully identify key trends in forecasting incumbent vote percentage, particularly the correlations with political behavior variables. Specifically, the models find positive correlation with legislative productivity and, for the Democrats, a negative correlation associated with sharing the party of the President. The models are sufficiently explanatory for the chamber as a whole and Democrats in particular, but fail to adequately describe Republican incumbent vote percentage. Comparing and contrasting these results with those obtained in Part 3 illuminates the value of these models and their accuracy in predicting electoral results in the House.

Part 3: The Effects of Political Behavior on Incumbent Win Percentage

The win percentage of incumbents in the House of Representatives is a far more visible and tangible measurement than vote percentage, and as such has value as a

dependent variable representing election results. Part 3 of this chapter applies the three models developed in Part 1 to both chamber-wide and party-specific win percentages and also compares the results of these analyses to those based on incumbent vote percentage in Part 2.

Chamber-Wide Analysis of Incumbent Win Percentage

While the political environment variable-only Model 1 is a relatively weak predictor of incumbent vote percentage, it is better suited to estimating the percentage of all incumbents that win reelection. Four of the six independent variables reject their respective null hypotheses at high levels, compared to only two for its application to expected vote percentage. Likewise, its R^2 and adjusted R^2 values indicate superior fits to the data set when compared to the vote percentage version of the model. Unlike in Part 2, this application of Model 1 is a surprise candidate to be the most robust descriptor of its dependent variable.

In terms of content, however, the natures of the correlations in Model 1 are fairly unsurprising. For example, GDP growth has a positive correlation with expected win percentage that is statistically significant as a high level. This is the only model in the study that attributes such significance to GDP growth, although the magnitude of its expected value is relatively small. Election turnout is the only other variable in Model 1 with a positive correlation to expected win percentage. This contrasts with the negative correlation to incumbent vote percentage displayed in Part 2 in a way that casts doubt on the validity of the model; while the dependent variables are substantively distinct, it is expected that the signs on the coefficients should match.

GDP growth remains significant at the minimum level in Model 2 and is nearly

identical in magnitude to its counterpart in Model 1. None of the other independent

variables in Model 2 reach that threshold of significance, however. The signs on each of

the coefficients are the same as in Model 1 and, like the GDP growth variable, are similar

in magnitude. Incumbent campaign spending continues to correlate negatively with

election results, while productivity correlates positively. Still, the lack of statistically

Table 3: Effects of political behavior and other variables on incumbent win percentage

	Model 1	Model 2	Model 3
Presidential Election	-3.969**	-3.233	0.327
	(1.778)	(8.747)	(8.712)
Incumbent President	-1.755	-0.729	-0.370
	(1.720)	(2.226)	(2.408)
President's Party (Dem)	-2.069*	-3.020	-3.076
	(1.100)	(2.113)	(2.105)
House Majority (Dem)	-4.191***	-3.666	-5.277
	(1.473)	(2.465)	(3.340)
Election Turnout	0.330**	0.264	-0.016
	(.130)	(.613)	(0.592)
GDP Growth	0.357***	0.339*	0.203
	(0.114)	(.174)	(0.215)
Expenditure Ratio	--	-1.363	-1.180
		(1.805)	(1.937)
Productivity	--	41.255	60.410
		(35.470)	(39.898)
Polarization	--	--	-19.779
			(40.209)
Party Unity	--	--	0.016
			(0.525)
Constant	82.859***	83.181***	107.365***
	(6.749)	(26.679)	(32.931)
n	22	19	19
R^2	0.557	0.624	0.687
Adjusted R^2	0.380	0.323	0.296

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

significant coefficients in this variable is a warning flag that despite having a reasonably large value for R^2, this model may not be an adequate descriptor of election results.

Model 3 is similarly weak in its ability to predict incumbent vote percentages. While the model fits the data reasonably well, none of the independent variables – controls or otherwise – are statistically significant. Furthermore, controlling for polarization and party unity has little impact on the sign and magnitude of the other coefficients in the model, meaning they may add little value to the model's analytical power. Like Model 2, Model 3 may not be properly constructed to predict incumbent win percentages in the House.

In short, these models largely fail to accurately describe incumbent win percentage in the House on a chamber-wide level. The poor data fits and lack of statistically significant variables indicate little utility for these models in this application. Furthermore, there is insufficient variance among the three models when applied to incumbent win percentage to consider a minor reconstruction of the models as a means of alleviating the problem – they all appear equally unfit.

Party-Specific Analysis of Incumbent Win Percentage

Fortunately, the models perform much better when applied to individual political parties than they do to the chamber as a whole. When broken down by party, a number of interesting patterns emerge in the independent variables that suggest significant correlations with electoral results. This suggests that the models may have some degree of utility in describing incumbent win percentage for each party even if they are ineffective for the chamber as a whole.

Table 4: Effects of political behavior and other variables on party-specific incumbent win percentage

	Model 1		Model 2		Model 1	
	Rep	Dem	Rep	Dem	Rep	Dem
Presidential Election	1.992	-7.934**	12.853	-13.348	-2.198	-4.318
	(4.115)	(3.422)	(17.254)	(15.960)	(14.630)	(10.347)
Incumbent President	3.348	-5.108***	6.394	-6.330**	5.391*	-3.801
	(3.709)	(1.404)	(4.779)	(3.021)	(3.195)	(2.660)
President's Party (Dem)	3.832*	-6.022***	1.819	-6.429**	1.400	-7.793***
	(2.210)	(1.932)	(2.874)	(2.770)	(2.855)	(2.888)
House Majority (Dem)	-0.073	-7.458***	3.647	-9.280**	-8.606	-1.661
	(2.789)	(2.551)	(2.563)	(4.311)	(8.850)	(11.115)
Election Turnout	.086	0.485**	-0.763	0.880	0.315	0.183
	(0.268)	(0.241)	(1.124)	(1.139)	(1.008)	(0.729)
GDP Growth	0.380*	0.307	0.340	0.311	0.256	0.136
	(0.223)	(0.199)	(0.251)	(0.212)	(0.306)	(0.328)
Expenditure Ratio	--	--	-0.078	-1.800	-2.701	-0.186
			(1.977)	(1.993)	(2.572)	(2.283)
Productivity	--	--	76.534**	5.862	73.404***	104.012**
			(37.443)	(36.464)	(24.665)	(53.056)
Polarization	--	--	--	--	156.350*	45.770
					(85.017)	(72.842)
Party Unity	--	--	--	--	-0.566	-0.990*
					(0.499)	(0.555)
Constant	83.112***	83.892***	107.934**	72.200	62.044	151.062***
	(14.024)	9.770	(51.135)	(47.887)	(47.542)	(39.963)
n	22	22	19	19	19	19
R^2	0.392	0.635	0.624	0.677	0.764	0.824
Adjusted R^2	0.149	0.489	0.323	0.418	0.469	0.605

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

As with the incumbent vote percentage models, the coefficient on the president's party predictor for Democrats is statistically significant at a minimum of the 5% level in each model, and it against signifies a strong negative correlation with electoral performance. Using Model 2 as an example, a Democratic president leads to a decrease in

expected win percentage of 6.4 percentage points when controlling for all other independent variables. Republicans, on the other hand, repeatedly benefit from having a Democratic president to oppose on policy and political matters. While the coefficients on the president's party variable for Republicans are not statistically significant, their positive correlation with expected win percentage illustrate a clear trend to that effect.

One important observation from the models in this section is the reemergence of legislative productivity as a variable with high statistical significance and large, positive correlations with win percentage. Coefficients on productivity reject their respective null hypotheses at the 5% level for the Republicans in both Models 2 and 3 and the Democrats in Model 3. Curiously, the coefficient on productivity again fails to attain statistical significance for Democrats in Model 2, as it also did not in the analysis of incumbent vote percentage in Part 2. It appears that Democrats only benefit from legislative productivity in these models after controlling for polarization and party unity, indicating that these political behavior variables may contribute more to the models than previously thought.

Another trend that emerges when comparing the party-by-party breakdowns of vote percentage and win percentage is that, while not always statistically significant at the minimum thresholds, larger election turnouts seem to consistently favor Democrats. Of the six models dealing with the effects on individual parties, Republicans benefit more from a higher election turnout in only one. The lack of statistical significance, however, means that this trend must be examined in further detail to uncover the true nature of any correlations that may exist.

For the first and only time in this chapter, Model 3's description of expected win percentage by party reveals statistically significant correlations with the polarization and party unity variables. In the Republican version of the model, the coefficient on polarization rejects the null hypothesis at the 10% level and is fairly large in magnitude; the same is true for party unity in the Democratic model. When combined with the indirect benefit of including these variables detected via the productivity variable, it can be argued that one or both of these ideology-based variables may be useful in describing expected election results even if they do not consistently prove to be statistically significant themselves.

Like the party-specific models in Part 2, the models here are far more accurate in describing expected electoral outcomes for Democrats than for Republicans. To that end, each of the three models has more statistically significant coefficients on independent variables for Democratic election results than Republican. Both the R^2 and adjusted R^2 values for the Democratic models also manage to outpace their Republican counterparts, indicating a better fit to the data. This raises questions as to why the sets of independent variables chosen more accurately model Democratic election results. While the answer is not readily apparent, it is possible that the underlying reason may reside with the Democrats' historical dominance of the House and the Republicans only recently enjoying majority status with any frequency. Both the Democrat and Republican data are drawing from the same number of elections over the course of this study, but Democratic incumbents have contested a larger number of races due to their control of Congress. Perhaps the increased breadth of their dataset allows for a reduction in standard errors when calculating coefficients on the independent variables.

Conclusions

The hypothesis introduced at the beginning of this chapter postulated that political behaviors including campaign spending, legislative productivity, and polarization and party unity in legislative voting patterns have measurable and statistically significant effects on election results in the House of Representatives. After testing this through a process of variable identification and statistical modeling, the results are decidedly mixed – some political behavior variables have statistically significant impacts on electoral outcomes while others do not. This section evaluates the method used in this paper, summarize key findings, and provide suggestions for improving this study and expanding the line of research.

Evaluations and Key Findings

One of the primary tenets of this paper is the utilization of two separate dependent variables to measure the effects of political behavior on electoral results. Both incumbent vote percentage and incumbent win percentage prove to be differentiated but related metrics that allowed for a multi-faceted analysis of electoral results in the House. Measuring electoral results in two distinct ways further solidifies the significance of the results obtained in this study and lessens the risk of inconsequential variables erroneously appearing statistically significant. Ultimately, both dependent variables provide meaningful contributions to this study.

It is less clear whether any of the models was sufficiently robust to reliably explain the effects of political behavior on election results. With the exception of one instance, Model 1 repeatedly proves too simplistic to accurately model incumbent vote percentage and win percentage. Model 3, while frequently providing better fits to the

data, may suffer from an excess of independent variables that artificially inflates its R^2 values and a lack of statistically significant predictors within the model. Model 2 appears to be an adequate medium between the other models, but its lack of a metric to describe the differences in party ideology and voting patterns hinders its descriptive capability.

The correlation between legislative productivity and electoral success is arguably the most important finding in this chapter. The coefficient on the productivity variable is both large in magnitude and statistically significant at a high level in nearly every application of each model in which it is included. This result is nearly as unexpected as the lack of statistical significance for the other political behavior variables, and it warrants further exploration to determine the magnitude of its causal effect on electoral results.

Another important but unexpected finding is the degree to which having a Democratic president harms Democrats in the House. In the application of these models to the individual parties, this variable is statistically significant for Democrats in each model. While is it not wholly surprising based on the literature that the party of the president may be punished in congressional elections, the severity and predictability of this effect as presented in this chapter certainly is.

Suggestions for Further Research

As with any study that includes subjectively composed models with hand-picked variables, there is always the possibility that more descriptive models with more relevant variables may exist. The following are suggestions to improve upon or expand the framework established in this paper.

One decision that requires revisiting is the inclusion of both the presidential election year and election turnout variables as controls in all models. There is an obvious correlation between the two – presidential elections almost always attract a larger percentage of eligible voters than their midterm counterparts. The literature also suggests that both of these variables can be important predictors of electoral performance. However, the downward trend in election turnout over the past several decades gives cause for concern in utilizing only that metric to differentiate between presidential and midterm elections. Both were included to avoid any ambiguity and cover as many bases as possible, but further research might determine that one, both, or neither are necessary to achieve the goals of this study.

Another area for consideration is the nature of the House majority party variable. In this study, it exists as a binary variable denoting which party controls the House during the session leading up to an election. This is likely sufficient for the purposes of this study because votes in the House are decided by a simple majority; an examination of the Senate with its filibustering rules would be more likely to require a graded version of the variable. Still, it is worth exploring whether a graded variable that accounts for the size of the majority significantly improves the accuracy of the models presented.

The productivity variable, which is the surprise star of Models 2 and 3 across both tiers of analysis, also has room for improvement. As constructed here, it is a simple ratio of bills passed to bills introduced in the House. A more nuanced analysis like those described in the literature, at least for the party breakdowns, might find a way to measure the success of bills introduced only by Democrats or only by Republicans. This might

better measure how the passage of bills with party-leaning sponsorships might be perceived affect public perception and ultimately election results.

Another non-statistically significant trend that emerges throughout this paper that warrants further exploration is the persistent negative correlation between expenditure ratio and election results. The more incumbents spend on their campaigns compared to their challengers, the more likely they are to suffer political defeat. As alluded to elsewhere in this paper, this could be due to incumbents increasing spending rates once it is clear that their challengers pose a significant threat to their seats. This hypothesis is interesting enough to deserve further testing.

Arguably the biggest question left unresolved in this paper is why the models were much more accurate in describing expected electoral results for Democrats compared to Republicans. As postulated in the paper, the larger number of observations included for Democrats within each election may have contributed to a higher degree of certainty that the results were sufficiently explained by the models. This is only a tentative response, however, and may not fully account for this effect.

Chapter 2:

Analyzing the Effects of Incumbent Electoral Results on Political Behavior in the U.S. House of Representatives, 1968-2010

The preceding chapter of this thesis analyzes the effects political behavior and other independent variables have on election outcomes for members of the House of Representatives, specifically through the performance of incumbents in their bids for reelection. That examination demonstrates a number of statistically significant correlations between variables that describe political behavior and election results as measured by the percentage of votes received by incumbents as well as their aggregated win percentages.

This chapter delves further into those correlations by effectively reversing that approach and asking a different question: How do election outcomes affect political behavior? Providing an answer to this question will allow for a better understanding of the true consequences of elections and why the House produces certain collective behaviors in a variety of political circumstances. The approach taken in this chapter contributes to the existing literature on political behaviors by expanding the use of electoral results as an independent variable in descriptive models, as this predictor is rarely used to describe these behaviors. It is hypothesized that electoral result will be shown to exert statistically significant influences on political behaviors in the House.

Take for example the 1994 congressional election that is commonly referred to as the Gingrich (or Republican) Revolution. As understood by metrics described later in this chapter, the 1994 election saw incumbent representatives perform poorly compared to historical norms, although mostly on the Democratic side of the aisle. Did this lopsided electoral outcome affect the House's productivity in the following session? Did it cause

the Democrats who remained in the chamber to move further to the ideological left and reduce cooperation with their Republican counterparts? In the following elections, were Democrats more likely to outspend their challengers by significant margins to avoid repeating the carnage they suffered in 1994? This paper seeks to answer questions of this sort by modeling aggregated congressional behaviors and testing the significance of electoral performance as a contributing factor in each of these behaviors.

While the preceding chapter used two different metrics for electoral performance to describe the correlations with political behavior, incumbent vote percentage and incumbent win percentage, this chapter focuses only on the former. The percentage of votes won by incumbents is a nuanced metric that provides insights beyond blunt measures of which incumbents won their reelection bids and which did not. Instead, it quantifies the overall performance of incumbents as a gradient that is not dependent on binary election outcomes. As such, it essentially serves as a proxy to measure the aggregated level of electoral safety felt by representatives in the House entering a session of Congress. Leaving out this variable means the potential for missing an element of fear that might motivate a legislator's actions during the session; an official who fears that his seat is in danger may behave differently than one who is assured that his seat is protected from challengers.

The analysis contained within this paper thus requires the acceptance of an assumption regarding the self-interested motives of elected officials: If a representative intends to seek reelection, he will behave in a manner that maximizes his ability to achieve this goal while balancing his obligation to govern as elected. He will thus alter his behavior accordingly whether he feels his seat is safe or if his ability to gain

reelection in the next cycle is endangered. This chapter extrapolates that concept to the entirety of the House and assumes that incumbent vote percentage has a direct impact on the behavior of the chamber as a whole.

The balance of this chapter is split into five parts, each one designed to test how electoral performance affects a different political behavior. These behaviors include legislative productivity, campaign expenditures, political polarization, and party unity. While not a metric of political behavior, the fifth part examines the effects of electoral performance and political behavior on congressional approval ratings as a means of determining if the electorate is satisfied with the representatives it voted into office. To retain a degree of consistency with the preceding chapter, this chapter will continue utilizing the 1968-2010 frame of study to ensure data are relevant for modern applications and not distorted by outdated congressional and political norms.

Each of these sections is structured in a similar fashion. First, the methodology is presented and the relevant dependent and independent variables are identified and explicated to provide appropriate context for the models. Two different models are then presented for each dependent variable: the first is a bivariate regression model that examines the relationship between the dependent variable and electoral performance, and the second is a multivariate regression model that analyzes the same relationship while minimizing omitted variable bias by controlling for other potentially relevant independent variables. A variety of techniques are implemented to evaluate the accuracy of these models, ultimately allowing for conclusions to be drawn regarding the effects electoral performance has on political behavior.

Effects of Incumbent Vote Percentage on Legislative Productivity

Legislative productivity is a topic that appears frequently in literature on congressional behavior, receiving attention from many of the field's top minds. These analyses take a variety of different forms in their measuring of legislative productivity, as can be seen in the development of productivity indices by the likes of J. Tobin Grant and Nathan Kelly.[32] Their work represents a common theme in the literature: scholars attempting to systematically separate the production of meaningful legislation from bills that do not produce policy as a means of estimating the effectiveness of a session of Congress. Less common but more important to the work in this chapter are the studies that model legislative productivity through the use of various independent variables to uncover meaningful correlations, and even these studies tend to focus on the passage of legislation at the congressional level rather in just the House. None of the studies reviewed, however, use electoral performance – in this case incumbent vote percentage – as an independent variable of interest. The addition of this variable has the potential to increase understanding of how election results can affect the level of legislative productivity in the House.

For the purposes of this study, the legislative productivity variable (henceforth referred to as *productivity*) is defined as the percentage of bills sent to the House floor that are voted on and passed by the full chamber.[33] As alluded to above, this is only one of many ways to define productivity; some researchers may prefer, for example, to analyze the percentage of bills passed that reach a certain threshold of subjectively-defined importance to weed out the superfluous honors and recognitions that populate the

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[32] Grant and Kelly, 305.
[33] Mann and Ornstein (2013).

daily congressional record. Rather than introduce that degree of subjectivity and complexity, however, this paper will focus solely on up-or-down votes and assume that the ratio of important legislative to less-meaningful legislation remains sufficiently constant over the time period of this study.

The first model, *Productivity$_A$*, is a simple bivariate regression that models the effect of incumbent vote percentage on productivity:

$$\widehat{Productivity}_A = \beta_0 + \beta_{Incumbent\ Vote\ Percentage} + \mu$$

When this model is applied to the dataset, the coefficient on incumbent vote percentage rejects the null hypothesis at a high level and indicates a statistically significant relationship with productivity in a strictly linear comparison. For each percentage point increase in incumbent vote percentage, the percentage of bills passed by the House increases by 0.542 percentage points. This positive correlation can be seen in Figure 1 with data values displayed in Table 5.

As with all of the bivariate models used in this paper, this model only tells part of the story. First, with

Figure 1: Legislative productivity by chamber incumbent vote percentage

relatively low values for R^2 and adjusted R^2, the model fails to explain a sufficiently large percentage of the variance in the data set. More importantly, however, there are a number of variables omitted here that may better explain productivity than incumbent vote

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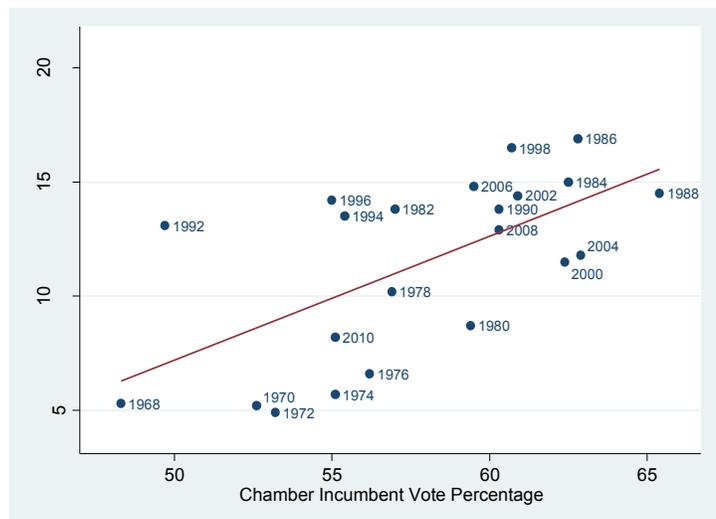
percentage alone. Still, the relationship evident in *Productivity$_A$* suggests that further investigation is warranted. This is accomplished in *Productivity$_B$* where several new variables are added as controls to more accurately measure the effects of vote percentage on productivity.

The first of these variables is *party division*,[34] a means of measuring which party controls the House and with what margin. This variable is included to control for any potential effect that one party's dominance may have on the legislative process. Rather than using a binary variable to express party control, party division more accurately captures the degree of party control by expressing the percentage of Democrats in the House out of the total number of Republicans and Democrats. Party division is measured in this way to accomplish two goals. First, this percentage allows for the expression of party control as a single variable to avoid clouding the analysis with extraneous material. Second, it effectively ignores the impact of independent parties in the House by design. Using the full 435 voting members as the denominator would inaccurately assume that the independents were always in ideological opposition to the Democrats, which would be an unfounded assumption. Likewise, no House in the timeframe of this study included more than two non-affiliated representatives, meaning they never comprised more than 0.5 percent of the chamber's voting population and their exclusion will not significantly alter the results of this analysis.

The number of *hours in session*[35] is also factored into *Productivity$_B$* as an approximate measure of how much time the House spent working on legislation. Clearly not all time spent in session is used for producing and passing bills, and not all time out

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[34] "Party Divisions of the House of Representatives."
[35] Mann and Ornstein (2013).

of session is devoid of substantive work toward these goals. This metric should, however, be a sufficient stand-in to control for the amount of time the House spends working during a session and how that contributes to legislative productivity.

Another potentially significant predictor of productivity is the *average tenure*[36] for House members during the session in question. Presumably, a member with longer tenure has greater knowledge of the institution and procedures as well as a more robustly developed network of contacts on either side of the aisle. A longer average tenure should theoretically increase the chamber's capacity for efficient passage of legislation, even if this is not always true in practice. Inclusion of this variable is supported by the work of Gary Cox and William Terry, who found that there is a statistically significant correlation between seniority in Congress and legislative productivity.[37]

One of the reasons why longer tenures do not always translate to more efficient chambers is the ideological disparity between the major parties and the resultant unwillingness to vote together for the creation of bipartisan legislation. This polarization is quantified here through the use of DW-NOMINATE Common Space scores, and is computed by finding the magnitude of the difference between the average Republican and Democratic scores. With this and all of the other independent variables accounted for, the sample regression function for *Productivity$_B$* is as follows:

$$\widehat{Productivity}_B = \beta_0 + \beta_{Incumbent\,Vote\,Percentage} + \beta_{Party\,Division} + \beta_{Hours\,in\,Session} + \beta_{Average\,Tenure} + \beta_{Polarization} + \mu$$

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[36] Glassman, Matthew Eric and Amber Hope Wilhelm. Congressional Careers: Service Tenure and Patterns of Member Service, 1789-2015. Congressional Research Service, January 3, 2015.
[37] Gary W. Cox and William C. Terry, Legislative Productivity in the 93d–105th Congresses. Legislative Studies Quarterly, Vol. 33, No. 4 (Nov., 2008), pp. 603-618: 603.

The results of the regression indicate that incumbent vote percentage still has a statistically significant impact on legislative productivity even when controlling for a variety of other factors. The coefficient on incumbent vote percentage is statistically significant, although none of the other independent variables in the model are. The coefficient is slightly smaller in magnitude than that in $Productivity_A$, but each percentage point increase in incumbent vote percentage indicates a 0.458 percentage point increase in legislative productivity during the subsequent session of Congress.

$Productivity_B$ is a fairly robust descriptor of legislative productivity in the House. As shown in Table 5, the R^2 and adjusted R^2 are sufficiently large to demonstrate a reasonable fit to the data set considering the somewhat opaque nature of legislative productivity. Likewise, checks of the model's variable inflation factors and residual plots yield no significant warning signs that the model suffers from excessive collinearity or hidden non-linear relationships. As such, we can reasonably conclude that incumbent vote percentage does have a statistically significant effect on legislative productivity.

Table 5: Effect of incumbent vote percentage and other control variables on legislative productivity

	Model A	Model B
Incumbent Vote Percentage	0.542***	0.458**
	(0.162)	(0.186)
Party Division	--	0.072
		(0.179)
House in Session	--	0.004
		(0.003)
Average Tenure	--	-0.656
		(0.671)
Polarization	--	11.085
		(13.528)
Constant	-19.916*	-29.385***
	(9.694)	(9.974)
n	22	22
R^2	0.389	0.604
Adjusted R^2	0.358	0.481
Prob F > 0	0.003	0.000

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

Effects of Incumbent Vote Percentage on Campaign Expenditures

Campaign expenditures are a type of political behavior distinct from productivity, polarization, and party unity in that they do not reflect formal actions taken during sessions of Congress to affect legislation. Instead, they are more an indication of how successfully a candidate is campaigning and how tight a race they may be facing. For example, an incumbent candidate that is significantly outspending his opponent is likely fundraising successfully and reinforcing his brand more effectively than his challenger. If this ultimately leads to a comparably large election margin resulting in the incumbent winning, he will be free to expend his political capital during his term knowing that his seat is relatively safe from challengers. This section of the chapter seeks to determine if that process goes full circle: Does margin of victory in one election cycle, whether narrow or wide, impact campaign expenditures in the following cycle?

There are a number of ways to measure campaign expenditures. One could use the mean or median expenditure from the entire chamber or from each party, but this method discounts the fact that campaign spending is increasing at a relatively constant rate each election cycle even when normalizing all of the financial data to today's dollars. The consequence to utilizing such a metric is the potential for variables appearing to be statistically significant despite simply sharing a common upward trend over time. Instead, this paper measures campaign expenditures as the ratio of aggregated incumbent expenditures to aggregated challenger expenditures.[38] Controlling for other political and financial circumstances, this metric reflects the degree to which incumbents are outspending their challengers in a manner that retains consistency and avoids unnecessary instances of collinearity. A potential downside to the use of this metric,

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[38] Mann and Ornstein (2013).

however, is that results based on it may be incongruous with those in the existing literature. This issue stems from the inability of a ratio metric to effectively convey scalar magnitudes of spending. As such, it describes only one aspect of campaign spending and misses others. This is not necessarily problematic as long as the context and nature of the metric is kept in mind.

Chamber-Wide Models

The bivariate regression used in *Expenditure$_A$* rejects the null hypothesis and indicates a statistically significant relationship between the chamber's incumbent vote percentage and the expenditure ratio of incumbents to challengers in the following election. For each percentage point increase in incumbent vote percentage, the expected expenditure ratio increases by 0.081 units. This appears to be a small increase at first glance, but is actually far more significant when considering the limited potential magnitudes for

Figure 2: Chamber expenditure ratio by incumbent vote percentage
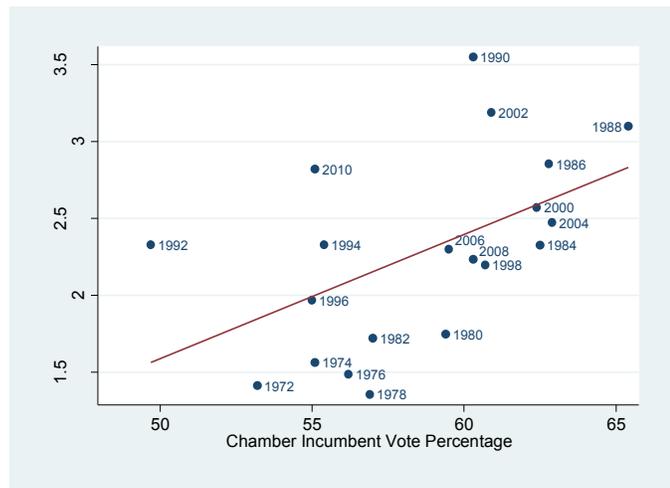
expenditure ratio and the large magnitudes for incumbent vote percentage. As with all of the A-form models in this chapter, however, this correlation is subject to omitted variable bias and requires further analysis.

Expenditure$_B$ utilizes the incumbent vote percentage independent variable as well as a number of other previously discussed variables including party division, average

tenure, productivity, and polarization. Each of these is meant to control for certain aspects of political behavior or circumstances that might affect spending patterns in the coming election. *Expenditure$_B$* does feature one unique independent variable, however. An approval ratio is calculated and implemented by comparing the percentage of Gallup Poll respondents who approve of Congress to those who disapprove. The inclusion of this variable is premised on the assumption that incumbents are aware of and sensitive to poll numbers and that the nature of those numbers can affect their political behaviors, particularly how much they spend on reelection bids. The sample regression function for Expenditure Model B takes the following form:

$$\widehat{Expenditure}_B$$
$$= \beta_0 + \beta_{Incumbent\,Vote\,Percentage} + \beta_{Party\,Division} + \beta_{Average\,Tenure}$$
$$+ \beta_{Productivity} + \beta_{Polarization} + \beta_{Approval\,Ratio} + \mu$$

As can be seen in Table 6 below, the statistical significance for incumbent vote percentage disappears when controlling for other logical variables and its magnitude shrinks from 0.081 to 0.014. Despite this, the model is still a relatively strong one. Over 70 percent of the variance in the data is explained by the model, and the F-statistic probability indicates that the model itself is strongly significant. None of the independent variables suffer from variable inflation due to collinearity and the residual plot displays sufficient randomness to rule out the presence of any omitted nonlinear relationships.

There are other notable observations to be taken from the results of this regression model. Legislative productivity, for instance, is found to be a statistically significant and positive predictor of expenditure ratio. As productivity increases, so too does the margin between incumbent and challenger expenditures in the following election. It is difficult to pinpoint why this is the case, but it is possible that legislatively productive sessions are less likely to draw well-equipped challengers seeking to capitalize on congressional gridlock. This position is buttressed by the negative coefficient on polarization, which indicates that expenditure margins decrease as political polarization increases. The coefficient on tenure is also statistically significant. It is unsurprising that there is a positive correlation between tenure and being able to outspend challengers; the longer a representative is in the House, the longer he has to build up a war chest that can be utilized in the event of close electoral contests.

Table 6: Effects of incumbent vote percentage and other control variables on campaign expenditures in subsequent elections

	Model A	Model B
Incumbent Vote Percentage	0.081**	0.014
	(0.032)	(0.030)
Party Division	--	-0.047
		(0.033)
Average Tenure	--	0.366*
		(0.183)
Productivity	--	0.096**
		(0.035)
Polarization	--	-2.501
		(2.746)
Approval Ratio	--	-0.292
		(0.344)
Constant	-2.444	1.690
	(1.902)	(3.758)
n	20	19
R^2	0.264	0.701
Adjusted R^2	0.223	0.551
Prob F > 0	0.021	0.003

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

Party-Specific Models

These expenditure models can also be viewed through party-specific lenses. By first replacing the chamber expenditure ratios with those generated by each party and

then replacing chamber incumbent vote percentage with each party's respective results, it can be determined whether the models are more descriptive for one party than the other. It is outside the scope of this paper to uncover the average tenures for each party or their respective contributions to legislative productivity, although these variables could theoretically be quantified with sufficient time and access to the right resources.

On their own, the incumbent vote percentages for each party do not sufficiently predict campaign expenditures. $Expenditure_A$ shows a weak statistical significance for Republicans and none for Democrats, and the R^2 and adjusted R^2 values are extraordinarily poor in both instances of the model. These weak trends and poor fits are evident in Figure 3. Overall, this model displays little value in evaluation the correlations between incumbent vote percentage and campaign expenditures.

This conclusion is verified in the applications of $Expenditure_B$ to the parties, where neither Republican nor Democrat incumbent vote percentage reject the null hypothesis at a significance level of interest. The models themselves, however, are fairly

Figure 3: Campaign expenditure ratio by party vote percentage
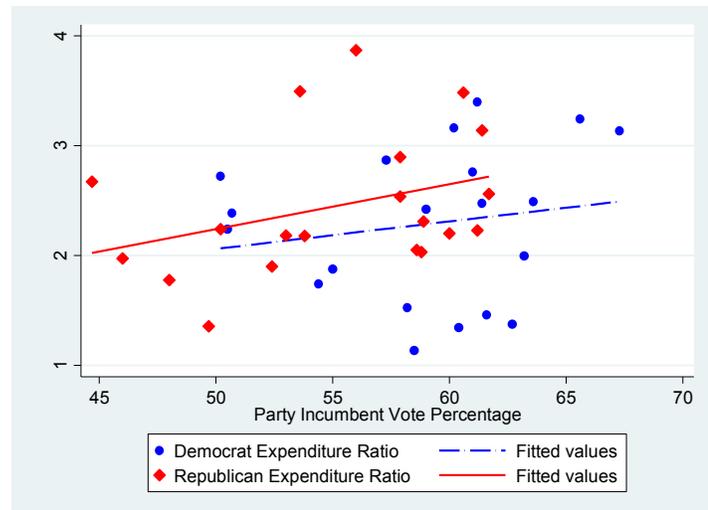
robust and contain a few interesting results. For the Republicans, a higher congressional approval ratio correlates significantly with a decrease in expenditure margin. Every unit increase in approval ratio means a 0.713 unit decrease in expenditure ratio, signifying

that Republicans find themselves in more of an electoral fight (or at least a spending battle) when public approval of Congress is high.

The model is even more descriptive for Democrats. More than 77 percent of the variance in the data is explained by the model, and its other meta-descriptors are sufficiently strong. Like in the chamber-wide implementation of *Expenditure_B*, both tenure and productivity are statistically significant, only this time they reject the null

Table 7: Effects of incumbent vote percentage and other control variables on party-specific campaign expenditures in subsequent elections

	Model A		Model B	
	Rep	**Dem**	**Rep**	**Dem**
Incumbent Vote Percentage	0.041*	0.024	0.036	-0.013
	(0.022)	(0.027)	(0.025)	(0.024)
Party Division	--	--	0.022	-0.059*
			(0.026)	(0.032)
Average Tenure	--	--	0.220	0.594***
			(.134)	(0.165)
Productivity	--	--	0.061	0.104***
			(0.037)	(0.034)
Polarization	--	--	1.420	-3.772
			(1.775)	(2.803)
Approval Ratio	--	--	-0.713**	0.320
			(0.300)	(0.457)
Constant	0.202	0.813	-4.030	2.388
	(1.255)	(1.566)	(2.566)	(3.694)
n	20	20	19	19
R^2	0.116	0.030	0.664	0.772
Adjusted R^2	0.066	-0.024	0.495	0.658
Prob F > 0	0.086	0.371	0.008	0.000

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

hypothesis at a higher significance level. These strong correlations are logical for the same reasons explained above, except that they are increasingly significant here because

Democrats make up a larger percentage of the incumbent data pool due to that party controlling the House for the majority of the timeframe of this study. While these models and the chamber-wide ones above do not display any of the expected correlations between incumbent vote percentage and expenditure ratio, the yielded results are valuable in their own right.

Effects of Incumbent Vote Percentage on Ideological Polarization

Polarization is a slightly more abstract concept than legislative productivity or campaign expenditures. In simple terms, polarization is the distance between the ideological centers of each party. As one or both parties trend toward their respective ideological extremes, polarization increases; if they were to move toward the ideological center, polarization would decrease. As first noted in the section on legislative productivity, the quantification of polarization requires finding the average DW-NOMINATE Common Space score for each party and calculating the magnitude of the distance between them.

Whereas other sections of this chapter split the analysis of the dependent variable into studies of chamber-wide and party-specific models, this approach does not work well when the dependent variable is as intricately tied to both parties as is polarization. Also limiting this analysis is the fact that polarization has increased at a nearly constant rate over the timeframe of this study. To account for these limitations, this section includes two different types of analysis. The first provides a set of static models to uncover the relationships between polarization, incumbent vote percentage, and other relevant independent variables. The second utilizes dynamic models that measure changes from

one session of Congress to the next to capture how changes in certain variables affect shifts in ideological polarization.

Static Models of Polarization

Figure 4: Magnitude of polarization by incumbent vote percentage

In the simple bivariate model *Polarization$_A$*, incumbent vote percentage is a weakly significant predictor of chamber polarization. The correlation is positive; for each percentage point increase in incumbent vote percentage, predicted
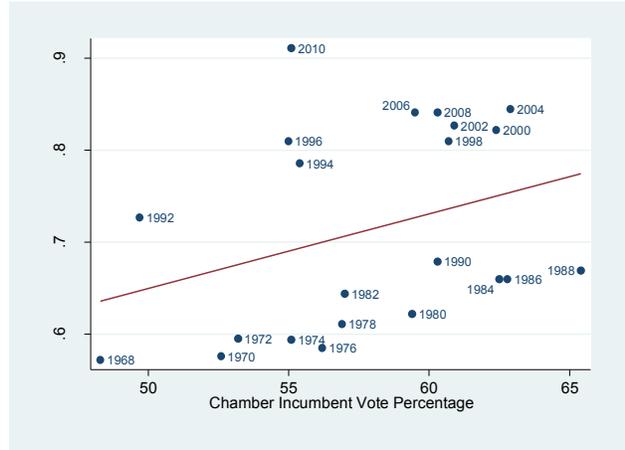
polarization increases by 0.008 units. With the scale of possible DW-NOMINATE scores ranging from -1.0 to 1.0, the magnitude of this coefficient is reasonably large. Ultimately, however, incumbent vote percentage fails to account for the constantly increasing polarization values. This is evidenced in Figure 4, where most of the recent observations fall well above the trend line and most of the older observations fall below.

The static version of *Polarization$_B$* is a significant improvement over *Polarization$_A$* with strong values for R^2 and adjusted R^2 as well as very low variable inflation factors. The residual-versus-fitted plot does not display any obvious linear or nonlinear patterns, but it does contain a degree of clustering that may indicate that the distribution is not sufficiently random to fully validate the model. This result will be compared to its companion in the dynamic models to see if accounting for change alleviates the issue.

Polarization$_B$ includes only three additional independent variables besides

incumbent vote percentage, and its sample regression function takes the following form:

$$\widehat{Polarization_B}$$
$$= \beta_0 + \beta_{Incumbent\ Vote\ Percentage} + \beta_{Party\ Division} + \beta_{Hours\ in\ Session}$$
$$+ \beta_{Average\ Tenure} + \mu$$

These demographic and behavior control variables are standard for the models in this

paper, but legislative productivity is noticeable absent from this model due to the

potential causal relationship between polarization and productivity. While the models for

productivity do not uncover a statistically significant relationship between the two

variables, it is logically more likely that polarization would have a direct impact on

productivity than the reverse.

The coefficients on the variables reveal a few interesting relationships with

polarization. First, incumbent vote percentage slips from weakly significant in *Polarization$_A$* to not significant at all in *Polarization$_B$*. Both party division and hours in session, however, have coefficients whose t-statistics indicate rejection of the null hypothesis at a high significance level. Party division has a negative correlation with polarization; as the percentage of Democrats in the House increases, the magnitude of

Table 8: Effects of incumbent vote percentage and other control variables on polarization

	Model A	Model B
Incumbent Vote Percentage	0.008*	0.004
	(0.005)	(0.003)
Party Division	--	-0.010***
		(0.002)
House in Session	--	0.0002***
		(0.00005)
Average Tenure	--	0.026**
		(0.012)
Constant	0.244	0.455
	(0.268)	(0.263)
n	22	22
R^2	0.110	0.822
Adjusted R^2	0.065	0.780
Prob F > 0	0.092	0.000

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

ideological polarization decreases. This suggests that Republicans are more likely to skew further to their ideological pole than Democrats. More surprisingly, polarization also increases reliably as the House spends more hours in session. The reason for this correlation is unclear unless it is a case of familiarity breeding contempt. The same logic may explain why polarization also increases as the average tenure of members gets longer.

Dynamic Models of Polarization

Because polarization in the House has increased at a fairly steady rate over the timeframe of this study, there is additional value in analyzing what causes the spikes and dips during that ascension. To accomplish this, most of the variables presented in the preceding section will take on dynamic forms that illustrate their chance from the previous session to the session in question. Likewise, the regression models in this section describe the change in polarization between sessions. The modified variables are prefaced with a delta symbol, marked as "Δ", to differentiate them from the static versions of the variables. The only variable that is not expressed as a function of change is the incumbent vote percentage, as election results are effectively the catalyst for the

Figure 5: Percent change in polarization by incumbent vote percentage
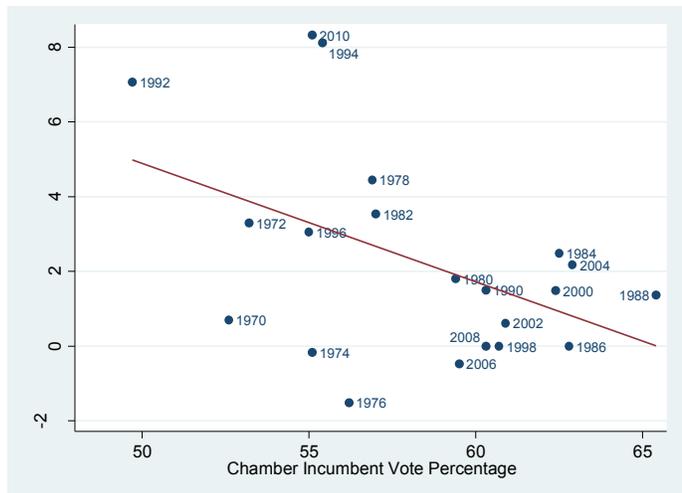
changes in the other variables. A more sophisticated version of this approach might

utilize differential equations to model changes in polarization, but the approach taken

here offers sufficiently robust results.

ΔPolarization$_A$ indicates a strong negative correlation between incumbent vote

percentage and the change in polarization from the previous session to the current. The

coefficient on incumbent vote percentage is statistically significant and indicates that an

increase of one percentage point correlates to a 0.317 percent decrease in polarization. In

simple terms, strong aggregated electoral performances from the House incumbents

predict a decrease in ideological polarization in the subsequent session.

The significance of incumbent vote percentage is further solidified in

ΔPolarization$_B$, where its coefficient rejects the null hypothesis and retains a nearly

identical magnitude to its counterpart

in ΔPolarization$_A$. Also significant is

the coefficient on Δparty division,

which is strongly significant. The

coefficient is interpreted to mean that

a 1 percent increase in the percentage

of the House comprised of Democrats

translates to an expected decrease in

polarization by a factor of 0.192. In

general terms, polarization generally

decreases when Democrats increase

their headcount in the House. These

Table 9: Effects of incumbent vote percentage and other control variables on Δpolarization

	Model A	Model B
Incumbent Vote Percentage	-0.317**	-0.313**
	(0.127)	(0.133)
ΔParty Division	--	-0.192***
		(0.028)
ΔHouse in Session	--	0.038
		(0.025)
ΔAverage Tenure	--	-0.047
		(0.085)
Constant	20.738	20.350**
	(7.754)	(7.755)
n	21	21
R^2	0.217	0.672
Adjusted R^2	0.176	0.590
Prob F > 0	0.022	0.000

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

results are sufficiently reliable as the R^2, adjusted R, F-statistic probability, variable inflation, and residual-versus-fitted tests are all devoid of red flags.

There are two primary conclusions to be drawn from the static and dynamic models of polarization. First, the division of parties appears to be a consistently statistically significant predictor of polarization, and having more Democrats in the House tends to correlate to a smaller degree of polarization. Second, it is left unresolved whether incumbent vote percentage has a significant impact on polarization due to the discrepancy between the static and dynamic models. However, because of the unusually linear nature of ideology as a static variable, the dynamic model better captures how electoral results lead to direct and statistically significant changes in polarization.

Effects of Incumbent Vote Percentage on Party Unity Scores

A representative's party unity score measures how frequently he votes with members of his own party on bills where at least 50 percent of Republicans vote against at least 50 percent of Democrats[39], or put more informally, how he tends to vote on bills that are largely decided along party lines. Without ascribing any qualitative value to the metric, it is effectively a measure of how loyal a representative is to his party when a politically contentious issue comes up for a vote.

Because they are both predicated on analysis of voting patterns, party unity scores and polarization are intricately linked and strongly correlated with each other.[40] They do, however, measure different elements of congressional behavior, which is why they are both included in this paper as separate dependent variables. Whereas polarization can be

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[39] Poole, Keith and Howard Rosenthal. "Party Unity Scores."
http://pooleandrosenthal.com/party_unity.htm..
[40] For this reason, this paper avoid including both polarization and party unity in the same models in an effort to prevent unnecessary variable inflation due to collinearity.

thought to measure the general mood of Congress by evaluating how far each party is from the political center and their distance from each other, party unity quantifies the level of combativeness between the parties when it comes time to cast votes on the House floor.

In this paper, the party unity metric is applied to the House of Representatives as a whole by finding the average party unity score across the entire chamber as well as within each of the major parties to facilitate both chamber-wide and party-specific analyses. Measuring party unity in this way quantifies the level of tribalism in the chamber and allows for further analysis of what factors lead to this type of voting pattern, specifically to answer the question of whether electoral results have a statistically significant effect on party unity.

Chamber-Wide Analysis of Party Unity

In testing the relationship between incumbent vote percentage and average chamber-wide party unity scores, there appears to be a significant correlation between the two. Party unity increases by 0.754 percentage points for each percentage point increase in incumbent vote percentage, and the coefficient is statistically significant. And while the R^2 value of 0.212 is low for an explanatory regression model, it is large enough for a bivariate model to indicate that incumbent vote percentage may be a useful addition to a more

Figure 6: Chamber party unity scores by incumbent vote percentage

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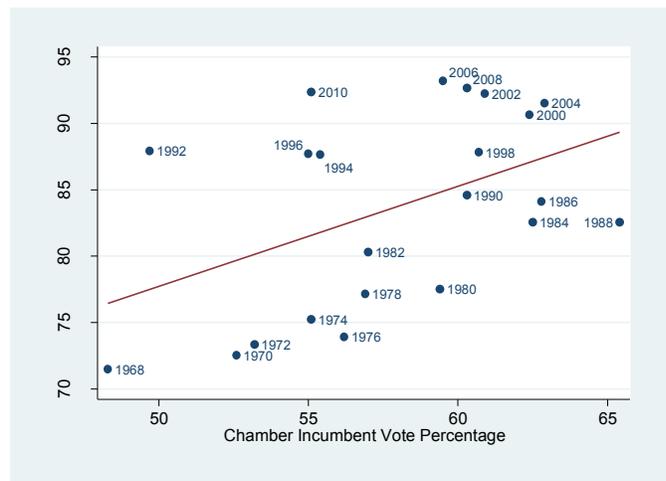
comprehensive model on party unity scores. This is further supported by an F-test[41] indicating that the model itself is statistically significant as well.

Party Unity_B retains the same basic structure utilized for the more comprehensive analysis of polarization. In addition to accounting for incumbent vote percentage, it factors in party divisions in the House, the number of hours spent in session, and the average House tenure for all representatives serving during the session. The metadata suggest that the model is a fairly strong one: it boasts an R^2 of 0.746 indicating a strong fit to the data, the F-test shows that the model itself is statistically significant at a high level, the residual-versus-fitted plot is sufficiently random, and each of the independent variables in the model is statistically significant at the minimum desired levels.

Validating the inclusion of the primary variable of interest, incumbent vote percentage is significant at the minimum level and has a substantial impact on expected party unity; for every one percentage point increase in incumbent vote percentage, the chamber's average party unity score is expected to rise by 0.53 percentage points. This effect is smaller in magnitude than that found in *Party*

Table 10: Effects of incumbent vote percentage and other control variables on party unity

	Model A	Model B
Incumbent Vote Percentage	0.754**	0.530*
	(0.339)	(0.296)
Party Division	--	-0.492***
		(0.107)
House in Session	--	0.013***
		(0.004)
Average Tenure	--	1.830**
		(0.741)
Constant	40.039*	40.739**
	(20.047)	(18.209)
n	22	22
R^2	0.212	0.746
Adjusted R^2	0.172	0.686
Prob F > 0	0.038	0.000

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

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[41] F-tests are used in this chapter to determine the statistical significance of a model as a whole. While it is a tool for assessing the value of a model when compared to other models, it does not necessarily indicate that any of the predictors within the model will be statistically significant.

Unity$_A$, but this is not unexpected with the introduction of additional variables. The significance of this effect is further validated by the fact that incumbent vote percentage over the timeframe of this study is shaped like a parabola, generally increasing for the first half of the study and generally decreasing for the second. As such, the linear growth visible in party unity over time is not significantly collinear with incumbent vote percentage and may suggest a causal relationship.

All of the other independent variables in the model are more statistically significant than incumbent vote percentage. Party division, for example, finds that the level of party unity in the chamber has a strong negative correlation with the percentage of Democrats occupying seats. However, this could potentially be less a causal factor and more a collinearity as the party division in the House has generally trended toward increased representation for Republicans over the timeframe of this study. The number of hours spent in session also has a strong correlation with increased party unity scores, although this metric is a positive correlation; this coefficient and the one on party division are both strongly significant. Finally, the model shows a strong positive correlation between longer average tenure and heightened party unity scores.

Party-Specific Analysis of Party Unity

Another way to approach the analysis of party unity scores in the House is by looking at how each of the major parties responds to their own electoral results. For this section, two of the variables will take modified forms: incumbent vote percentage expresses the percentage of the vote received by incumbents only of the specified party, and party unity score reflects only the average score within the same party. This side-by-

side comparison demonstrates how the parties react differently to electoral and political circumstances as measured by legislative voting behaviors.

The simple correlations in *Party Unity$_A$* appear to show that Republican party unity scores are more sensitive to incumbent vote percentage than their Democratic counterparts. Likewise, the coefficient

Figure 7: Party-specific unity scores by incumbent vote percentage
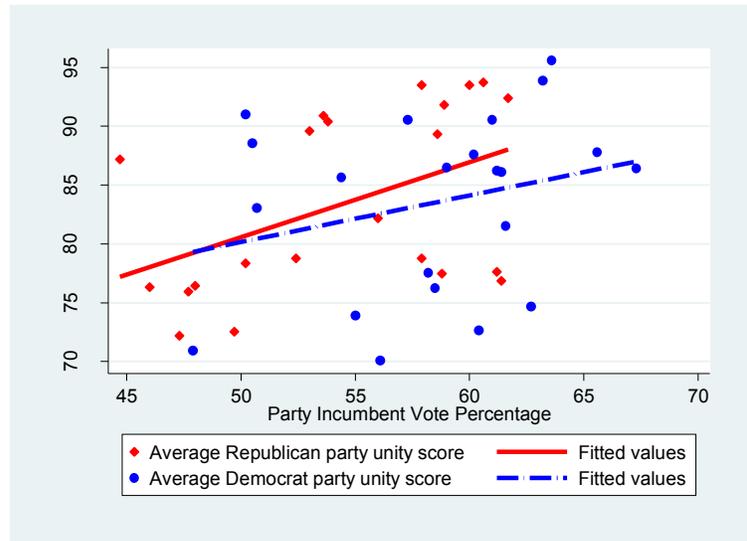
on Republican incumbent vote percentage is statistically significant, while the coefficient for Democrats fails to find significance at a desired level. The metadata also indicates that the model is far more accurate and statistically significant for Republicans than it is for Democrats.

Once various control variables are introduced in *Party Unity$_B$*, however, the magnitude and statistical significance on Republican party unity quickly evaporates. Instead, party division and hours in session are far more reliable predictors of party unity with each coefficient demonstrating strong statistical significance. The coefficient on party division is negative, indicating that Republicans' average party unity scores The same is also true for Democrats, surprisingly; as in the chamber-wide discussion above,

Table 11: Effects of incumbent vote percentage and other control variables on party-specific party unity decrease as their representation in the House decreases.

	Model A		Model B	
	Rep	**Dem**	**Rep**	**Dem**
Incumbent Vote Percentage	0.637**	0.396	0.091	0.662*
	(0.289)	(0.315)	(0.256)	(0.344)
Party Division	--	--	-0.614***	-0.602***
			(0.156)	(0.203)
Hours in Session	--	--	0.014***	0.011**
			(0.004)	(0.005)
Average Tenure	--	--	1.212*	2.178**
			(0.691)	(0.901)
Constant	48.709***	60.339***	75.700***	38.185**
	(15.571)	(18.821)	(24.533)	(13.287)
n	22	22	22	22
R^2	0.214	0.074	0.741	0.653
Adjusted R^2	0.175	0.027	0.680	0.571
Prob F > 0	0.040	0.223	0.000	0.000

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

Democratic party unity scores decrease as the percentage of Democrats in the House increases. This counterintuitive result is likely due to collinearity between party unity scores constantly increasing over time and the percentage of Democrats in the House generally decreasing.

As such, it is possible that the collinearity of party unity scores and party division distort the otherwise sound model and incorrectly minimize the potential effects of incumbent vote percentage on party unity scores, an item that warrants further research in a follow-up paper.

**Effects of Incumbent Vote Percentage on Approval Ratio**

While far from a perfect measure, approval ratings can give a general sense of how the public feels about its elected bodies and how well they are executing the

functions for which they were chosen. Gallup, for example, conducts a semi-regular poll in which they ask respondents whether they approve or disapprove of Congress.[42] This section utilizes that polling data to search for relationships between incumbent vote percentage and the public's opinion of Congress to determine if the public is happy with the electoral decisions it makes.

To accomplish this, polling data is combined into a single metric by calculating the ratio of congressional approval to disapproval; this formulation minimizes the effect of varying degrees of "not sure" answers over the timeframe of the study. It is also important to note at this juncture that this is an approval ratio calculated for the entirety of Congress, not just the House of Representatives. This will be

Figure 8: Percent change in approval ratio by incumbent vote percentage
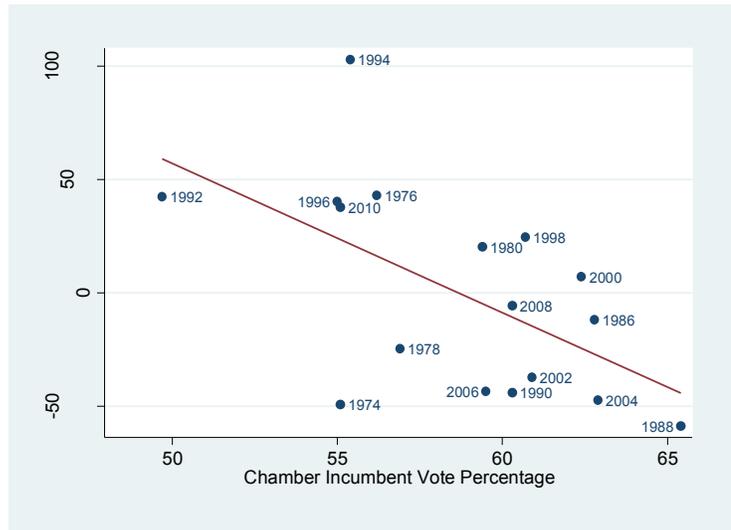
sufficient for the purposes of this section as Congressional approval ratings should be a reasonable proxy for House approval and the goal is merely to uncover potential correlations – the exact magnitudes of those correlations are not necessary for an informal examination of this nature.

The initial regression results via *Approval_A* are not particularly illustrative. *Approval_A* shows that incumbent vote percentage does not have a statistically significant

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[42] "Congress and the Public." Gallup. Congress and the Public. Accessed March 30, 2015. http://www.gallup.com/poll/1600/congress-public.aspx.

impact on approval ratio, and the model is a poor fit to the data. Likewise, *Approval*_B also indicates a distinct lack of correlation between these two variables, and only one of the other independent variables is even a weakly statistically significant predictor of approval ratio. For this reason, further examination of approval ratio and its predictors requires a dynamic analysis analogous to that performed on polarization early in this chapter.

To accomplish this task, certain variables shift to dynamic permutations in this model that express their percentage change from one session of Congress to the next. The dependent variable for this section becomes Δapproval ratio, a measure of the percentage increase or decrease over the course of the session. The sole independent variable for $\Delta Approval_A$, incumbent vote percentage, retains its original form because it is effectively the catalyst for change in the all the other variables and does not need to be expressed as a dynamic variable.

The initial examination of the correlation between Δapproval ratio and incumbent vote

Table 12: Effects of incumbent vote percentage and other control variables on Δapproval ratio

	Model A	Model B
Incumbent Vote Percentage	-6.586***	-10.528**
	(2.025)	(4.015)
ΔParty Division	--	-3.588**
		(1.376)
ΔHours in Session	--	0.735
		(1.025)
ΔAverage Tenure	--	1.878
		(1.961)
ΔProductivity	--	-0.469
		(0.376)
ΔPolarization	--	-7.463**
		(3.307)
ΔGDP Growth	--	1.126
		(1.602)
Constant	386.447	626.048**
	(123.726)	(248.132)
n	17	17
R^2	0.333	0.683
Adjusted R^2	0.288	0.436
Prob F > 0	0.005	0.001

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

percentage via $\Delta approval_A$ indicates a strong negative correlation that rejects the null

hypothesis at a high significance level. For each 1 percentage point increase in incumbent vote percentage, the expected change in approval ratio decreases by 6.586 percentage points. In other words, better electoral performance by incumbents is associated with a predictable and statistically significant decrease in congressional approval ratio.

$\Delta Approval_B$ further expounds on this apparent correlation by introducing a variety of dynamic variables in an attempt to isolate the effect of incumbent vote percentage on Δapproval ratio. These include the changes in party division, hours in session, and average tenure first utilized in the section on polarization. Specific and additional to this model are the percent changes in legislative productivity and polarization as well as a GDP growth metric that measures the percentage change in GDP from the beginning of the session to the end. The inclusion of these dynamic variables demonstrates how changes in political behavior and other controls influence the changes in approval ratio from one session to the next.

First and most importantly, the expanded model indicates that incumbent vote percentage has a statistically significant effect on Δapproval ratio that is even greater in magnitude than that uncovered in $\Delta Approval_A$. This further galvanizes the concept that the public is happier with a Congress in which incumbents fared worse in their reelection bids. Also statistically significant are the effects of Δparty division and Δpolarization, the latter of which indicates that a decrease in polarization is associated with a greater increase in approval ratio. As with the discussion on polarization, it appears that the regression analysis using dynamic models of approval ratio are more theoretically sound and productive than their static counterparts. Still, the discrepancy between the dynamic

and static regression results signifies a need to further investigate why the discrepancy exists.

Conclusions and Suggestions for Further Research

This chapter began by posing a simple question: How do election outcomes affect political behaviors? This question is answered by identifying several key areas of political behavior to study, then quantitatively evaluating the impact election results had on those political behaviors. Using incumbent vote percentage as a measure of incumbent electoral performance, several interesting and statistically significant correlations were uncovered through a series of regression models applied to each element of political behavior.

Key Findings

First, the models utilized in this paper show a clear correlation between incumbent vote percentage and legislative productivity. Even when controlling for other independent variables, increases in incumbent vote percentage translate to greater productivity in the House. This is likely due to a combination of factors, namely increased institutional knowledge, greater familiarity with other representatives on either side of the aisle, and an increased sense of security in one's own seat that allows for more risky voting behaviors like bipartisan sponsorship or voting for bills sponsored by the political opposition.

Second, the models display little or no correlation between the electoral results of one election and campaign expenditures in the next. Similarly, incumbent vote percentage was not found to be a reliable predictor of party unity scores except when

analyzed on a chamber-wide level, and only then with a very weak statistical
significance.

Third, both ideological polarization and approval ratings are directly affected by
incumbent vote percentage, but only when using dynamic models that measure the
changes in polarization and approval ratings from one session of Congress to the next.
For polarization, this indicates that the measured effect is not merely a coincidence or
erroneous result due to collinearity, while for approval ratio it removes the potential for
one session of Congress to coast on the good will (or bad reputation) earned by the
preceding session. Increases in incumbent vote percentage lead to expected decreases in
both polarization and approval ratios.

Suggestions for Further Research

The most important way to improve on the research presented in this chapter is by
finding a way to minimize the collinearity among some of the variables utilized. Some
elements and descriptors of political behavior – specifically polarization, party unity,
party division, and approval ratio – have changed at constant rates over time. This does
not mean that any correlations found are purely happenstance; in fact, it could be that one
or more variables could be having profound impacts on the others. This chapter attempts
to parse out the meaningful relationships from those that are just happenstance. It is
possible that further research or the application of more advanced statistical techniques
may improve this element of the study.

Along those same lines, this research also serves as a simple cursory look at all of
the subjects presented here without diving deeply into any of them. While this serves the
purpose of analyzing the effects of electoral results on a variety of political behaviors and

descriptors, it does not necessarily provide each topic with the depth of analysis that it deserves. Ultimately, this paper is an argument to include electoral results as measured by incumbent vote percentage into other analyses on the political behaviors that are described here because, as shown above, it can be a statistically significant predictor of said behaviors.

Chapter 3:

High-Turnover Elections in the U.S. House of Representatives, 1968-2010

When Americans become frustrated with gridlock and combativeness in Congress, there is a popular refrain that echoes around water coolers, bar stools, and dining room tables: "Throw the bums out!" Thomas Mann and Norman Ornstein note that this is the most powerful leverage citizens have in a democracy[43], and to many in the electorate, voting every elected official out of office is an enticing and logical solution to any number of political problems. This is largely due to the fact that there are a limited number of avenues by which American citizens can express their frustration with these elected officials and affect their government on a macroscopic scale, and voting ineffective representatives out of office is the most visible and accessible means of doing so.

The vast majority of congressional elections result in the incumbent politicians retaining their seats. On rare occasions, however, the electorate is successful in voting out an unusually large percentage of its representatives. In these "high-turnover elections," a statistically high percentage of incumbents seeking reelection are unsuccessful in their bids to retain their seats in government. In relative terms, the electorate succeeds in its goal of replacing ineffective representatives with fresh blood, leaving the remaining members of Congress to pick up the political pieces and worry over how to ensure they will not lay victim to a similar onslaught in the next election cycle.

When the electorate enacts a large-scale change of this nature, are they acting in their own best interest? Or are they mucking up an already difficult and convoluted

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[43] Mann, Thomas E., and Norman J. Ornstein. It's Even Worse than It Looks: How the American Constitutional System Collided with the New Politics of Extremism. New York: Basic Books, 2012: 189.

political process by erasing large swaths of institutional memory and forged political relationships? And is the government that results from a high-turnover election any more likely to produce results that are viewed favorably by the electorate once the proverbial dust clears?

The literature on high-turnover elections as defined in this chapter is sparse. Many scholars focus on "wave elections" that see dramatic shifts in party power within the government, but the literature surveyed for this chapter did not turn up any instances of rigorous analysis of high-percentage turnovers in the House as a referendum on the behaviors of the chamber as a whole. Likewise, most of the literature focuses on predictive models for election results and determining when parties are primed to lose large numbers of seats. The works of Alan Abramowitz, James Campbell, Christian Grose, and Bruce Oppenheimer, for example, all focusing on determining what factors – both endogenous and exogenous to Congress – are key predictors of poor incumbent performance by one or both parties. While Abramowitz[44] and Campbell[45] each focus their research primarily on analysis of party-level politics, Grose and Oppenheimer argue that district-level factors like scandals, war deaths, and individual voting patterns need to be considered.[46]

The research in this chapter focuses on answering the questions above and detailing how the House of Representatives behaves politically after a high-turnover election. Fortunately, high-turnover elections are nothing more than special cases of the

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[44] Alan I. Abramowitz, Incumbency, Campaign Spending, and the Decline of Competition in U.S. House Elections. The Journal of Politics, Vol. 53, No. 1 (Feb., 1991), pp. 34-56.

[45] James E. Campbell, The Seats in Trouble Forecast of the 2010 Elections to the U.S. House. PS: Political Science and Politics, Vol. 43, No. 4 (October 2010), pp. 627-630.

[46] Christian R. Grose and Bruce I. Oppenheimer, The Iraq War, Partisanship, and Candidate Attributes: Variation in Partisan Swing in the 2006 U. S. House Elections. Legislative Studies Quarterly, Vol. 32, No. 4 (Nov., 2007), pp. 531-557.

electoral results discussed in Chapter 2 of this thesis. As such, the models developed in that chapter can be applied here to determine if high-turnover elections are indeed special and whether or not they are actually an effective means for the electorate to affect substantial changes in government.

To retain consistency with the previous chapters in this thesis, the frame of study is again limited to all elections to the House of Representatives held between 1968 and 2010, while tracking data through the end of the session that took office in January 2011. This timeframe allows for an analysis that focuses on modern congressional elections without undue influence from elections whose political circumstances are no longer relevant to the current climate. Likewise, it minimizes the effect of incomplete data sets and insufficient time for historical analysis by leaving out the 2012 and 2014 congressional elections.

The balance of this chapter is divided into three sections. The first section reviews the methodology used in defining high-turnover elections and provides historical context to supplement discussion. The second section analyzes a selection of demographic characteristics of the House in the wake of high-turnover elections. The third section examines how a variety of political behaviors in the House including legislative productivity, political polarization, party unity scores, campaign expenditures, and congressional approval ratings are affected by the results of high-turnover elections. Key findings and suggestions for further research are provided at the conclusion of the chapter.

Methodology and History

On an historical level, a few elections typically spring to mind when thinking about massive turnovers in the House of Representatives. The recent Tea Party-fueled election in 2010, the Democratic resurgence in 2006, and the Republican takeover in 1994 are among these tectonic shifts in party division that had far reaching political and cultural impacts on the House and the country as a whole. These are merely anecdotal evidence, however, and this chapter requires a more logical and quantitative approach that allows for methodological repeatability.

The analysis in Chapter 1 of this thesis included a component that quantified incumbent win percentage by mining election results from the CQ-Roll Call elections archive[47] and determining what percentage of incumbents that actively sought reelection were successful in their bids. This incumbent win percentage metric is again used here to determine which elections feature an unusually high and involuntary turnover in members by percentage. A question then arises: What constitutes an "unusually high" turnover?

For the purposes of this chapter, a high-turnover election is defined as any election with an incumbent vote percentage that falls more than one standard deviation below the average incumbent vote percentage. Counting all elections between 1968 and 2010, incumbents seeking reelection won 95.11 percent of their races on average. The standard deviation for this data set is 3.27 percentage points, meaning any election where incumbents won less than 91.84 percent of their races is deemed a high-turnover election. As illustrated in Figure 9, only four elections in this timeframe meet this criterion: the

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[47] CQ Press, Voting and Elections Collection.

1974 midterm election, the 1980 presidential election, and the 1994 and 2010 midterm elections.

Figure 9: Incumbent win percentage by election year

Dashed line is average win percentage, solid lines are one standard deviation from average
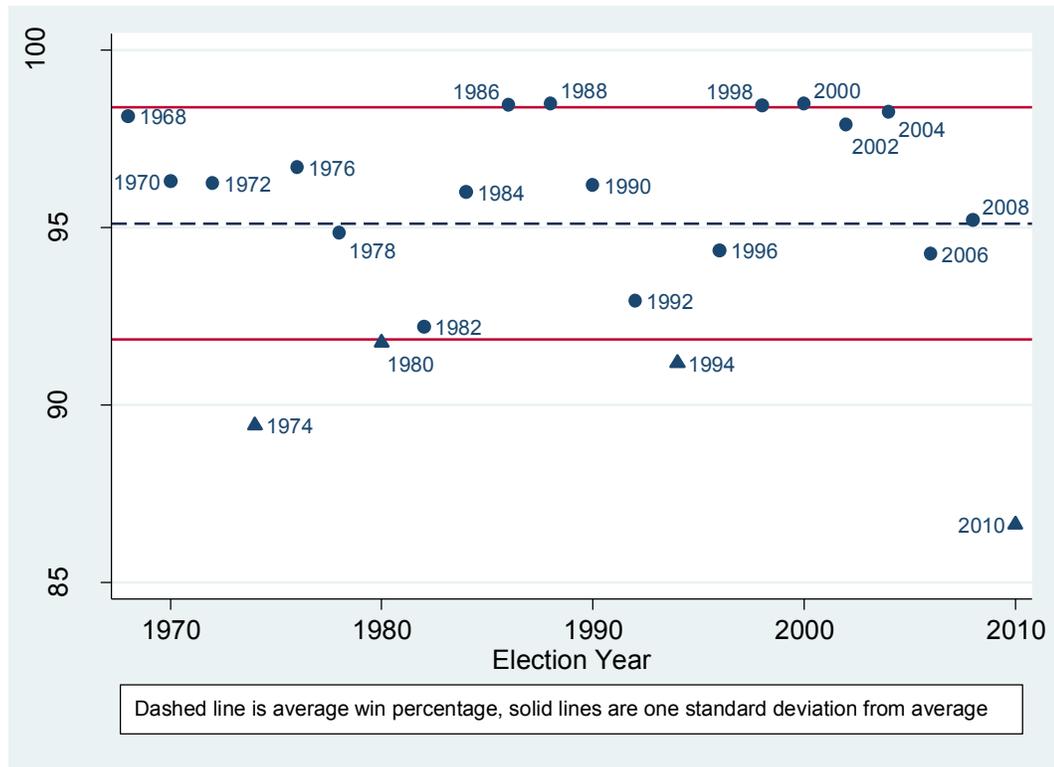
This chapter does not delve deeply into instances when specific parties underperform their election averages by more than one standard deviation and how this affects their political behaviors, but it is an area worth study. While these outlying elections in the party-specific analysis tend to line up with the four elections listed above, there are two that do not: Republicans in the House retained only 84.15 percent of their seats in 1982 and 89.05 percent in 2006. Because the Democrats lost very few seats in these elections, however, the overall incumbent win percentage remained above the established threshold. Nonetheless, these elections are still viable cases for further research, but are perhaps more indicative of frustrations with individual parties rather than dissatisfaction with the House of Representatives as a whole.

The first of the high-turnover elections in this study is the 1974 midterm. Likely attributable to the Watergate scandal that rocked the Republican party and ultimately brought down the presidency of Richard Nixon, the 1974 election saw an astounding 22.36 percent of House Republicans who sought reelection ultimately lose their bids. This was a clear outlier for Republicans in the House, as they lost no more than 7 percent of their seats in the three prior congressional elections. Losses taken by Democrats in this election were minimal, but the blow delivered to Republicans was sufficient to drag the chamber incumbent win percentage down to 89.42 percent, a figure well outside one standard deviation from the average.

The next instance of a high-turnover election is in 1980, the same election that saw Ronald Reagan defeat an incumbent but politically weakened Jimmy Carter in the presidential contest.[48] Riding the wave of Reagan's popularity and the power struggle during the Democratic convention, Republicans gained a number of seats in the House while Democrats lost 11.74 percent of their incumbents that ran for reelection. The total win percentage for the chamber was 91.75 percent, just a hair below the 91.84 threshold used in this analysis. While the 1980 election fits the profile of a high-turnover election statistically, its historical circumstances are different from the others in this chapter. It is the only instance of a high-turnover election in the same year as a presidential contest, and it occurred at a time when the party in power was coming apart at the seams. Still, if it does turn out to be substantively different than the other high-turnover elections, this is likely to become evident during the statistical analyses used later in this chapter.

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[48] Stephen Skowronek, *Presidential Leadership in Political Time*. Lawrence, Kan.: University Press of Kansas, 2008.

Table 13: Incumbency percentages in the House of Representatives, 1968-2010

Year	Congress	Republican Winners	Republican Losers	Republican Win Percentage	Democratic Winners	Democratic Losers	Democratic Win Percentage	Chamber Winners	Chamber Losers	Chamber Win Percentage
1968	91	141	141	100.00	182	176	96.70	323	317	98.14
1970	92	150	140	93.33	202	199	98.51	352	339	96.31
1972	93	144	139	96.53	203	195	96.06	347	334	96.25
1974	94	161	125	77.64*	217	213	98.16	378	338	89.42*
1976	95	124	119	95.97	241	234	97.10	365	353	96.71
1978	96	125	120	96.00	244	230	94.26	369	350	94.85
1980	97	141	138	97.87	247	218	88.26*	388	356	91.75*
1982	98	164	138	84.15*	208	205	98.56	372	343	92.20
1984	99	152	149	98.03	249	236	94.78	401	385	96.01
1986	100	160	155	96.88	231	230	99.57	391	385	98.47
1988	101	161	157	97.52	238	236	99.16	399	393	98.50
1990	102	153	144	94.12	243	237	97.53	396	381	96.21
1992	103	133	125	93.98	207	191	92.27	340	316	92.94
1994	104	154	154	100.00	220	187	85.00*	374	341	91.18*
1996	105	208	190	91.35	164	161	98.17	372	351	94.35
1998	106	206	201	97.57	182	181	99.45	388	382	98.45
2000	107	197	193	97.97	204	202	99.02	401	395	98.50
2002	108	198	195	98.48	184	179	97.28	382	374	97.91
2004	109	210	208	99.05	192	187	97.40	402	395	98.26
2006	110	210	187	89.05*	191	191	100.00	401	378	94.26
2008	111	170	156	91.76	227	222	97.80	397	378	95.21
2010	112	157	155	98.73	232	182	78.45*	389	337	86.63*
		Mean Percentage		94.82	Mean Percentage		95.61	Mean Percentage		95.11
		Standard Deviation		5.44	Standard Deviation		5.33	Standard Deviation		3.27
			Threshold	89.38		Threshold	90.28		Threshold	91.84

* Indicates an election in which the incumbency percentage falls more than one standard deviation below the mean percentage (referred to as the "threshold") for the specific party or entire House of Representatives.

Source: CQ-Roll (edit later)

Perhaps the most iconic of the high-turnover elections, the "Gingrich revolution" in the 1994 midterm elections ousted 15 percent of sitting Democrats from their seats, giving Republicans their first majority in the House of Representatives since briefly

overtaking Democrats in the 1952 midterm elections.[49] The Republicans, on the other hand, did not lose a single incumbent seat in the 1994 elections. The incumbent win percentage for the entire House was 91.18 percent which, like the 1980 elections, is just below the established one standard deviation threshold. While this election is a statistical outlier and an important historical event due to the flipping of party majorities, the chamber-wide turnover was not as great in magnitude as the historical narrative tends to suggest.

The most recent of the high-turnover elections occurred in 2010 when the House Republicans regained the majority that the Democrats had wrested back from them in 2006. For the Democrats, this was the most catastrophic election in the time frame of this study as Republicans sought to make the election a referendum on the first two years of Barack Obama's presidency.[50] Democrats lost 21.55 percent of their incumbent seats, a figure second only to the Republican losses in 1974. Because of these dramatic losses at the hands of a Tea Party-fueled Republican Party, incumbents throughout the chamber managed to win only 86.63 percent of their reelection bids, leading to the single highest percentage turnover in the House between 1968 and 2010.

Returning briefly to Figure 9, there are also elections that exist at the opposite end of the spectrum – low-turnover elections – that provide interesting context and may warrant further statistical analysis. There are four elections in the timeframe of this study when incumbent win percentages were more than one standard deviation above the mean reelection percentage: 1986, 1988, 1998, and 2000. Both 1986 and 1998 were the final

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[49] "Party Divisions of the House of Representatives – US House of Representatives: History, Art & Archives." http://history.house.gov/Institution/Party-Divisions/Party-Divisions.
[50] Russell Goldman, "President Obama's Morning After 2010 Midterm Election Results." ABC News. http://abcnews.go.com/Politics/president-obama-morning-after-vote-2010-election-results/story?id=12045687.

midterm elections for two of the more popular presidents in recent history, Ronald

Reagan and Bill Clinton; 1988 and 2000 were presidential election years in which these

popular presidents were attempting to hand over power to their former vice presidents

who were then atop their parties' tickets. These elections share certain characteristics

that would make them particularly useful in a more comprehensive analysis of electoral

trends than this chapter is addressing.

House Demographics after High-Turnover Elections

A high-turnover election by definition drastically alters the composition of the

House, even if only the faces in the crowd. Depending on one's perspective, the chamber

is either infused with fresh blood primed to challenge the insider-baseball in Washington,

or a tremendous amount of institutional knowledge and hard-fought alliances are washed

away in a bout of political petulance and voter revolt. But what does the House actually

look like after a high-turnover election? Two components of the House demographics

that can be easily studied are the party divisions and the average tenure of serving

congressmen, as these are quantifiable categories that have definitive effects on the

political behaviors of the House as discussed in the next section of this chapter.[51]

Party Divisions

Throughout the 20th century, the House of Representatives was largely dominated

by the Democratic Party with few exceptions. Between the beginning of this study in

1968 and 1992, the Democratic majority in the House never dipped below 55 percent.

This trend came to a screeching halt, however, with the midterm election in 1994. As

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[51] As noted in this chapter's suggestions for further research, other demographic information may be of
additional use in analyzing the House after high-turnover elections. Gender breakdowns were excluded
because the slow by constant increase of women in the House does not provide for easy modeling, and an
examination of race and ethnicity were omitted because they add too much complexity for this level of
analysis.

visible in Figure 10, there is a precipitous drop in the percent of Democrats in the House

between the 1992 and 1994 elections. The Democrats only briefly recover in 2006 and

2008, the former largely a reaction against the policies of George W. Bush and the latter a

rising tide caused by the election

of Barack Obama as president.[52]

This trend reverses again with

the Republican takeover in the

2010 midterm elections.

The 1974 midterm

election was the zenith of

Democratic power in the House

Figure 10: Party division by election year
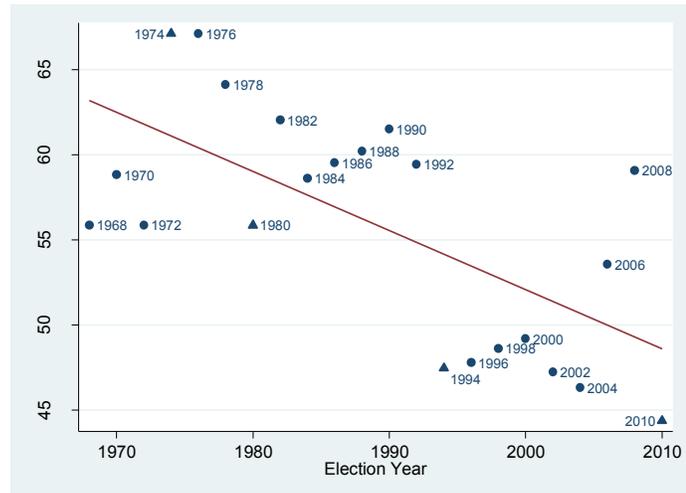
during the timeframe of this study, as Democrats controlled over 67 percent of the seats

for that session of Congress and again in the session elected in 1976. Republican gains in

1980 on the back of Reagan's presidential campaign and adverse reactions to Carter's

presidency temporarily lessened the Democrats' grip on the chamber, but their numbers

increased with regularity during the remainder of Reagan's presidency and through

George H.W. Bush's term. This evidence demonstrates that the identified high-turnover

elections are significant political tipping points, but further validation is required to

assess their quantitative impacts.

One way to further examine the impact of high-turnover elections on House

composition is by looking at the percentage changes in party divisions throughout the

timeframe of the study rather than static figures. This allows for a more detailed

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[52] Alan I. Abramowitz, How Large a Wave? Using the Generic Ballot to Forecast the 2010 Midterm
Elections. PS: Political Science and Politics, Vol. 43, No. 4 (October 2010), pp. 631-632.

quantitative analysis of the direct impact of high-turnover elections while effectively

controlling for the division of parties prior to the elections in question. A percentage

change in party division that is large in magnitude indicates a significant shift from the

status quo.

The y-axis in Figure 11 depicts the percentage change in Democratic seats

associated with each election, while the x-axis indicates whether or not the election was

high in turnover. The results are extremely clear and support the analysis provided above:

high-turnover elections do have a significant impact on party divisions in the House to a

degree that is noticeable. In the

figure, the highest percentage

increase in Democratic seats

occurs in the 1974 election, while

the three largest percentage

decreases coincide with

Republican gains in 1980, 1994,

and 2010.

Figure 11: percent change in party division by high-turnover election
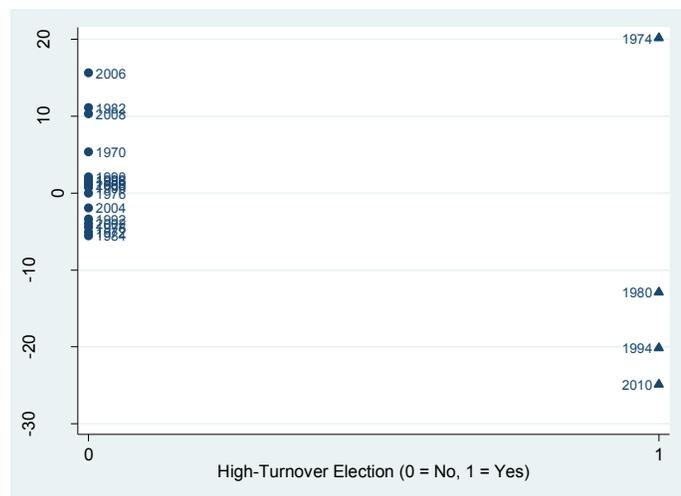
At first glance, this

appears to be a completely self-evident outcome; it is not surprising that high-turnover

elections are associated with significant shifts in party divisions in the House. But this

seemingly intuitive response requires a prejudicial assumption that high-turnover

elections are referenda on individual parties and not the chamber as a whole. If voters

were expressing dissatisfaction with the entire House of Representatives, it would be

expected that some of the high-turnover elections would feature minimal disruptions to

the party divisions as the primary goal would be to vote in new representatives. Because these instances of massive change are always associated with significant shifts in party power, however, it follows that the electorate is merely trying to vote out members of the party with which they are dissatisfied.

This assertion is further bolstered by the fact that the two parties have never experienced party-specific high-turnover elections in the same year. In each of the elections when Democrats' win percentage was more than one standard deviation below their mean incumbency percentage, Republicans held on to nearly all of their seats – 97.8 percent in 1980, 100 percent in 1994, and 98.7 percent in 2010. Because Democrats held majorities going into each of these elections, their losses were significant enough to drag down the averages for the whole chamber below the established threshold. As noted in the previous section, only the Republican losses in 1974 were sufficiently large to affect the entire chamber; in their other high-turnover elections in 1982 and 2006, Democrats maintained 98.1 and 100.0 percent of their seats respectively. These numbers demonstrate that the electorate targets individual parties for overhaul rather than the chamber as a whole.

Tenure in the House

As discussed in Chapter 2 of this thesis, average tenure is a statistically significant predictor of various aggregated political behaviors in the House including political polarization and party unity. For this reason it is worth examining how high-turnover elections tend to affect average tenure in the House. It would be an obvious conclusion to draw that high-turnover elections lower the average tenure as new representatives take office, but the degree to which it changes matters. If a high-turnover election is associated

with a small change in average tenure, that is an indication that the members who lost

their seats were predominately

newer members themselves. If

there is a large change in average

tenure, however, it is likely that a

number of experienced

representatives lost their reelection

bids in addition to whichever

newer members failed to win.

Figure 12: Percent change in average tenure by election year
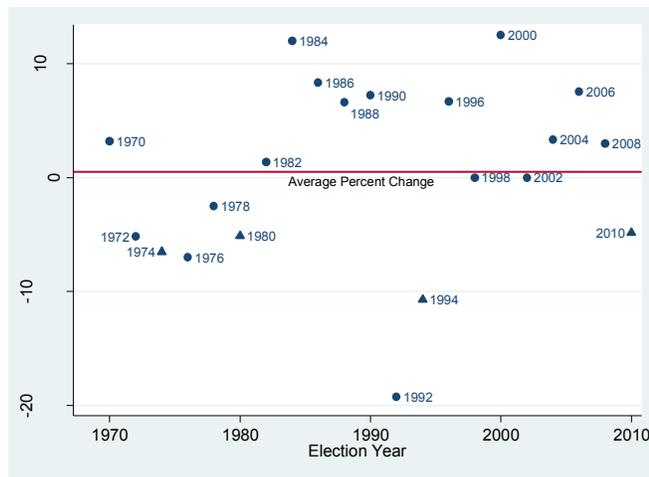
As expected, the four high-turnover elections are among the largest percentage

decreases in tenure observed in this timeframe. As viewed in Figure 12, none of them are

egregious outliers – only the 1992 election, which barely misses the cut as a high-

turnover election, falls far outside the standard deviation for the data set. This suggests

that for high-turnover elections, 1980 and 2010 in particular, the incumbent losses were

mostly among the less-tenured representatives. The historical narrative supports this

evidence; large numbers of Democrats were elected in the mid-1970s and 2006 and were

then voted out of office in the high-turnover elections that followed in 1980 and 2010

respectively.[53] Furthermore, it is makes sense that newly-elected representatives with less

established credibility and under-developed war chests might be more susceptible to

being beaten by challengers. High-turnover elections therefore have a negative

correlation with average tenure in the House, although the magnitude of that correlation

is not as high as anticipated.

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[53] Abramowitz (2010), 632.

House Behaviors after High-Turnover Elections

The central theme of this thesis is that there is a correlation between electoral results and political behavior in the House of Representatives. Analyzing how the chamber responds to extreme electoral outcomes like high-turnover elections provides crucial insight into how the House operates and how representatives respond as a whole to unusual electoral circumstances. This section expands on the work done in Chapter 2 of this thesis by applying those models of political behavior to high-turnover elections and examining how the identified elections compare to others in the timeframe of this study. This analysis includes the amount of time spent in session, legislative productivity, political polarization in the chamber, the effects on campaign expenditures in subsequent elections, and how congressional behavior is reflected in approval polls after high-turnover elections.[54]

Hours in Session

Counter to the popular narrative that the House spends less and less time working every year and more time focusing on reelection, the number of hours spent in session generally increased between 1968 and 2010. Chapter 2 of this thesis does not develop a model to specifically describe hours in session, but this variable is shown to have statistically significant correlations with polarization and party unity and is relevant to the public's perception of the House and its work ethic.

As seen in Figure 13, the number of hours spent in session follows a vaguely sinusoidal pattern that averages into an upward trend illustrated by the line of best fit. The 1974 high-turnover election fits the sinusoidal pattern and is close to the line of best fit,

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[54] Attempts were made to model party unity as well using high-turnover election as a binary dependent variable, but all attempted models failed the F-test for statistical significance.

and as such does not provide any indication that the nature of the election significantly

impacted the hours in session. The other three high-turnover elections, however, are

marked departures from the established trends. The House elected in 1980 spent more

than 400 fewer hours in session than that elected in 1978, a figure more comparable to

the House elected a decade before than its immediate contemporaries.

Figure 13: Hours in session by election year

The 1994 election caused a similar aberration in the number of hours spent in session, this time in the opposite direction. With Speaker of the House Newt Gingrich pushing to pass as many bills from the
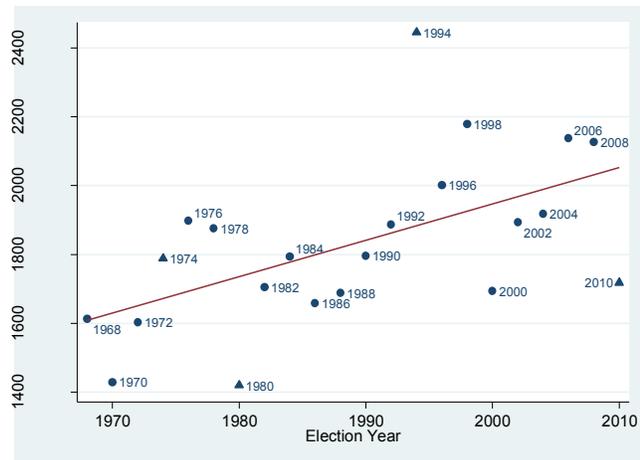
Republican's Contract with America as possible[55], the House was in session for more

than 2400 hours – a clear outlier and by far the most hours in this time frame. The

similarly tumultuous Republican takeover in 2010 had the opposite effect with the House

in session for more than 300 fewer hours than its predecessor elected in 2008. This may

have been a result of the Republicans' adversarial relationship with the Democrat-

controlled Senate and President Obama, and it is not likely a coincidence that this session

featured a 36 percent decrease in legislative productivity, reaching the lowest level since

the House elected in 1976.

Legislative Productivity

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[55] Jason M. Roberts and Steven S. Smith, Procedural Contexts, Party Strategy, and Conditional Party
Voting in the U.S. House of Representatives, 1971-2000. American Journal of Political Science, Vol. 47,
No. 2 (Apr., 2003), pp. 305-317.

One measure of the effectiveness of a session of Congress is its legislative productivity. As discussed in previous chapters, this thesis defines legislative productivity in the House as the percentage of bills passed out of those that reach the floor for a vote. In this section, legislative productivity is analyzed through the lens of high-turnover elections by modifying the productivity model presented in Chapter 2 to replace chamber incumbent vote percentage with a binary variable indicating whether or not the elections meets the criteria for a high-turnover election.

In a simple regression to determine the correlation between high-turnover elections and productivity, the coefficient on high-turnover election is not statistically significant at any level greater than 10 percent, but it does indicate a negative correlation. This result is further supported when high-turnover election is plugged into the more complex model for productivity that also accounts for party division, hours in session, average tenure, and the level of polarization. The coefficient on high-turnover election in this model is strongly significant and associated with an expected decrease of nearly four percentage points in legislative productivity. This is in line with the model results in Chapter 2 which show

Table 14: Effects of high-turnover election and other control variables on productivity

	Model A	Model B
High-Turnover Election	-2.942	-3.804***
	(1.753)	(1.307)
Party Division	--	0.182
		(0.143)
House in Session	--	0.002
		(0.003)
Average Tenure	--	-1.273
		(0.735)
Polarization	--	28.262**
		(10.333)
Constant	11.967***	-10.209
	(0.941)	(12.420)
n	22	22
R^2	0.088	0.510
Adjusted R^2	0.043	0.357
Prob F > 0	0.109	0.001

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

that better incumbent performance in the House is a statistically significant predictor of increased productivity.

As for the specific high-turnover elections discussed here, three of the four fall below the average legislative productivity between 1968 and 2010; only the House elected in 1994 was more productive than average. The 1974 elections produced the least productive House in this timeframe, but its percentage of bills passed was not a significant outlier when compared to its surrounding elections and was actually an improvement over the productivity of the 1972 session. When measured as a percentage change from the prior session, neither 1974 nor 1980 produced significant changes in productivity. The election of 2010, on the other hand, produced a House that was nearly 40 percent less productive than its predecessor, the largest percentage drop-off in this timeframe.

Polarization

One potential explanation for that drop-off in productivity in 2010 is the level of polarization in the House. Over the timeframe of this study, polarization steadily increased as the average common-space ideology scores for Republicans and Democrats drifted away from each other (Figure 14), culminating with the greatest ideological gap presenting itself in the House elected in 2010. While the

Figure 14: Ideology scores by election year
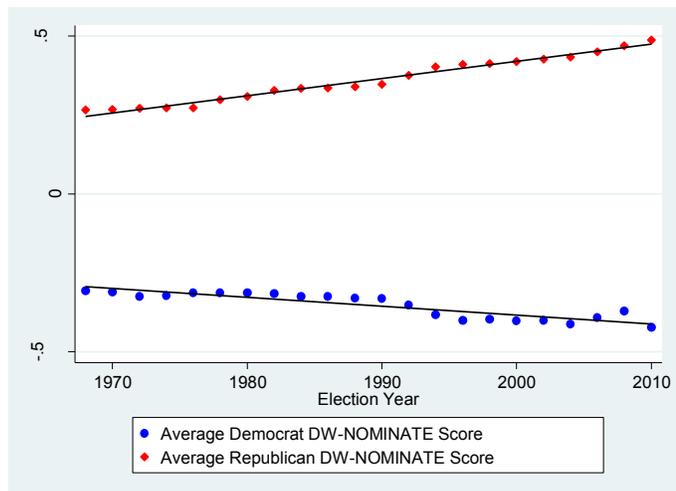
absolute value of polarization is an important tool for understanding congressional behavior, the purposes of this study are best suited by analyzing the percentage changes in polarization from one session to the next to more accurately measure how the election results directly impacted ideological polarization.

When plugging the high-turnover election variable into the dynamic polarization models developed in Chapter 2, it becomes clear that it is not a statistically significant predictor of high-magnitude changes in polarization as it fails to reject the null hypothesis at the desired significance levels in both models. The sign on the coefficient is positive in both models, however, indicating a positive correlation between high-turnover elections and increased polarization. The coefficient likely fails to be statistically significant because there are only four instances of high-turnover elections in what is already a limited dataset, and two of those elections fall

Table 15: Effects of high-turnover election and other control variables on Δpolarization

	Model A	Model B
High-Turnover Election	2.769	0.257
	(2.047)	(1.401)
ΔParty Division	--	-0.166***
		(0.026)
ΔHouse in Session	--	0.022
		(0.034)
ΔAverage Tenure	--	-0.081
		(0.093)
Constant	1.748***	2.150***
	(0.521)	(0.642)
n	21	21
R^2	0.163	0.579
Adjusted R^2	0.118	0.474
Prob F > 0	0.192	0.000

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

within one standard deviation of the average percentage change in polarization. However, the elections in 1994 and 2010 were catalysts for the largest percentage increases in polarization in this study, both pushing the level of polarization in the House up by over eight percent. A high percentage of incumbents losing their seats correlated with large

increases in polarization in the two most recent high-turnover elections, while the two older examples yielded more moderate changes in polarization.

Campaign Expenditures

Also of interest is whether high-turnover elections have a statistically significant effect on campaign expenditures in the subsequent election. The hypothesis to be tested is whether incumbents are more likely to outspend their challengers by a greater margin in an attempt to prevent a repeat of the electoral carnage they just experienced. Campaign expenditures are measured in this thesis by way of expenditure ratios that compare the

Figure 15: Campaign expenditure ratios in next election by election year

amount spent by incumbents compared to that of their challengers. This section uses a modification of a political behavior model developed in Chapter 2 to assess the effect of high-turnover elections on campaign expenditure ratios in the elections that follow high-turnover election.

When controlling for other independent variables that could have effects on campaign expenditures, incumbents are more likely to outspend their challengers by a greater margin after a high-turnover election than after an election that falls within normal parameters. The coefficient on high-turnover election is weakly significant and indicates an expected unit increase of 0.418 to the expenditure ratio. As found in the

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generic model presented in Chapter 3, average tenure and productivity are also

statistically significant predictors of increased campaign expenditure ratios.

The high-turnover elections

in 1974 and 1980 corresponded with

the two smallest expenditure ratios in

this study, while 1994 and 2010 were

similarly limited in magnitude when

compared to their temporal peers.

However, as suggested by the weak

statistical correlation found above,

the elections that followed them did

not feature significant changes in

expenditure ratio as a rule; only 2010

caused a noticeably large increase in

expenditure ratio as incumbents

fought to hold their seats against

Table 16: Effects of high-turnover election and other control variables on campaign expenditures in subsequent election

	Model A	Model B
High-Turnover Election	-0.202	0.418*
	(0.309)	(0.208)
Party Division	--	-0.038
		(0.031)
Average Tenure	--	0.474***
		(0.130)
Productivity	--	0.121***
		(0.033)
Polarization	--	-2.526
		(2.379)
Approval Ratio	--	-0.020
		(0.343)
Constant	2.317	0.534
	(0.163)	(3.047)
n	20	19
R^2	0.018	0.741
Adjusted R^2	-0.037	0.612
Prob F > 0	0.521	0.005

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

challengers or retain seats newly-gained in 2010. Still, each high-turnover election was

followed by an increase in campaign expenditure ratio, even if the increase itself was not

large in magnitude.

Approval Ratio

While not the ultimate arbiter of the electorate's satisfaction with its elected

officials, approval ratings give a sufficient indication of the nation's collective attitude

toward Congress. As noted in the previous chapters, congressional approval ratings are

used as a proxy for House approval ratings due to the lack of a consistently-asked poll question for the latter over the timeframe of this study. This section utilizes the ratio of those that approve of Congress's job performance to those that disapprove as the primary metric for determining whether the electorate is content with the decisions it made in the prior election, especially in cases where the voters purged an unusually large percentage of Representatives from the House. That variable is then statistically manipulated to show the percentage change in approval ratio from the beginning of one session of Congress to its conclusion.

Exchanging the incumbent vote percentage variable for the high-turnover election binary variable in the Δapproval ratio model used in Chapter 2 creates a model that is statistically significant,

Table 17: Effects of high-turnover election and other control variables on Δapproval ratio

	Model A	Model B
High-Turnover Election	36.835	7.109
	(30.683)	(27.880)
ΔParty Division	--	-1.343
		(1.450)
ΔHours in Session	--	-0.332
		(1.021)
ΔAverage Tenure	--	-1.324
		(1.256)
ΔProductivity	--	-0.055
		(0.477)
ΔPolarization	--	2.513
		(4.578)
ΔGDP Growth	--	4.113
		(2.689)
Constant	-8.864	-30.197
	(10.550)	(25.499)
n	17	17
R^2	0.128	0.555
Adjusted R^2	0.070	0.209
Prob F > 0	0.249	0.070

Note: Robust standard errors reported in parentheses.
* $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

but in which none of the explanatory variables themselves are statistically significant. The coefficient on high-turnover election still squares with the coefficient on incumbent vote percentage in Chapter 2; an improvement in incumbent electoral performance is associated with a decrease in expected approval ratio. Expressed in terms of high-

turnover elections, congressional approval ratio generally increases after a high-turnover election, implying that the sample of the electorate that is polled is generally content with the electoral results.

An examination of the chart in Figure 16 visually demonstrates this trend. The high-turnover elections in 1980, 1994, and 2010 were all associated with positive changes in approval ratio from the beginning of the session to the end, with the House elected in 1994 more than doubling its approval ratio. It seems that the 1974 election, after which congressional approval ratings dropped by almost 50 percent, is the wrench in the works preventing the high-turnover election variable from being statistically significant, as one outlier in a data set

Figure 16: Percentage change in approval ratio by election year
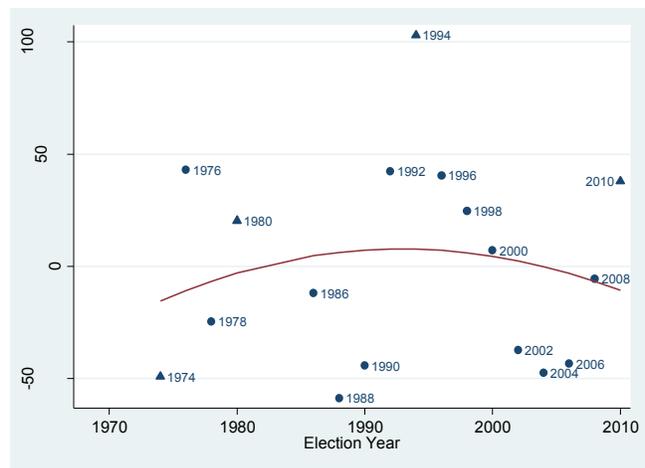
with only four observations is likely enough to skew results significantly. In the case of the 1974 election and its aftermath, there could be any number of political explanations as for why it bucked the trend of improved approval ratios, not the least of which could be the aftereffects of the Watergate scandal. Setting aside this outlier, it is evident that high-turnover elections are generally associated with improved approval ratios.

Conclusions

This chapter assesses the hypothesis that high-turnover elections are unique when compared to their ordinary election counterparts in the ways they affect the composition and political behaviors of the House of Representatives. Regression models and other

statistical analyses test this hypothesis using quantitative means rather than purely subjective examinations. The results of these analyses suggest that this hypothesis is accurate with regards to certain descriptors of the House and less accurate for others. The results of these analyses are summarized below and suggestions for further research are provided.

Key findings

Four elections between 1968 and 2010 satisfy the criteria established in this chapter for high-turnover elections: 1974, 1980, 1994, and 2010. However, each of these elections featured high turnover percentages in only one party or the other, never for both Democrats and Republicans simultaneously. This is an indication that chamber-wide high-turnover elections should generally be considered referenda on specific parties rather than the House of Representatives as a whole. Chamber-wide high-turnover elections only occur when either an extremely large percentage of a lower-represented party are voted out of office or a sufficiently large percentage of a higher-represented party lose their bids for reelection. This further manifests itself in the demographic analysis of how party divisions change from one session to the next; the four largest percentage changes in party division occurred as a result of high-turnover elections.

Another key finding is that the average tenure in the House predictably decreases after a high-turnover election, but the extent to which it is reduced is minimal. This appears to indicate that newly-elected representatives are more likely to lose their seats in high-turnover elections, although this hypothesis could be further tested with a more exhaustive look at which specific representatives lose in these particular elections.

There is no discernible correlation between high-turnover elections and the number of hours the House spends in session; the sessions following high-turnover elections tend to be outliers, but some feature dramatic increases in time spent in session while others experience decreases. Regardless of the hours spent in session, the House tends to be less legislatively productive after high-turnover elections as the coefficient on the high-turnover elections variable in the productivity model is strongly. The same variable is not found to be a reliable predictor of political polarization, although this may be due to an insufficiently large data set – two of the high-turnover elections featured large percentage increases in polarization while the other two did not.

Finally, a weakly significant correlation exists between high-turnover elections and the campaign expenditure ratios in the elections that follow them, but this weak significance may also be explained away by the limited data set. And while there appears to be a positive correlation between high-turnover elections and congressional approval ratings, this correlation is not statistically significant. Still, it appears that the portion of the public sampled in approval polls is more likely to increase their approval of Congress after a high-turnover election than an ordinary election.

Suggestions for further research

The research in this chapter provides a sufficient jumping-off point for a study of high-turnover elections, but there are a number of ways that this analysis can be further fleshed out and improved upon. The most theoretically important of these is determining the causes and/or relevant predictors of high-turnover elections. Doing so requires a sufficiently robust logistic regression model that utilizes key independent variables to calculate the probability a high-turnover election will take place in a given election year.

Despite attempts to modify the election results models presented in Chapter 2 of this thesis, no statistically significant models were identified. This is likely due to the limited nature of the dataset; modeling four elections out of a sampling frame that contains only 22 elections is a recipe for lackluster results. As such, any further exploration of the causes of high-turnover elections requires an expansion of the dataset to include more election observations or a modified definition of what constitutes a high-turnover election.

Another area that can be improved is the analysis of party-specific election results. This chapter focuses primarily on chamber-wide metrics, but there is certainly value in looking at how parties' political behaviors are impacted when they take large electoral hits. One of the primary reasons that this aspect of analysis is left out of this chapter is the lack of available information on average tenures for each of the parties. Because many of the models use average tenure as an independent variable, it would be questionable to construct party-specific models that use a chamber-wide metric to describe a demographic feature.

Also worth exploring through further research is the inclusion of additional demographic features of the House, specifically gender breakdowns and racial or ethnic composition. With the representation of women and minority demographics in the House generally increasing over time[56], it would be interesting to see whether high-turnover elections jumpstart diversification of representation, if they have no effect, or if they actively stunt changes in demographic composition. This would add a sociological aspect to the study that is missing from this chapter.

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[56] Citation needed.

Thesis Conclusions

The analyses presented in this thesis address the relationships between electoral results and political behaviors from a variety of vantage points. The chapters exist to answer two primary questions: (1) do representatives reap the consequences of their behaviors in the House; and (2) can the electorate affect the political behavior of its representatives through electoral results? As discussed earlier in this thesis, these two questions are intricately interrelated and answering them helps to shed light on the nature of the relationships between elected officials and their constituents.

Each of the chapters in this thesis intends to address a blind spot in the literature on these relationships. Chapter 1 expands the use of political behavior variables, particularly the under-utilized ideological polarization and party unity scores, to further explain macroscopic level electoral results. Chapter 2 deploys electoral results as independent variables to increase understanding of political behaviors and more accurately model their contributing factors. Chapter 3 expands the existing literature on wave elections to include high-turnover elections; while the former focuses only on shifts in party balance, the latter allows for the possibility of the electorate executing a chamber-wide referendum on the House rather than simply punishing one party or the other. These differences justify this thesis as a unique expansion on the results found in the existing literature.

Aside from adding to the conceptual methodology of the literature, this thesis contributes a number of substantive findings that expand our understanding of the interplay between electoral results and political behaviors. Chapter 1 addresses the first question detailed above by measuring the effects that political behaviors and other

political environment variables have on electoral results as measured by incumbent vote percentage and win percentage. One observation from this study is that legislative productivity is a statistically significant and positive predictor of electoral success both in chamber-wide elections and when isolating each of the major parties. Despite the popular cynicism surrounding the relationship between elected officials and their constituents, this is a positive indicator that the electorate will reward incumbents who demonstrate the ability to be legislatively productive. Another result is that the presence of a Democratic president harms the electoral performance of Democrats in the House. This supports the contention that House elections – particularly midterm elections – serve as referenda on the president. This effect is likely observed most strongly with Democrats due to their increased sample representation over the timeframe of this study. And while the models in this chapter do not find polarization or party unity to be significant predictors of electoral results, there is evidence that they are useful as control variables.

Chapter 2 addresses the second question by examining how electoral results impact the way representatives behave in the House, and the models used in this chapter produce a number of interesting results. The first finding of note is that electoral success is a statistically significant predictor of legislative productivity. When incumbents do well in elections, they pass bills more efficiently when they return to session. However, this is an odd result when compared to the reverse finding in Chapter 1; at first glance, it appears there may be a causality problem in this analysis. This concern is ameliorated when considering the question of agency in the two hypotheses proposed above. Chapter 1 is about how the electorate reacts to House politics, while Chapter 2 is focused on how the House reacts to the will of the electorate. Because there are two different actors, it is

not necessarily problematic that the direction of causality is cloudy. Still, it is a question that requires further analysis in a paper with a broader scope.

Other meaningful conclusions drawn from Chapter 2 center on the use of dynamic models to describe the changes in ideological polarization and approval ratings that are catalyzed by elections in the timeframe of the study. This correlation between electoral results and changes in ideological polarization is significant because it demonstrates that, while polarization is increasing fairly steadily over time, it is not simply a collinear occurrence with elections. Instead, the results of the elections do impact polarization in a statistically significant way. The same can be said for approval ratings – while they trend downward over time, the magnitude of those shifts are significantly correlated with electoral results. Because poor incumbent performance is linked to slower decreases in approval ratings, it appears that the electorate is frequently more content when they vote representatives out of office than they would have been otherwise.

Chapter 3 examines the relationships developed in Chapters 1 and 2 through the lens of high-turnover elections, special cases in which incumbent candidates seeking reelection lose their bids at an unusually high rate. The chapter formulates a methodology for determine which elections should classify as high-turnover elections and examines how the chamber behaves in their wake when compared to ordinary elections. The most important finding in this chapter is that high-turnover elections are predominately referenda on individual parties and not the behavior of the entire chamber. This is a somewhat disappointing result considering the point of the chapter is to provide differentiation from party-shifting wave elections, but the methodology developed is still sound and worth revisiting after future high-turnover elections.

Contained within each chapter are specific instructions on how to improve and expand upon the methods of analysis utilized within. In general terms, further suggestions beyond those already provided would focus on reevaluating and determining which metrics best represent certain conceptual frameworks – e.g. whether GDP growth is the best metric for economic status, if bills ratio is the best measure for legislative productivity, or most notable whether expenditure ratio is significantly robust to describe campaign spending – and if more sophisticated statistical and mathematical techniques can be implemented to improve the quality of analysis. One example of the latter could be the introduction of more dynamic models and dynamic variables beyond the few that are used in this thesis as well as deploying differential equations to better model the complicated dynamic relationships between electoral results and political behaviors. The materials provided in this thesis, however, should serve as a sufficient jumping-off point for further research into this subject area.

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