

# Out of Step and Still in Congress? Electoral Consequences of Incumbent and Challenger Positioning across Time<sup>\*</sup>

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## Abstract

Recent research suggests that the penalty congressional candidates pay for ideological extremism declined abruptly in 1994, when the House majority became competitive for the first time in decades. We reexamine congressional accountability in light of this evidence, first evaluating the centrality of 1994 as a turning point and then allowing that voters may not weigh incumbents' and challengers' positions equally. Several findings emerge. Even when the penalty for extremism is constrained to be equal for challengers and incumbents, accountability does not abruptly decline in 1994 but instead decreases gradually from 1980 through recent elections. Furthermore, once incumbent and challenger ideology are examined separately, the results on incumbents do not match those for challengers. Depending on the specification and ideology measure, incumbent accountability may stay similar, decrease, or even increase over time. By comparison, the relationship between challenger ideology and vote share consistently declines across electoral cycles. These results suggest that analyses treating incumbents and challengers identically will be prone to find decreased congressional accountability, even when the evidence on incumbents does not merit such a conclusion.

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An enduring question in political science is the extent to which the ideological positions of congressional incumbents and challengers affect electoral outcomes. Among theories that predict some level of policy accountability, various hypotheses exist regarding whether and how candidates' positions matter.<sup>1</sup> Most empirical analysis has lacked measures of challengers' ideological positions and accordingly, analyzed the roll call or announced positions of incumbents (e.g. Erikson and Wright 1993; Canes-Wrone, Brady, and Cogan 2002; Nyhan et al. 2012). This body of work offers considerable evidence that incumbent accountability exists, with those who are sufficiently "out of step" for their district faring worse at the voting booth.

Recently, the development of candidate ideology estimates based on campaign contributors' behavior has revolutionized the capacity to analyze the relationship between challengers' ideological positions and electoral outcomes. The most widely used are the Bonica (2014) CFscores, which characterize candidates' as well as contributors' ideological locations. Although not the first estimate of challenger ideology, the scores are particularly attractive because they encompass the vast majority of general election challengers for over three decades. By comparison, alternative measures based on candidate surveys (Erikson and Wright 1989; Klinger, Hollingbaugh, and Ramey 2019), Twitter followers (Barberá 2015), or expert surveys (e.g., Joesten and Stone 2014) are much more limited in scope in terms of the sets of candidates and/or elections.

Leveraging the benefits of the CFscores, multiple notable studies examine whether candidate accountability has changed over time and find that it has dramatically declined and/or no longer exists in a significant way. For instance, Bonica and Cox (2018) analyze congres-

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<sup>1</sup>The literature on elections uses the term candidate accountability to refer not only to incumbent positions but also challenger positions (e.g., Bonica and Cox 2018). We recognize that challenger positions may be cheap talk, particularly if a challenger lacks experience in any political office. Still, we follow in the tradition of using the term accountability to refer to both types of candidates.

sional races between 1980 and 2012 to compare how well electoral outcomes are explained by a candidate-centered Downsian model versus a party-centered one. Consistent with the original Downs (1957) theory, incumbents and challengers are weighted equally.<sup>2</sup> A major focus is whether voters became more party-centered after 1994, when the House majority flipped for the first time in four decades and both parties began regularly competing for control of Congress. Bonica and Cox (2018, 207) provide evidence that at this juncture, “the electoral penalty members paid for being out of step with their constituents” abruptly and substantially declined. In a complementary and independently developed analysis, Utych (2020) groups together the CFscores of incumbents and challengers to examine whether candidate accountability has decreased since 1980. Utych also suggests it has and furthermore, concludes candidates no longer face any penalty for ideological extremism. Yet unlike Bonica and Cox, who compare the possibility of a gradual decline to an abrupt one in 1994, Utych only considers the possibility of the former. This difference notwithstanding, each study complements a growing body of work that finds elections are increasingly determined by national party politics, as opposed to the actions of individual candidates (Levendusky 2009; Jacobson 2015; Hopkins 2018).

The following paper reexamines congressional electoral accountability in light of this recent evidence. We begin by assessing the importance of 1994 as a turning point, using a dataset that includes more recent elections. Following that analysis, we consider how the measurement of candidate ideal points and choice of control variables may affect the conclusions drawn. In particular, the reliance on donor-based campaign contribution scores brings up theoretical and empirical issues regarding the extent to which the scores capture candidates’ stated positions

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<sup>2</sup>Downs (1957) is at first glance a party-centered model, but because it is only for a single district, the model does not deal with the question of whether candidates can distinguish themselves from their parties in a system with multiple single-member, plurality rule districts.

and in-office behavior. Additionally, several standard control variables may be considered post-treatment to candidate ideology. Finally, we relax the underlying theoretical assumption that voters evaluate incumbents' and challengers' positions equally, building on research that argues the weight voters place on a candidate's ideology depends on the candidate's incumbency status (e.g., Woon and Pope 2008, Peskowitz 2019), and assess how this seemingly moderate change alters the results on over-time trends in accountability.

Three main findings emerge. First, candidate accountability does not abruptly shift in 1994. In a range of specifications that treat incumbent and challenger ideology equally, the relationship between candidate ideology and vote share declines gradually rather than sharply in 1994. Second, once we allow the effects of incumbent and challenger ideology to differ, the evidence no longer indicates that the effect of incumbent ideology has necessarily declined. It can be found to remain relatively constant throughout the years, decrease gradually, or even increase. At the same time, in almost all specifications the penalty for ideological extremism persists through contemporary elections. Third, across the same models and measures, the relationship between challenger ideology and vote share consistently decreases gradually over time. We discuss potential sources of this statistical trend on challengers, including the aforementioned issues with available ideology measures as well as important political developments that have taken place in recent years. Regardless of the source, these findings imply that analyses assuming challenger and incumbent ideology affect vote share equally will be disposed to find declining and low candidate accountability, even when the evidence on incumbents does not support such conclusions.

## Evidence on Congressional Accountability

A variety of scholarship questions whether the effect of congressional candidates' positions on electoral outcomes has decreased or even disappeared. In addition to the previously discussed studies that examine campaign contribution-based ideology measures (Bonica and Cox 2018; Utych 2020), Highton (2018) provides survey evidence that candidate accountability is low. With data from the 2010 Congressional Cooperative Election Survey (CCES), he analyzes respondents' preferences on multiple high salience issues to assess whether voters hold incumbents accountable for their positions. The results indicate that only for the Affordable Care Act did a member's roll call vote affect their electoral performance. At the same time, respondents' partisan leanings are a significant factor in vote choice, supporting a party-centered perspective of congressional accountability. These findings provide further support for research that argues elections have become increasingly determined by national party politics (Levendusky 2009; Jacobson 2015; Hopkins 2018).

Tausanovitch and Warshaw (2017) raise further doubts about the continued strength of candidate-centered accountability by analyzing how a range of candidate ideology measures are associated with electoral outcomes. The estimated effects from measures based on Twitter followers (Barberá 2015), expert assessments (Joesten and Stone 2014), and public perceptions (Ramey 2016) are weak and/or inconsistent across the parties. As the authors acknowledge, however, the number of observations from these sources is small, in each case involving only the 2010 or 2012 election. Thus it is unclear whether the lack of significance is due to the sample size, features of the measure, or an actual decline in the relationship between candidates' ideology and electoral performance. Compounding this uncertainty, evidence of ideological accountability emerges with other measures that entail a larger sample size, including with

ones based on candidate surveys and the CFscores. Yet because this latter set of analyses groups together earlier and more recent elections, the findings leave open the possibility that candidates' positions are no longer associated with electoral outcomes.

The Bonica and Cox (2018) conclusion regarding a sharp post-1994 decline and the related Utych (2020) conclusion on the demise of candidates' ideological accountability are thus consistent with other recent studies. By contrast, some scholarship indicates that candidate-centered accountability remains robust. Several articles use mass survey data to show that respondents' perceptions of candidate positions are associated with vote choice (e.g., Ansolabehere and Jones 2010; Hollibaugh, Rothenberg, and Rulison 2013). However, these results are susceptible to the critique that an individual's perceptions of a candidate's positions can be influenced by favorability towards them on other dimensions (e.g., Achen and Bartels 2017). Other research makes use of the Project Vote Smart National Political Awareness Test (NPAT) candidate surveys (also known as the Political Courage Test), and finds these survey positions are associated with the electoral performance of both incumbents and challengers (e.g., Shor and Rogowski 2018). Yet unfortunately, the response rate for the NPAT has plummeted over time. Only 35 percent of House members serving between 1996 and 2014 answered any question in even one iteration of the survey (e.g., Klingler, Hollibaugh, and Ramey 2019), and non-response should be negatively associated with a candidate's representativeness of district preferences.<sup>3</sup>

Related research finds evidence of candidates' ideological accountability with non-survey based measures. For instance, in a series of book chapters, Erikson and Wright (e.g., 2013; 2017) show that stronger electoral performance is associated with ideological moderation in

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<sup>3</sup>Tausanovitch and Warshaw (2018) also make use of NPAT scores. This analysis finds that a one standard deviation in candidate positions lowers a candidate's vote share by 1-2 percentage points. The authors interpret the finding as modest support for a candidate-centered Downsian model and comparably strong support for a party-centered model given that party affiliation has a larger impact.

roll call positions as measured by DW-NOMINATE scores (McCarty, Poole and Rosenthal 1997). Canes-Wrone, Brady, and Cogan (2002) provide similar evidence with Americans for Democratic Action scores. These studies lack data with which to analyze challengers' positions, however.<sup>4</sup>

Finally, the argument that some form of candidate accountability remains prominent receives corroboration from a couple of papers that use campaign contribution-based estimates of candidates' positions. Hall (2015) employs the Hall and Snyder (2013) measures to find that ideological extremists who win close primary elections are significantly less likely to win the general election than otherwise comparable moderates. Yet because few incumbents are ideological extremists who win close primaries, the analysis of incumbents is limited to less than 100 races, and it is therefore unsurprising that the estimated effect of incumbent ideology is indistinguishable from zero. Carson and Williamson (2018) measure the ideology of each candidate's district using the Bonica (2014) CFscore of the median contributor from that district, and show that proximity between this measure and the candidate's own CFscore is positively associated with electoral performance. The authors interpret these results as suggesting candidate accountability is alive and well. However, because prior scholarship reveals that donors have divergent preferences from voters (e.g., Bafumi and Herron 2010; Barber 2016), the measurement of district preferences with donor ideology may bias towards a finding of candidate accountability. Moreover, because Carson and Williamson consider elections since 1980 as a pooled group, it is unclear whether the positive relationship is driven by the earlier years.

In sum, empirical scholarship is divided in terms of whether candidate positions are a

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<sup>4</sup>Erikson and Wright (1989) use a CBS/NYT survey to measure both challengers' and incumbents' positions in the 1982 congressional elections, and find that in this year incumbent ideological extremism is significantly associated with electoral performance but challenger extremism is not.

significant factor in electoral outcomes in the post-1994 period. This divide is at least partially related to differences in the measurement of candidate ideology, groupings of elections, and statistical models. Moreover, on each side, existing work does not focus on potential differences between challengers and incumbents. The following sections revisit this debate with attention to the relationship between the theoretical assumptions and empirical models, as well as to the robustness of findings across election groupings and ideology measures.

## **Downsian Candidate Accountability Across Time**

In the original Downs (1957) model, voters are aware of and respond to a challenger’s ideological moderation versus extremism equally to that of an incumbent. Many tests of electoral accountability—whether with respect to Congress (e.g., Canes-Wrone, Brady, and Cogan 2002; Bonica and Cox 2018; Utych 2020), the president (e.g., Jessee 2009), or other institutions (Erikson, Wright, and McIver 1993; Rogers 2017)—are explicitly predicated on this classic model. Consequently, we begin by building on this line of work.

In particular, we extend the analysis of Bonica and Cox (2018) in ways that include updating the time period through 2016. Data through 2012 are from Bonica and Cox and data for the extended time frame are from Jacobson (2015), the Database on Ideology and Money in Politics (Bonica 2016), Gallup, and other sources as documented in Appendix Table A1. Bonica and Cox compare the performance of a candidate-centered Downsian model, in which vote share is predicted by the midpoint of the two candidates’ ideologies, with a party-centered Downsian model, in which vote share is predicted by the midpoint of the two national parties’ ideologies. We refer to these theories as the Candidate Midpoint and Party Midpoint models, respectively.



To test the argument that developments associated with the 1994 elections led to voters deciding on the basis of national party positions rather than those of individual candidates, Bonica and Cox employ a finite mixture model (FMM), a statistical model that estimates the probability outcomes in the data are consistent with alternative theories (for an introduction, see Imai and Tingley 2012). Briefly, FMMs assume that outcomes are distributed according to two or more mixture components, typically specified as regressions. Which component produces each observation is ex-ante unknown; the FMM estimates the probability that for any given observation, the outcome is better explained by a particular component relative to the others. A higher-level distribution estimates this probability on the basis of additional factors. The parameters of this latter distribution, commonly referred to as the concomitant model, are in this case used to test whether the predictive power of the Candidate Midpoint model has decreased relative to the Party Midpoint model.

More specifically, the unit of observation is a congressional contest in a given year, and the dependent variable is the Democratic candidate's share of the two-party vote. Formally, the FMM specifies the Democratic two-party vote share  $y_{jt}$  in district  $j$  in year  $t$  as

$$f(y_{jt}) = \alpha_{jt}\Phi(y_{jt}|\mu_1, \sigma) + (1 - \alpha_{jt})\Phi(y_{jt}|\mu_2, \sigma) \quad (1.1)$$

where

$$\mu_1 = \delta_1 \text{ Party Midpoint}_t + \beta Z_{jt} \quad (1.2)$$

$$\mu_2 = \delta_2 \text{ Candidate Midpoint}_{jt} + \beta Z_{jt} \quad (1.3)$$

$$\alpha_{jt} = \text{logit}^{-1}(\psi_0 + \psi_1 \text{ Post-1994}_t + \psi_2 \text{ Election}_t + \psi_3 \text{ Senate}_{jt}) \quad (1.4)$$

Here  $\alpha_{jt}$  can be viewed as the estimated probability that each observation is more consistent with the Party Midpoint model, and  $1 - \alpha_{jt}$  the probability that the observation is more consistent with the Candidate Midpoint model. These two mixture components are described in Equations 1.2 and 1.3. In the concomitant model described by Equation 1.4,  $\alpha_{jt}$  is modeled as a function of time, by the inclusion of both a post-1994 indicator and the linear time trend ( $Election_t$ ), as well as a function of whether the election involves the Senate or House. If 1994 reflects a decisive election after which party-centered voting becomes more dominant and candidate-centered voting less so, the coefficient  $\psi_1$  on the post-1994 indicator should be positive. Likewise, if party-centered voting gradually overtakes candidate-centered voting across the decades, the coefficient  $\psi_2$  on the election time trend should be positive.

The primary independent variables for each mixture component are the candidate and party midpoints. Candidate ideology is measured with the Bonica (2014) static CFscores, which provide one-dimensional estimates of ideology for both incumbents and challengers based on the contribution patterns of donors to the campaigns.<sup>5</sup> The CFscores are coded such that higher values are more conservative. If voters hold candidates accountable for ideologically extreme views, Democratic vote share should increase as candidates become more conservative (e.g., a Democrat will benefit from a Republican opponent’s extremism and lose votes for their own extremism). Accordingly, the estimated coefficients on the variables involving CFscores should be positive if voters do indeed penalize extreme candidates. The variable *Candidate Midpoint* is based on the midpoint of the CFscores of the Democrat and Republican general election candidates running in a given race.<sup>6</sup> Likewise, *Party Midpoint* is based on the midpoint of the

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<sup>5</sup>Bonica and Cox (2018) include only races in which each candidate receives contributions from at least 10 donors to ensure sufficient observations for estimating the ideological positions. We follow their lead and use this threshold for the main results. Later in the paper, we present results for higher thresholds as well.

<sup>6</sup>Because the analysis involves a comparison to the Party Midpoint model, Bonica and Cox (2018) exclude

national Democratic and Republican Party CFscores, where each national party's score equals the mean ideology of the party's current congressional members in a given year.

Finally, the term  $\beta Z_{jt}$  in Equations 1.2 - 1.4 represents the control variables and associated coefficients. The set of controls is based on Bonica and Cox (2018). These variables account for the ideology of the district (measured with presidential vote share), whether the seat is open or held by an incumbent, the party of the incumbent, the difference in log spending between the Democratic and Republican candidates, and challenger quality, which as standard is based on whether the challenger has held previous elected office. Following Bonica and Cox (2018), challenger quality is represented by two indicators, one for whether the Democratic challenger has held previous elected office and a second for whether the Republican challenger has done so. The sign on the effect of the former should be positive and that on the effect of the latter should be negative given that the dependent variable is the Democratic candidate's vote share.<sup>7</sup> Additionally, the controls consist of a set of national political and economic factors that are constant across races in any given election cycle. These variables include presidential approval, GDP growth, and the presence of a midterm election, all of which are interacted with the party of the incumbent president in addition to being included as main effects. Appendix Table A1 provides full details on sources and measurement for each variable, as mentioned previously, and Table S1 in the supplemental materials presents descriptive statistics.

It is worth noting that this empirical strategy follows in the tradition of work that controls for district ideology, but does not attempt to measure the cardinal distance between candidate and district ideology (e.g., Erikson and Wright 1989; Canes-Wrone, Brady, and Cogan 2002;

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all races involving third party candidates and two candidates from the same party (for example, as a result of a top two primary system), and we follow their approach.

<sup>7</sup>Because an indicator for the party of the incumbent is separately included, this specification of challenger quality still differentiates between same-party incumbents and challengers.

Nyhan et al. 2012). Therefore, the analysis does not capture proximity of a candidate to the district median (Achen 1978). A separate collection of research jointly scales candidate and district ideology with survey data that asks respondents their views of issues on which legislators have taken positions, generally for a subset of recent years for which sufficient survey data exist at the state- and/or district-level (e.g., Bafumi and Herron 2010, Tausanovitch and Warshaw 2018). This research has the advantage of analyzing proximity but has come under critique from scholarship that argues survey responses from the general public are not directly comparable to actions by legislators without careful consideration of the different informational environments these groups face (Hill and Huber 2019). We use the strategy adopted by Bonica and Cox (2018), recognizing that it does not cardinaly scale the distance between candidate and district ideology. Subsequently in the paper, we discuss results for a matching analysis that, although not a joint scaling exercise, matches on the basis of district and candidate ideology.

After conducting an exact replication of Bonica and Cox (2018), we estimate two additional finite mixture models. First, for the original time span, open seats are excluded. Second, the analysis of incumbent races is extended through 2016. The focus on incumbent races facilitates comparisons to later tests that distinguish between incumbents and challengers.

Table 1 presents the results. The top section describes the coefficient estimates for the concomitant portion of the model, Equation 1.4, while the bottom section displays the estimates for the two mixture components, Equations 1.2 and 1.3. The top portion is most relevant as it tests how the explanatory power of the competing midpoint theories has changed over time. More specifically, the estimates on the indicator *Post-1994* assess whether the performance of the Party Midpoint model relative to the Candidate Midpoint model has increased in the post-1994 period. Likewise, the coefficient on the time trend *Election* reflects whether this relative

performance has increased gradually over the years.

The columns entitled Original Data replicate Table 1 of Bonica and Cox (2018) exactly. In the concomitant portion of the table, the coefficient on the post-1994 indicator is positive and significant at conventional levels, suggesting that in a two-way comparison between the Candidate and Party Midpoint theories, the relative performance of the latter over the former improved following the 1994 election. Moreover, the coefficient on the election time trend is not at all significant and even negative, indicating that the change in this relative performance has not been gradual. In combination, these results support the argument that the fraction of party-centered voters grew suddenly following the rise of House majority competitiveness in 1994.

The bottom portion of the table reports the estimates for the mixture components, which are the Candidate Midpoint and Party Midpoint equations (Equations 1.2 and 1.3). For the first two columns, labeled Original Data, the findings again replicate Bonica and Cox (2018). Following their coding, each midpoint variable in the FMM analyses is based on a scale that is normalized by its standard deviation. Accordingly, the estimates imply that shifting the candidate or party midpoint variables one standard deviation to the right (left) increases (decreases) Democratic vote share, thereby rewarding ideological moderation and punishing extremism. As is standard in finite mixture models, the effects of the control variables are held constant across the mixture components.

The various columns labeled Incumbent Races describe the findings from the same FMM specification for the 1980-2012 period excluding open seat races, while columns labeled Incumbent Races through 2016 report results from this model extended through the 2016 elections. Notably, the findings on incumbent races through 2012 are substantively identical to those

Table 1: Sensitivity of finite mixture model results

Concomitant Models	<i>Dependent Variable: Consistency with Party Midpoint Model</i>		
	Original Data	Incumbent Races	Incumbent Races
	1980-2012	1980-2012	1980-2016
	(1)	(2)	(3)
Election	-0.003 (0.041)	0.009 (0.048)	0.228 (0.048)
Post-1994	2.243 (0.430)	2.033 (0.469)	0.434 (0.425)
Senate	-0.621 (0.356)	-1.036 (0.411)	-1.523 (0.487)
Intercept	-0.920 (0.421)	-0.741 (0.467)	-2.162 (0.575)
Observations	3,957	3,288	3,867

Mixture Components	<i>Dependent Variable: Dem. Vote Share</i>					
	Original Data		Incumbent Races		Incumbent Races	
	1980-2012		1980-2012		1980-2016	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)
Candidate Midpoint	2.827 (0.285)		2.852 (0.323)		3.183 (0.295)	
Party Midpoint		4.416 (2.157)		2.842 (2.227)		11.542 (3.742)
Dem. Incumbent	9.583 (0.330)	9.583 (0.330)	11.315 (0.363)	11.315 (0.363)	11.536 (0.348)	11.536 (0.348)
Open Seat	3.810 (0.322)	3.810 (0.322)				
Difference in Log Spending	3.173 (0.084)	3.173 (0.084)	2.766 (0.091)	2.766 (0.091)	2.145 (0.081)	2.145 (0.081)
District Ideology	10.194 (0.292)	10.194 (0.292)	9.843 (0.316)	9.843 (0.316)	43.879 (1.204)	43.879 (1.204)
Quality Challenger (Dem.)	1.143 (0.255)	1.143 (0.255)	0.845 (0.305)	0.845 (0.305)	1.067 (0.290)	1.067 (0.290)
Quality Challenger (Rep.)	-1.102 (0.257)	-1.102 (0.257)	-1.594 (0.312)	-1.594 (0.312)	-1.749 (0.302)	-1.749 (0.302)
Dem. President	1.386 (0.478)	1.386 (0.478)	0.919 (0.517)	0.919 (0.517)	0.834 (0.544)	0.834 (0.544)
GDP Growth	-0.110 (0.066)	-0.110 (0.066)	-0.138 (0.071)	-0.138 (0.071)	-0.444 (0.071)	-0.444 (0.071)
Midterm	1.978 (0.301)	1.978 (0.301)	2.087 (0.317)	2.087 (0.317)	1.074 (0.308)	1.074 (0.308)
Presidential Approval	-0.045 (0.007)	-0.045 (0.007)	-0.039 (0.008)	-0.039 (0.008)	0.017 (0.008)	0.017 (0.008)
Dem. Pres. x GDP Growth	-0.933 (0.198)	-0.933 (0.198)	-0.734 (0.212)	-0.734 (0.212)	-1.297 (0.235)	-1.297 (0.235)
Dem. Pres. x Midterm	-3.512 (0.487)	-3.512 (0.487)	-4.044 (0.518)	-4.044 (0.518)	-1.332 (0.574)	-1.332 (0.574)
Dem. Pres. x Approval	0.201 (0.017)	0.201 (0.017)	0.193 (0.018)	0.193 (0.018)	0.135 (0.018)	0.135 (0.018)
Intercept	40.752 (0.387)	40.124 (0.401)	40.039 (0.422)	39.556 (0.410)	25.216 (0.625)	24.671 (0.647)
Observations	3,957	3,957	3,288	3,288	3,867	3,867

*Note:* Standard errors displayed in parentheses below coefficients from finite mixture models.

that include open seats; in the concomitant model, the coefficient on the post-1994 indicator is positive and significant at conventional levels while that on the election time trend is not. However, when the model is run on the extended dataset with the 2014 and 2016 election cycles, a different conclusion emerges. The coefficient on the post-1994 indicator shrinks considerably and is statistically indistinguishable from zero. Moreover, the effect of the election time trend is positive and significant. In other words, the inclusion of two additional election cycles suggests that in 1994, no abrupt increase occurred in the performance of the Party Midpoint model relative to the Candidate Midpoint model. At the same time, the estimates reveal a gradual across-time shift in the explanatory power of the former over the latter.

How robust is the finding that 1994 is not a critical turning point? We address this question in several ways. First, Supplemental Table S2 assesses how sensitive the 1980-2016 FMM results are to the omission of consecutive election cycles. As can be seen in the table, the coefficient on the post-1994 indicator changes from positive to negative depending on which elections are excluded, and is in no case statistically distinguishable from zero. Moreover, the effect of the election time trend is consistently positive and significant. Thus when excluding any other two consecutive election cycles from the 1980 to 2016 data (instead of 2014 and 2016), the findings suggest a sharp break in candidate accountability did not occur in 1994.

Second, to more closely explore how and when the performance of the Candidate Midpoint perspective has evolved over this time period, we employ a Bayesian random slopes model that allows for nonlinear change. The likelihood function of the model can be written as:

$$y_{jt} = \alpha_t + \delta_{1t} \text{Candidate Midpoint}_{jt} + \delta_{2t} \text{District Ideology}_{jt} + \beta Z_{jt} + \epsilon_{jt} \quad (2)$$

As before,  $y_{jt}$  represents the Democratic candidate’s share of the two party vote in district  $j$  in election  $t$ . The model includes random effects  $\alpha_t$  for each election cycle and random slopes  $\delta_{1t}$  and  $\delta_{2t}$ , which respectively represent the coefficients on candidate midpoint and district ideology. These coefficients are allowed to vary by election cycle (as represented by the subscript  $t$ ). Once again  $Z_{jt}$  reflects the control variables, with the national electoral variables excluded due to redundancy with the election random effects  $\alpha_t$ . Observe that the random slopes model allows across-time change in the effect of district ideology rather than the parties’ midpoint to account for the nationalization of elections over time, as the party midpoint variable does not vary within a single election cycle and thus its effect cannot be estimated separately from the election year random effects. If voters are increasingly basing their decisions on party rather than individual candidates, the slope of district ideology should increase over the years.

The advantage of the random slopes specification is that it represents an intermediate case between pre-specifying the way in which the effects of candidate ideology (and district ideology) may have changed over time and estimating separate election-by-election models, which offer less statistical precision due to the smaller number of observations per cycle. To facilitate the calculation of quantities of uncertainty such as the credible intervals for the election specific slopes, we estimate the model with Bayesian Hamiltonian Monte Carlo sampling implemented with the `rstanarm` package, using the default weakly informative priors for all parameters as is typically recommended (Gelman and Hill 2007).

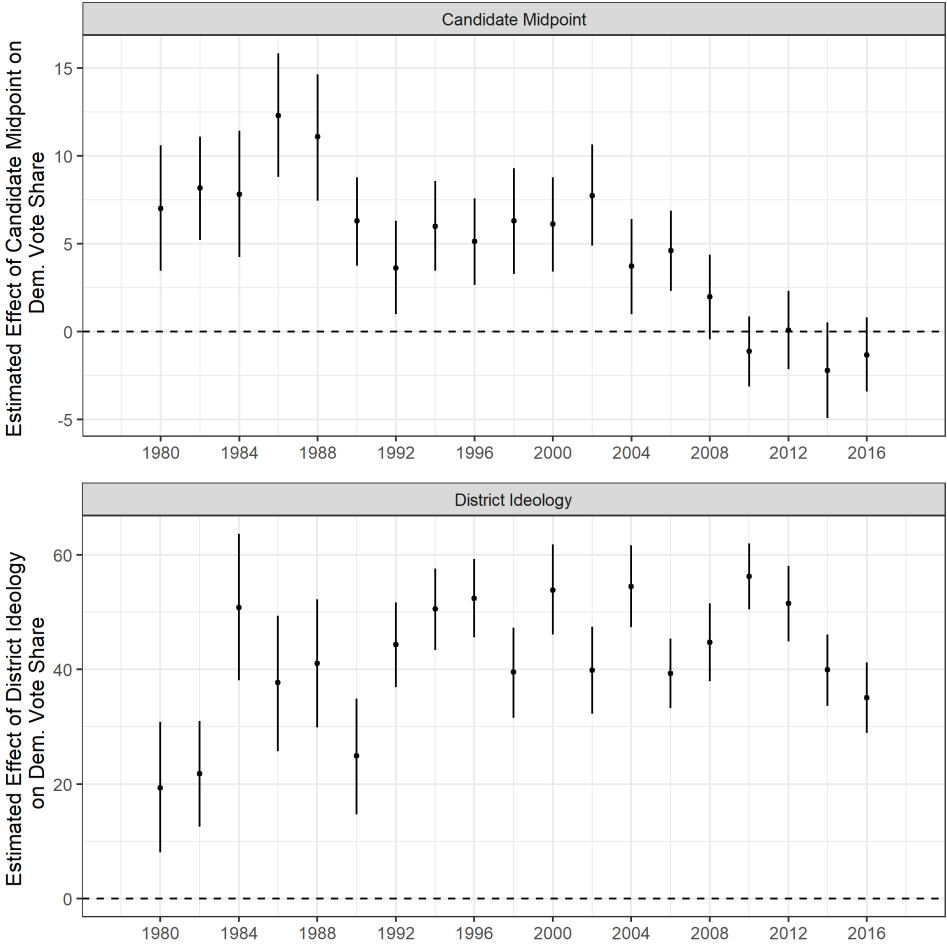
Figure 1 displays the estimated effects of *Candidate Midpoint* and *District Ideology* for each election cycle.<sup>8</sup> The top panel, which depicts the coefficient estimates for the candidate midpoint variable, provides little support for claims of an abrupt decline in candidate-centered

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<sup>8</sup>Random and fixed coefficient estimates, along with standard errors, are shown in supplemental Tables S3 and S4 respectively.



Figure 1: Estimated effect of Candidate Midpoint and District Ideology by election cycle



Note: Lines indicate 95% credible intervals calculated from 10,000 posterior samples

accountability immediately after the 1994 elections. Rather, beginning in the early 1990s and continuing through the most recent election cycles, the estimated effect of *Candidate Midpoint* decreases, to the point of being statistically indistinguishable from zero from 2010 onwards. Correspondingly, the effect of *District Ideology* does not experience a sharp break in 1994 but grows more gradually, particularly in the earlier years of these data, as the bottom panel of Figure 1 shows. Thus consistent with prior literature, we find that the association between presidential vote and congressional vote has increased over time.

Finally, to enable comparison with other accountability studies that use ordinary least squares (OLS) such as Utych (2020), as well as with analyses conducted subsequently in this paper, we present the results of OLS models where changes in candidate accountability between 1980 and 2016 are captured by an interaction between *Candidate Midpoint* and the election time trend. Although less flexible than the random slopes model, this specification has the advantage of providing a single coefficient describing the average per-cycle linear change in ideological accountability during this time period. As before, the dependent variable is the Democratic candidate's share of the two-party vote. Table 2 displays these findings. Column (1) is the most basic, including *Candidate Midpoint* as well as its interaction with the election time trend. Column (2) adds an interaction between *Candidate Midpoint* and *Post-1994*, while Column (3) includes an interaction between district ideology and the time trend. Columns (4)-(6) replace the national controls with year fixed effects and in other ways follow the specifications of Columns (1)-(3), respectively.<sup>9</sup> In each analysis, the standard errors are clustered by district.

Notably, all of these specifications produce findings consistent with those of the Bayesian random slopes model. The main effect of the candidates' midpoint is significantly positive, while

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<sup>9</sup>The same substantive findings hold with the related but slightly distinct set of controls in Utych (2020), as shown in the left-hand panel of Supplemental Figure S1.

Table 2: Across-time change in candidate midpoint effect, OLS models

	<i>Dependent Variable: Dem. Vote Share</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
Candidate Midpoint	11.454 (1.059)	11.435 (1.071)	11.548 (1.067)	11.407 (1.058)	11.480 (1.068)	11.454 (1.064)
Candidate Midpoint x Election	-0.674 (0.071)	-0.812 (0.103)	-0.689 (0.072)	-0.644 (0.073)	-0.820 (0.106)	-0.653 (0.074)
Candidate Midpoint x Post-1994		2.204 (1.395)			2.646 (1.422)	
District Ideology	41.875 (1.795)	42.099 (1.801)	32.226 (3.224)	43.905 (1.816)	44.131 (1.820)	38.112 (3.517)
District Ideology x Election			0.845 (0.236)			0.498 (0.258)
Democratic Incumbent	11.832 (0.563)	11.810 (0.562)	11.931 (0.556)	11.821 (0.557)	11.814 (0.557)	11.895 (0.557)
Election	-0.046 (0.024)	0.070 (0.046)	-0.444 (0.111)	0.043 (0.037)	2.855 (0.410)	-0.185 (0.122)
Post-1994		-1.800 (0.620)			-50.712 (7.238)	
Electoral Race Controls	✓	✓	✓	✓	✓	✓
National Controls	✓	✓	✓			
Year FEs				✓	✓	✓
Observations	3,867	3,867	3,867	3,867	3,867	3,867
Adjusted R <sup>2</sup>	0.822	0.823	0.823	0.830	0.830	0.830

*Note:* Standard errors clustered by district displayed in parentheses below coefficients from OLS. Electoral race controls include candidate spending and challenger quality variables. National controls include presidential party, presidential approval, GDP change and midterm variables.

the effect of the interaction with the time trend is significantly negative, suggesting a gradual decline in the impact of the candidate midpoint variable over time. The positive coefficient on the Post-1994 variable indicates that if any sharp break did occur, it is in the opposite direction than that suggested by Bonica and Cox (2018).<sup>10</sup> Finally, as before, the impact of district ideology increases over the time span. All of these results hold regardless of whether

<sup>10</sup>We recognize that including both the time trend and post-1994 indicator involves multicollinearity ( $\rho > 0.9$ ), and are not arguing in favor of OLS to adjudicate between these factors. However, having analyzed FMMs and random slopes models already, we include the post-1994 indicator in one of the OLS analyses to show that it does not alter the conclusions reached by Utych (2020).

the national controls or year effects are included.

To summarize, across a variety of specifications, there is scant reason to think that the onset of competition for House majority status in the mid-1990s led to a sudden change in how voters cast their ballots. As the random slopes and OLS models suggest, changes in voting both predated 1994 and continued well past it. Moreover, even with the FMM approach, additional analysis finds a gradual rather than abrupt change. Despite this lack of evidence for 1994 as a pivotal election, it does appear as if accountability is operating differently now than it did in the 1980s. In the following sections, we investigate whether this finding is specific to particular measures or methods and determine what is driving the declining relevance of the Candidate Midpoint model as an explanatory theory of congressional elections.

## **Considering Measurement and Identification Issues**

The literature identifies two additional concerns for studies of accountability that depend on the variables used thus far. One issue involves campaign contribution-based measures of candidate ideology and the second the inclusion of control variables that are arguably post-treatment. With respect to the first concern, several studies question whether campaign contribution-based measures such as CFscores proxy for the roll call-based measures that have been central to the study of congressional accountability (e.g., Erikson and Wright 1993; Nyhan et al. 2012). For example, Tausanovitch and Warshaw (2017) find that the within-party correlations are weak between CFscores and the most common vote-based ideology measure, DW-NOMINATE scores (McCarty, Poole, and Rosenthal 1997). More concerning, Barber (2021) shows that the within-party correlation between CFscores and DW-NOMINATE scores has been decreasing

since 1998, and in recent elections (2014 onwards) has dropped to zero.

These empirical findings link to the theoretical concern that contribution-based ideology scores are based on donor behavior occurring after the candidates have staked out positions on the campaign trail and in office.<sup>11</sup> Complicating matters further, campaign contributions are related not only to the ideology of a candidate but also her likelihood of electoral success. For instance, research suggests individual donors target contributions to candidates with aligned positions in addition to more competitive races (e.g., Barber, Canes-Wrone, and Thrower 2017). Furthermore, to the extent that majority competitiveness may have increased this propensity, such a trend could be responsible for any observed change in the relationship between electoral outcomes and ideological extremism as measured via CFscores. In other words, findings on developments in candidate accountability could be due to change in what a measure such as the CFscores is capturing rather than the way voters are responding to candidates' positions.<sup>12</sup>

In response to these issues, Bonica (2018) developed DW-DIME scores that use supervised machine-learning to replicate roll call ideal points from the contribution data. Unlike the unsupervised methodology employed to estimate the CFscores, which uncovers a latent dimension that may or may not be similar to the dimension identified by roll call ideal point methods, the DW-DIME methodology uses information from contribution patterns to infer the DW-NOMINATE score a candidate would have, regardless of whether they have or will ever cast a vote in Congress. Such a measure offers the primary advantage of CFscores for our purposes, in that challengers' positions can be analyzed. At the same time, the DW-DIME scores more di-

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<sup>11</sup>In this sense, one could consider the scores post-treatment to the positions.

<sup>12</sup>A related concern is that access-seeking donors strategically give to candidates unlikely to lose on both sides of the political spectrum. Such a contribution pattern could incorrectly lead to these candidates appearing moderate by Bonica's (2014) method and induce an association between moderation and electoral success where none exists. Bonica addresses this issue at least partially by excluding corporate and trade PACs from the stage where candidate ideologies are measured.

rectly reflect a roll call-based concept of ideology, which arguably represents the position-taking that should matter to voters in a world with strong democratic accountability.

To confirm that the DW-DIME measure reliably replicates DW-NOMINATE scores within our data, Figure S2 in the supporting information shows scatterplots of the two measures, along with the within-party correlation for both incumbents and challengers who have held congressional office previously or go on to do so in the future. As the figure depicts, the correlation between the measures is quite strong even within party, with correlation coefficients of 0.97 or above in all cases. The DW-DIME scores thus enable testing for over-time change with a measure that addresses major concerns of Tausanovitch and Warshaw (2018) and Barber (2021). The original Bonica and Cox (2018) analysis shows that their FMM results are robust to the use of DW-DIME scores, and we assess a range of specifications on this criterion.

In doing so, we also address the second literature critique, which regards the inclusion of post-treatment control variables. In particular, candidate spending and challenger quality can reasonably be considered post-treatment to candidate ideology. For example, quality challengers may be more likely to emerge and spend higher amounts if an incumbent is ideologically extreme for her district. Along these lines, prior scholarship observes that challenger quality (Basinger and Ensley 2007; Canes-Wrone, Minozzi, and Reveley 2011) and campaign spending (Gerber 1998) may be endogenous to other predictors of vote share and/or vote share itself. Some of this research uses instrumental variables to account for the potential endogeneity (e.g., Gerber 1998; Basinger and Ensley 2007; Canes-Wrone, Minozzi, and Reveley 2011) and other, recent work excludes the post-treatment controls (Tausanovitch and Warshaw 2018). At the same time, failing to control for candidate characteristics associated with ideology and electoral success potentially creates bias in the estimates on ideology. As Tausanovitch and Warshaw (2018,

225) note, an upward bias will occur if the omitted variables are correlated with moderation (e.g., if higher quality challengers tend to be more ideologically moderate). Consequently, we show the results with and without these post-treatment controls, including with specifications that incorporate fixed effects by district in lieu of the control for district ideology.<sup>13</sup>

Table 3 presents the findings from examining alternative candidate ideology measures and excluding the post-treatment controls. To facilitate comparisons parsimoniously, we use the OLS models from Table 2. In Columns (1)-(4), the DW-DIME scores substitute for the CFscores; because DW-DIME scores are available only through 2012, the number of observations is slightly lower than in Table 2. Column (1) includes the standard set of controls, Column (2) adds the interaction between district ideology and the election time trend, Column (3) drops the post-treatment controls and substitutes election year fixed effects for the national controls, and Column (4) builds on the specification in Column (3) by additionally substituting district fixed effects for district ideology. Finally, Columns (5) and (6) continue the analysis of the restricted controls, using the CFscores and otherwise adopting the assumptions of Columns (3) and (4), respectively.

Across all of these specifications, the major findings from Table 2 remain. The association between the midpoint of the candidates' ideal points and electoral performance is significantly positive, and this association declines gradually over time. In other words, candidate moderation is associated with higher vote share at the beginning of the time period, but this effect diminishes over the years. Also as before, the relationship between district ideology and vote

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<sup>13</sup>Later in the paper we consider that challenger ideology itself may be post-treatment to incumbent ideology. Challenger ideology cannot be excluded in tests of the Candidate Midpoint perspective, but in subsequent specifications that allow the effects of incumbent and challenger ideology to vary, we conduct analyses that exclude the challenger ideology variable.

Table 3: Comparing Candidate Midpoint results using CFscores and DW-DIME scores

	<i>Dependent Variable: Dem. Vote Share</i>					
	DW-DIME				CFscores	
	(1)	(2)	(3)	(4)	(5)	(6)
Candidate Midpoint	17.011 (2.981)	14.559 (2.862)	20.768 (3.318)	28.083 (4.871)	11.499 (1.156)	15.675 (1.643)
Candidate Midpoint x Election	-0.936 (0.248)	-0.697 (0.244)	-0.872 (0.284)	-1.967 (0.376)	-0.435 (0.078)	-0.677 (0.113)
District Ideology	41.039 (2.173)	30.278 (3.698)	55.735 (2.087)		55.824 (1.643)	
District Ideology x Election		1.043 (0.309)				
Democratic Incumbent	12.835 (0.535)	12.949 (0.532)	17.393 (0.401)	17.316 (0.567)	15.481 (0.364)	16.121 (0.515)
Election	-0.178 (0.032)	-0.685 (0.153)	-0.047 (0.057)	0.268 (0.071)	0.048 (0.040)	0.244 (0.052)
Electoral Race Controls	✓	✓				
National Controls	✓	✓				
Election Year FEs			✓	✓	✓	✓
District FEs				✓		✓
Observations	3,210	3,210	3,210	3,210	3,867	3,867
Adjusted R <sup>2</sup>	0.812	0.813	0.774	0.764	0.795	0.770

*Note:* Standard errors clustered by district displayed in parentheses below OLS coefficients.

Electoral race controls include candidate spending and challenger quality variables. National controls include presidential party, presidential approval, GDP change and midterm variables.

share increases across the decades.<sup>14</sup>

On the one hand, these empirical findings suggest that results regarding the Candidate Midpoint perspective are not particularly sensitive to alternative measures of ideology or the

<sup>14</sup>One might argue that ideally, we would examine a measure completely independent of campaign finance contributions. As discussed earlier, a practical limitation is that alternative measures involve small sets of elections and members. To push these limits, we pulled out cases in which the challenger has a DW-NOMINATE score due to serving in Congress. These elections are obviously not representative of the broader set and, even more problematic for purposes of examining over-time change, occur for fewer than 20 House or Senate races each year on average, precluding well-identified inference. Thus although analysis of these cases suggests that the substantive findings do not vary from those with the campaign contribution-based measures on the same sample, this equivalence could be due to the small annual sample or its idiosyncratic nature.



set of controls. On the other hand, the theoretical concerns are serious and extend well beyond the analysis of this perspective. More generally, the consideration of ideology measurement and identification highlights the myriad of potential inference issues that arise when studying congressional accountability. We therefore remain attentive to these issues in the subsequent section when examining incumbents and challengers separately.

## **Differential Accountability**

The theories of accountability analyzed thus far, the Candidate Midpoint and Party Midpoint models, are based on the median voter theorem in which voters weigh the ideological positions of electoral competitors equally. By comparison, a different class of theories assumes general election candidates vary with respect to how the electorate evaluates their positions. For instance, Calvert and Isaac (1981) differentiate candidates by whether they affiliate with the president's party; members of the in-party cannot fully distinguish their policy positions from those of the president, while out-party candidates are not similarly constrained. Alternatively, in Snyder and Ting (2003) and Woon and Pope (2008), incumbent candidates can separate themselves from their parties' positions but challengers cannot.

More broadly, the rationale for distinguishing between incumbents and challengers is related to several literature strands. A key component of Mayhew's (1974) electoral connection is that a candidate's roll calls function as a record of their positions. Arnold (1990), building on Mayhew, observes that voters know more about the policy positions of incumbents than challengers because the latter lack a similar record of official positions. Separately, research on party labels as an informational signal or brand suggests potential differences between incumbents

and challengers (e.g., Kiewiet and McCubbins 1991; Cox and McCubbins 1993; Aldrich 1995). In this work, voters do not have time to seek information about all aspects of a candidate, and parties serve as a short-cut or cue (e.g., Brady and Sniderman 1985; Popkin 1995). Because candidate-specific information is more readily available about incumbents, the party label is a more important ideological cue for challengers (e.g., Woon and Pope 2008).

To further justify employing models that estimate separate effects for incumbents and challengers, in the supplemental materials we analyze survey data from the Cooperative Congressional Election Study (CCES) to assess whether voters' perceptions of candidate ideology (as measured with a seven-point scale) differ by candidate type. Using similar CCES data, Peskowitz (2019) shows survey respondents are less likely to attempt to answer such questions for an in-district challenger than incumbent, and that the responses for challengers have greater variance. We build on this evidence by comparing the candidate ideology estimates offered by respondents with the candidates' actual CFscores. In keeping with other analyses in the paper, candidates with fewer than ten donors are omitted. As Table S5 shows, the relationship between perceived and actual ideology is significantly higher for incumbents than challengers. At this threshold of donors, the relationship between estimated ideology and CFscores is reduced by at least half for either Democrat or Republican challengers.<sup>15</sup>

Given the expectations of the theoretical literature and this evidence, we assess whether allowing for variation between the effects of incumbent and challenger ideology alters conclusions regarding congressional accountability, especially with respect to how it has evolved over time. For purposes of comparability to the Candidate Midpoint and Party Midpoint models, we refer

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<sup>15</sup>Additionally, in order to reduce concerns about the measurement error of the CFscores, we also present results with a minimum threshold of 50 donors. The magnitude of the difference is lower with the higher threshold of donors but remains statistically significant and substantively meaningful.

to this alternative perspective as the Differential Accountability model, recognizing that it encompasses various schools of thought that assume different levels of variation between the types of candidates. For example, Snyder and Ting (2003) and Woon and Pope (2008) consider an extreme version where the electorate assumes challengers are at their party’s median but take into account the individual ideological locations of incumbents. Arnold (1990) and Peskowitz (2019), like our analysis, allow incumbent and challenger ideology to have separate, nonzero impacts on vote share.

We begin with the OLS models of the previous section. These specifications are similar to those in Table 3 but allow for separate effects of challenger and incumbent ideology. Each ideology term is included as a main effect and interacted with the electoral cycle time trend. As before, a negative coefficient on the interaction reflects a declining relationship between ideological positions and electoral performance over time.

Table 4 presents the results. Columns (1)-(4) analyze the CFscores, and Columns (5)-(8) the DW-DIME scores. With each measure, the first model includes the standard controls, the second adds the interaction between district ideology and electoral cycle, the third excludes the post-treatment controls, and the fourth includes district fixed effects in lieu of district ideology. Notably, these various choices regarding ideology measure and controls produce substantively different findings on over-time change in incumbent ideology.<sup>16</sup> In Columns (1), (3), (4), (7), and (8), none of which include the district ideology interaction, the effect of incumbent ideology decreases significantly across the years. However, in Column (6), which includes the DW-DIME scores and the district ideology interaction, the impact of incumbent ideology significantly

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<sup>16</sup>Table 4 shows results for the full set of data available for each measure, but these divergent results on incumbent accountability trends still hold even when the sample is restricted to only observations for which both CFscores and DW-DIME scores exist.

increases. In the other cases, Columns (2) and (5), the coefficient on the incumbent ideology interaction is not significant and even then, fluctuates in sign.

Across the range of specifications, however, all but one suggest that incumbent ideology remains a significant predictor of vote share throughout the time period. With the exception of Column (8), the effect is positive and significant through the final year of the data. Notably, this result contrasts with Utych (2020) and is a direct function of estimating separate effects for incumbents and challengers. Supplemental Figure S1 compares the findings between two models with the Utych (2020) controls and time period, one with an identical effect of incumbent and challenger ideology and one allowing for unequal effects. In the former, the effect of candidate ideology is not significantly different from zero by the 2006 elections. In the latter, the effect of incumbent ideology remains significant throughout the time series while the slope of challenger ideology closely mirrors that of the candidate midpoint variable, becoming indistinguishable from zero by 2006.

Consistent with this finding in challenger ideology, in each model of Table 4 the coefficient on the interaction between challenger ideology and electoral cycle is significantly negative and the main effect of challenger ideology significantly positive. In other words, challenger ideology is an important determinant of electoral success in first year of the data, 1980, but this relationship decreases over time regardless of the ideology measure or set of controls. Also, in all but one of the analyses the effect of challenger ideology is not significantly greater than zero by 2016, the final year of the data. These findings highlight that studies such as Bonica and Cox (2018) and Utych (2020), which group together candidate types, are prone to find that the penalty for ideological extremism has dwindled and no longer exists even for incumbents.

As mentioned earlier, a potential complication with estimating the effect of incumbent and

Table 4: OLS estimates of change in candidate accountability

	<i>Dependent Variable: Dem. Vote Share</i>							
	CFscores				DW-DIME			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Incumbent Ideology	4.727 (0.774)	3.363 (0.751)	6.780 (0.856)	12.002 (1.241)	8.476 (1.910)	3.944 (1.776)	11.596 (2.158)	12.455 (3.112)
Incumbent Ideology x Election	-0.100 (0.050)	0.026 (0.049)	-0.115 (0.054)	-0.432 (0.074)	-0.182 (0.141)	0.305 (0.140)	-0.432 (0.161)	-1.088 (0.214)
Challenger Ideology	3.801 (0.673)	3.721 (0.679)	3.285 (0.730)	5.607 (0.895)	6.786 (1.683)	4.550 (1.608)	9.063 (1.846)	15.462 (2.610)
Challenger Ideology x Election	-0.240 (0.038)	-0.236 (0.038)	-0.113 (0.042)	-0.255 (0.056)	-0.534 (0.121)	-0.345 (0.117)	-0.409 (0.140)	-0.946 (0.187)
District Ideology	43.949 (1.772)	22.435 (3.251)	57.669 (1.727)		43.535 (2.215)	19.693 (3.809)	56.556 (2.292)	
District Ideology x Election		1.952 (0.243)				2.402 (0.336)		
Democratic Incumbent	15.430 (1.153)	15.514 (1.138)	20.958 (1.123)	23.022 (1.647)	16.087 (1.270)	16.526 (1.230)	19.031 (1.331)	14.186 (1.827)
Election	-0.081 (0.025)	-1.014 (0.118)	0.016 (0.042)	0.244 (0.052)	-0.184 (0.032)	-1.346 (0.169)	-0.056 (0.057)	0.268 (0.070)
Electoral Race Controls	✓	✓			✓	✓	✓	
National Controls	✓	✓			✓	✓		
Election Year FEs			✓	✓			✓	✓
District FEs								
Observations	3,867	3,867	3,867	3,867	3,210	3,210	3,210	3,210
Adjusted R <sup>2</sup>	0.827	0.831	0.799	0.774	0.815	0.820	0.774	0.765

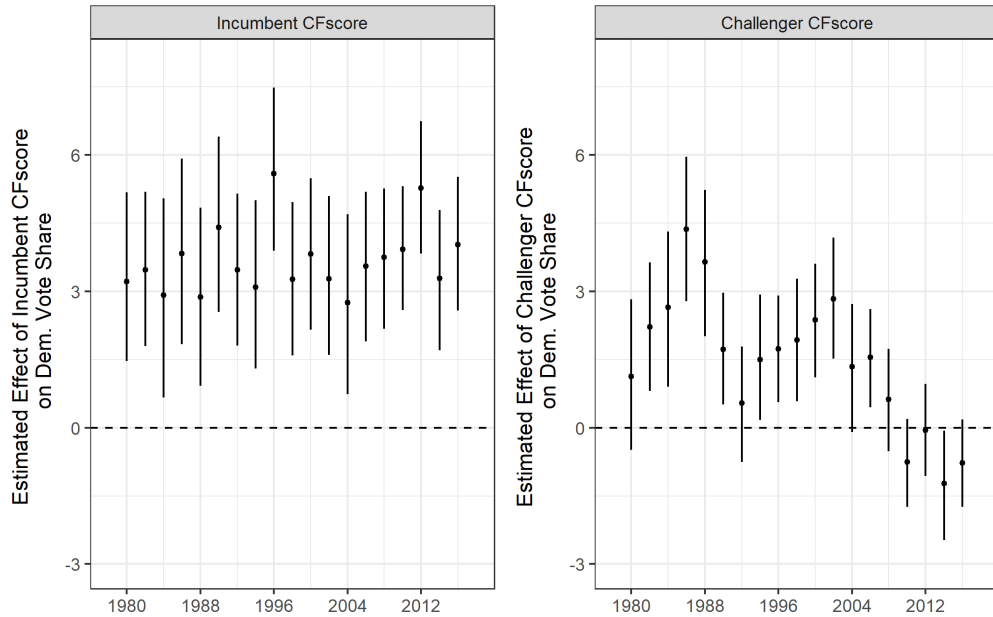
*Note:* Standard errors clustered by district shown below OLS coefficients. Electoral race controls include candidate spending and challenger quality variables. National controls include presidential party, presidential approval, GDP change and midterm variables.

challenger ideology simultaneously is that a challenger may take positions in response to those of the incumbent. In other words, challenger ideology may be considered post-treatment to incumbent ideology. Therefore, to determine whether including challenger ideology changes the substantive conclusions regarding incumbents, Table S6 in the supplemental materials shows the results from the same OLS regressions but excluding challenger ideology. For some specifications, this exclusion alters the trend on incumbent accountability. However, the overall conclusion remains similar; that is, the effect of the interaction between incumbent ideology and election cycle varies in direction across the specifications. Because the focus on incumbents permits the analysis of DW-NOMINATE scores, Table S6 also shows the results with this measure. The estimates from the DW-NOMINATE analyses are reasonably similar to those with the DW-DIME scores, varying again according to the control variables and from some findings with the CFScores. In sum, unless one is willing to make a strong case for a particular ideology measure and set of controls, the findings allow that incumbent accountability may have increased, decreased, or remained relatively constant since 1980.

A separate potential complication with the OLS analyses is that they restrict any intertemporal change in the effects of incumbent and challenger ideology to be linear. To allow for nonlinear change, we return to the Bayesian random slopes specification analyzed previously. This model is identical to that in Equation 2 except that the candidate midpoint variable is replaced by separate variables for incumbent and challenger ideology, which are each allowed to vary by election cycle. As before, the model also includes random slopes for district ideology, random effects for each election cycle, and the electoral race controls. The slopes for both incumbent and challenger ideology, along with 95% credible intervals, are presented in Figure

2.<sup>17</sup>

Figure 2: Random slopes estimates of incumbent and challenger accountability



Note: Lines indicate 95% credible intervals calculated from 10,000 posterior samples

Turning first to the estimates for challengers, it appears that the impact of ideology has been steadily decreasing from the early 2000s onward. Indeed, in six out of the past seven elections, the slope of challenger ideology is not significantly greater than zero. By contrast, the estimated effect of incumbent ideology on vote share is significant across the entire time span and remains fairly constant in magnitude going back to 1980. Comparing across the panels, one can see that while the estimated magnitudes for incumbents are generally higher than those for challengers, this difference grows in recent electoral cycles. In fact, from 2008 onward, the difference is always statistically significant.<sup>18</sup>

<sup>17</sup>Results for control variables mirror those in other analyses and are described along with the random and fixed coefficient estimates in Supplemental Tables S7 and S8.

<sup>18</sup>The supplemental materials show that these Bayesian random slopes results are robust to using DW-DIME

In sum, the random slopes estimates further suggest that incumbent and challenger ideology have different relationships with electoral performance, in support of the Differential Accountability model. According to these estimates, the relationship between challenger ideology and vote share has notably declined over the past decades, while that for incumbents has not. To further assess the performance of the Differential Accountability model, the supplemental materials contain a FMM analysis based on that of Bonica and Cox (2018), but comparing the Differential Accountability and Party Midpoint models rather than the Candidate and Party Midpoint models. These results, which are presented in Supplemental Table S9, differ starkly from those of Bonica and Cox (2018). In fact, the relative power of the Party Midpoint model decreases over time relative to the Differential Accountability model, as the coefficients on *Election* and *Post-1994* in the concomitant portion are both significantly negative. Moreover, the estimates for the mixture components suggest that the impact of candidate positions differs for incumbents versus challengers; the effect of incumbent ideology on vote share is significantly greater than that on challenger ideology.

Thus not only with OLS models, but also random slopes and FMM analyses, the results change dramatically when the effects of challenger and incumbent ideology are estimated separately. A potential concern with all of these analyses is that the incumbent and challenger ideology estimates might be incomparable in ways that produce the apparent difference in accountability. For instance, the difference could be an artifact of higher levels of measurement error in the estimates of challenger ideology. Of course, this critique, if valid, could also be

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scores. In Supplemental Figure S3, the relationship between the challenger's DW-DIME score and vote share gradually declines across the decades, and the analogous effect for incumbents remains relatively steady. In addition, Supplemental Figure S4 shows the random slopes analysis with challenger ideology excluded, first with CFscores and then with DW-NOMINATE scores. These results further suggest incumbent accountability has not weakened over time.



responsible for the declining performance of the Candidate Midpoint model analyzed earlier. In the supplemental materials, we investigate this issue by increasing the required minimum number of donors for a candidate/race to be included in the sample. As Figure S5 shows, although the estimated effect of challenger ideology weakly increases initially as the minimum number rises, continued escalation of the threshold has no additional effect. Moreover, in all cases the difference between incumbents and challengers remains substantively large and statistically significant. Full details are given in the supplemental materials. A separate objection in this vein is that the estimated difference between incumbents and challengers could be due to dissimilar distributions of ideology, for instance because challenger ideology varies more than incumbent ideology. To address this issue, we employ a matching procedure (Coarsened Exact Matching, as introduced in Iacus, King, and Porro 2012) to match on the ideology of the Democratic and Republican candidates, as well as on district ideology, enabling inferences to be drawn from observations where the only difference between candidates is whether the incumbent is a Democrat or Republican. As demonstrated in Table S10 in the supplemental materials, the results from this analysis are substantively similar to those in Table 4 in that the sign and significance of the trend in the effect of incumbent ideology varies by specification, while the effect of challenger ideology consistently decreases over time.

Even though these efforts help rule out first-order measurement issues, we acknowledge that existing data prohibit entirely eliminating measurement as a potential explanation for the observed decline in challenger accountability. Conceivably, the trend results from donor behavior that has shifted over the years in ways that affect challengers and incumbents differently. The DW-DIME scores resolve some critiques of the CFscores, but ultimately even the former partially rely on donor behavior. Ideally, we would be able to analyze the data with measures

entirely independent of campaign contribution decisions; such analysis is precluded by the lack of alternative measures that encompass systematic sets of general election challengers across multiple decades. Notably, however, even if the findings related to differential accountability are due to measurement issues, they still imply that treating incumbents and challengers identically can produce misleading conclusions regarding incumbent accountability.

Alternatively, the findings on differential accountability may relate to important political developments. Prior scholarship demonstrates that local news is a critical source of information about congressional candidate positions (e.g., Arnold 2006; Snyder and Strömberg 2010). During the time period of these data, the rise of the internet has resulted in a substantial reduction in local news circulation, outlets, and staffing (e.g., Barthel 2016; Napoli et al. 2017; Peterson 2017). Because challengers are less likely to have a legislative record or be covered by national media sources, cutbacks in local news may have had particularly detrimental effects on challengers' ability to differentiate themselves from their party. Future research could assess whether this relationship holds systematically.

Another potentially connected development is the decline in competitive districts and, relatedly, cross-pressured districts in which party and constituent ideology are not well-aligned (e.g., Oppenheimer 2005, Han and Brady 2007). Due to a combination of ideological sorting (Bishop and Cushing 2009; Johnston, Jones, and Manley 2016), gerrymandering (Engstrom 2013), and other societal changes, there are now fewer congressional districts where general elections are strongly contested between the two main parties and the outcome is uncertain. Yet it is in such districts that opposite-party challengers with prior political experience are likely to arise (Jacobson and Kernell 1983; Jacobson 1989), and these challengers are the ones

with tangible voting records that can be distinguished from party positions.<sup>19</sup> Of course, the decline in competitive districts and downstream effects on quality challengers could be results of the decreased relationship between vote share and challenger positions rather than causes. Investigating these relationships is a task for future research.

Overall, the analysis of differential accountability highlights that findings on the relationship between candidate positions and electoral performance depend on whether the effects of candidate ideology are estimated separately for challengers and incumbents. When estimated separately, incumbent accountability can be found to increase, decrease, or remain constant over the past four decades, depending on the ideology measure and set of control variables. By comparison, the impact of challenger ideology consistently decreases across time and in almost all analyses is no longer significantly positive for recent elections. These results reveal how studies that group together incumbents and challengers are disposed to find declining and even nonexistent candidate accountability in recent years.

## Conclusion

Given the current levels of congressional polarization and majority party competitiveness, the idea that party-centered voting overwhelms candidate-centered voting seems temptingly plausible. Once the House became competitive in 1994, voters' concerns about majority control may have prevailed over any efforts by candidates to distinguish their positions from those of the parties. Yet this paper provides robust evidence against such a conclusion and in doing

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<sup>19</sup>In our data, approximately one in three incumbents running for reelection faced an experienced challenger at the beginning of the time period, while at the end, fewer than one in five did. Similarly, Thomsen (2017) finds that experienced candidates are more likely to drop out of primaries than inexperienced ones, and that rates of dropping out have increased over time.

so, produces three main findings. First, congressional elections did not shift abruptly in 1994 from being candidate-centered to party-centered. Even with the traditional Downsian model that weights challengers and incumbents equally, a range of analyses suggests that candidate accountability has decreased gradually since 1980.

Second, with models that account for the possibility that voters evaluate incumbents and challengers differently, the results no longer indicate that incumbent accountability has necessarily declined. Across various established ideology measures and specifications, the impact of incumbent ideology on vote share can be found to increase, decrease, or remain steady between 1980 and 2016. In fact, the estimated effect can change even between analyses that are identical except for the measurement of candidate ideology with CFscores versus DW-DIME scores, as well as among analyses that use the same ideology measure but differ in the set of control variables. Thus unless one is willing to make a compelling case for a particular set of measures, control variables, and statistical model, the available data does not lend itself to a strong conclusion regarding any trend in incumbent accountability. At the same time, the vast majority of specifications indicate that incumbents are still held accountable for extreme positions in recent elections.

Third, across the identical specifications and measures in which trends in incumbent accountability fluctuate, the association between challenger ideology and vote share consistently declines. Moreover, in almost all of these analyses, it is not significantly different from zero by the end of the period. An interesting question for future research is whether this decline is due to a measurement issue that weakens the estimates of campaign contribution-based challenger ideology scores progressively, such as changes in donor behavior that affect challengers and incumbents differently, or is instead the result of political developments. In either case, analyses

that group together incumbents and challengers are prone to find decreasing and insignificant congressional candidate accountability, even when the evidence for incumbents does not merit these conclusions.

Together, the results highlight the importance of connecting theories of accountability to empirical models and measures. Most obviously, the findings depend on whether one assumes voters can equally distinguish incumbents and challengers from their parties' positions. Even beyond this issue, the estimates vary according to the choice of ideology estimates that have different underlying assumptions about campaign contributor decisions, roll call voting behavior, and candidate positions. An exciting development in the field is the increasing array of candidate ideology measures, such as those based on social media activity (Barberá 2015) and district experts (Joesten and Stone 2014). Each of these measures has its own set of underlying assumptions, and future research should be attentive to how they affect the interpretation of findings in addition to the robustness of conclusions across different measures.

In an age of nationalized elections, it is intuitive to believe, as some have suggested, that the positions and actions of individual candidates no longer have an impact. Yet considerable evidence suggests incumbents' ideological accountability has not died, and even whether it has declined remains an open question. The past forty years have witnessed substantial changes in the media, political polarization, and competition at the chamber and district levels. Linking these changes to electoral consequences for incumbents and challengers remains a large and important task for future scholarship.

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