



...And keep your enemies closer: Building reputations for facing electoral challenges



Santiago Olivella ^{c,1}, Kristin Kanthak ^b, Brian F. Crisp ^{a,*}

^a Washington University in St. Louis, United States

^b University of Pittsburgh, United States

^c University of North Carolina, Chapel Hill, United States

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ABSTRACT

Rather than occupants of a position in an ideological policy space, we conceive of legislators as reputation builders – the reputation they think will best serve them in the next election. Our theory suggests that legislators will seek to undercut the efforts of the challenger they fear most – the one in the primary or the one in the general election. We test our reasoning by examining legislative cosponsorship patterns in the U.S. House of Representatives. We find evidence that legislators respond to information about their potential future electoral challenges by building reputations as loners, partisans, or dissidents. We also show that these choices have implications for an incumbent's prospects in the next election. Building the wrong reputation increases the strength of future challenges.

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Parties in Congress are at their historically most homogeneous while at the same time Congress itself remains at its least effective. Traditional models of legislative behavior are at a loss to explain this phenomenon: the majority party, tightly knit together on the ideological spectrum, ought to, *ceteris paribus*, be unstoppable. However, this is the case only if one conceives of legislators as endeavoring to be the embodiment of their districts' median voter, a conception that we argue is at best incomplete. We provide one potential explanation for how parties can be both homogeneous and ineffective: Legislators do not simply select a position on a unidimensional policy space, but rather endeavor to *build reputations that will allow them to win elections*. In many cases, this means simply winning the general election. In these cases, traditional models of legislative behavior – based in the unidimensional policy space typology – perform well. However, when we take into account that many legislators have to be as concerned with winning their primaries as they are with winning general elections, this

traditional model no longer applies. We present, then, a more general theoretical model that applies both when the general election is an incumbent's largest concern *and* when the primary is an incumbent's largest concern. By creating a model of challenger deterrence that properly accounts for both primary and general elections, our new model both offers one possible explanation for current events and provides a richer theoretical model of legislative behavior that holds more generally.

Since the seminal work of Downs (1957), the prevalent conception of legislators is as actors on a unidimensional policy space, what we call the traditional model of legislative behavior. Legislators select a position that corresponds to that of the median voter in their district and endeavor to move policy outcomes closer to that ideal point. In this traditional model, legislators who offer policy closer to the preferences of the median voter receive a majority of votes in the district, thereby extending their careers. However, beyond this, the existing literature has shown that concern about new primary candidates from one's own party can lead to ideological divergence from the median voter (Wittman, 1983; Calvert, 1985; Callander, 1950). Yet even these models conceive of legislators as attempting to win elections by staking out a position in a policy space and representing it.

We argue that legislators do not necessarily select a particular ideological position and then earn constituents' votes by supporting that position. Rather, legislators concern themselves with

* Corresponding author.

E-mail addresses: olivella@unc.edu (S. Olivella), kanthak@pitt.edu (K. Kanthak), crisp@wustl.edu (B.F. Crisp).

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actively deterring challengers, an endeavor that may, or may not, mean protecting the median voter's ideal point. Knowing that quality challengers think strategically about whether to enter a race (Maestas et al., 2006), representatives act to shore up their reputations because potential challengers may exploit any misstep. A legislator, Miller and Stokes (1963) said, “may feel his proper legislative strategy is to avoid giving opponents in his own party or outside of it material they can use against him” (p. 55). Notably, a model of legislators engaged in challenger deterrence needs not be concerned with the ignorance of voters, which has been notorious since Campbell et al. (1960). Rather, when an incumbent is effectively deterring challengers by revealing few weaknesses to exploit, in the process he or she will also be accurately representing voters. Eliminating association with any reputation for which a challenger, primary or general, may “call out” the incumbent has as a byproduct responsiveness to constituents. In this sense, challenger deterrence is a potential explanation for why even the most ignorant of voters tend generally to be fairly well represented (MacKuen et al., 1989).

Because challenges can arise from the opposition party or from within one's own party, our model takes seriously primary elections, a type of election that is both rarely studied and often too-quickly dismissed as irrelevant. However, the relatively scant work on primaries reveals substantial effects of contested primaries. The greater likelihood of “getting primaried” helps to explain why women are less likely to serve in the House than are men (Lawless and Pearson, 2008), for example. Contested primaries also pull candidates away from the district's median voter (Brady et al., 2007) and result in tighter general election outcomes generally (Hall, 2015). Primary elections may also increase the partisan behavior of legislators (though not necessarily their ideological extremity) (Pyeatt, 2012). In addition, while “getting primaried” may be no more common than it was in the past (Boatright, 2014), the prevalence of easy general elections (Silver, 2012) may be driving legislators to shift their focus to winning their relatively more-contested primaries.

Although a great many factors go into the construction of a reputation (including, especially, voting records), many of which are difficult to capture systematically in empirical terms (constituency service, for example), we measure reputation-building with an aspect of a legislator's reputation that is easily observed but little utilized – with whom bills are cosponsored. Bill cosponsorship is generally viewed as a signal to elites (Kessler and Krehbiel, 1996; Wilson and Young, 1997; Rocca and Gordon, 2010), but we will show that cosponsorship patterns *do* matter in electoral politics. Because we connect elite communication with electoral outcomes via cosponsorship, we provide tangible evidence of Mayhew's electoral connection (Mayhew, 2004) actually affecting policy outcomes.

Legislators, we argue, make cosponsorship decisions based on electoral considerations and indeed, legislators consider the roster of potential cosponsors when authoring bills. Initial sponsors of a bill may go out of their way to avoid cosponsors. Using Pete V. Dominici's waterway users' fee bill as an example, Davidson et al. (2016, pp. 249–250) point out that Members may prefer to be Loners when they wish to keep credit for the legislation for themselves, when they do not wish to get approval from their cosponsors for any changes to the substance of the proposal, and when they do not need the support of others to schedule hearings. If Members decide *not* to go it alone, by associating themselves with the reputation of their copartisans,

with the reputation of the opposition party, or with a reputation that is some mix of the two, incumbents shore up their reputations by signaling potential challengers, at the same time addressing the concerns of constituents before they can be used against them. In other words, a reputation built through cosponsorship patterns provides information to voters much like coalition formation does (Adams et al., 2015; Fortunato and Adams, 2015). Being identified with a certain set of allies has effects on one's reputation, positive or negative.

We consider how the point in the reelection process at which legislators expect to be most vulnerable affects decisions about with whom they wish to share a reputation. We reason that if an incumbent is able to build a reputation shared with the likely source of her strongest contender, that challenger's ability to distinguish herself from the incumbent is diminished. Using the results of their last primary and general election as predictors of future vulnerabilities, we show that legislators build reputations that make it difficult for their toughest challengers to portray them as distant, extreme, uncompromising, or uncooperative. What is more, we show that in many circumstances those legislators who build reputations tailored to address their previous electoral vulnerabilities face easier future reelection bids than those who are not as tailored in the building of their reputations.

In what follows, we present in greater detail a theory that uses reputations about with whom a legislator cooperates as strategies for responding to electoral challenges. Then we develop an indicator for capturing reputation building in the form of a cosponsorship portfolio. The theory is followed by an empirical test of its implications, showing that expectations about future electoral outcomes systematically drive cosponsorship decisions. Furthermore, we provide evidence that those choices affect future electoral fates. We conclude by discussing the implications of our work and by suggesting avenues for future research.

1. A theory of reputation building to undercut electoral challenges

Quality challengers consider previous vote margins when deciding whether or not to enter a race (Jacobson and Kernell, 1983), and so smart incumbents are wise to watch those same numbers. Thus, toughness of the most recent challenge – captured as the inverse of the previous margin of victory – is a good measure of the vulnerability of the incumbent for facing a challenger in the next election. Our model begins, then, with the assumption that incumbents seek to minimize their vulnerability to electoral challenge by building a reputation that will make them seem the least vulnerable to potential challengers. In this sense, we think of legislators not as maximizing votes, but minimizing the *need* for votes by killing off a serious challenge before it even begins.

We know that legislators amass warchests (Box-Steffensmeier, 1996), engage in constituent service (Jacobson and Kernell, 1983), use press releases (Grimmer, 2013), and subsume challenger's issues (Sulkin, 2005) in an effort to sculpt a reputation that will scare off upstart challengers. But these reputations are costly to construct and if improperly crafted, may create more problems than they solve. By our definition, legislators can build reputations as “loners” – those who tend to work by themselves, “partisans” – those who tend to work with Members of their own party, and “dissidents” – those who work with Members of the opposition party. Legislators generally build reputations that contain remnants of each of these

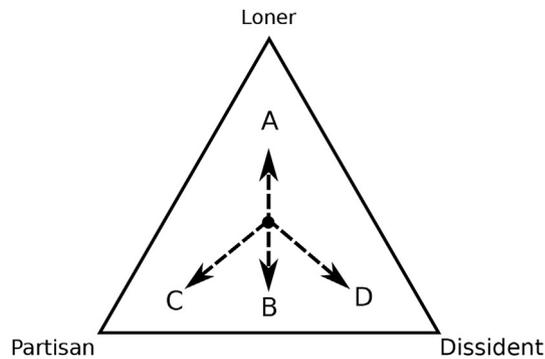


Fig. 1. The theoretical effect of changes in the probability of drawing a challenger on workload.

types of reputations, but choosing to expend effort building a reputation as, say, a partisan, erodes opportunities to build a reputation as a dissident or a loner. As we will explain below, the difficulty any Member of Congress faces is that the reputation that would prove most useful in the primary might actually be harmful in the general, and vice versa (Grimmer, 2013; Lau et al., 1999; Hall, 2015). Thus, legislators must choose their reputation-building activities with care.

To visualize the relationships in which we are interested, consider Fig. 1, which depicts the relative relationships between chances of facing a close electoral contest and the best reputation for responding to that vulnerability. The general locations of the letters 'A' through 'D' on the simplex indicate the reputations that would best respond to a particular pair of electoral conditions. The dot in the middle of the graph is roughly the position of the reputation a Member should build when he or she expects moderately challenging opponents in *both* the primary and the general. The marker is placed here because the incumbent has reason to believe that the challenge faced will be equal in the two stages – hence it is centered between the two bottom points of the simplex. Because neither challenge is likely to be extremely weak or extremely strong, the Member can afford to sponsor some bills alone, perhaps pursuing district-specific concerns in which no other Member, copartisan or opposition, would be interested.

Taking being a “Loner” to an extreme means the incumbent chooses not to share the reputation of a potential challenger in the primary or of a potential challenger in the general election. The position marked as ‘A’ indicates our expectations as both threats decrease, *but* the threat posed by the primary and the general remain balanced with one another. As the expectation of facing close primary and general races decreases, the incumbent *can* spend less time building a reputation to undercut challenges and more time pursuing other goals. Indeed, there are a number of reasons why legislators might choose to “go it alone.” For example, their leadership positions within the legislature may demand that they give the appearance of being neutral (Burden, 2007). Similarly, committee chairs often sponsor and work to push through unpopular but necessary bills alone. Loners may also have personal reasons for championing particular policies that are not shared by other Members of chamber (Burden, 2007).

Conversely, when an incumbent has experienced very close primary and general elections, working alone should be abandoned

in order to afford more time building a reputation that undercuts future challengers – thereby moving toward region ‘B’ in our simplex. By implication, this means that the only time we might expect a sitting Member to be working hard to build a reputation for bipartisanship (working roughly equally with copartisans and members of the opposition) is when she has experienced equally close and competitive primary and general elections. Working with both the opposition and copartisans may decrease the threat of drawing a (successful) challenger in either stage, but in any one stage it is not as efficient as a “pure” strategy. Therefore, the need to strike such a balance disappears as soon as one challenge is expected to be more threatening than the other.

We reason that working with copartisans (i.e. building a reputation as a “Partisan”) decreases the threat of drawing a challenger in the next primary (area ‘C’ in our simplex). Working with members of her own party establishes a reputation that a copartisan challenger cannot distance himself from without repudiating the party itself. This denies a copartisan challenger an easy opportunity to suggest to primary-election voters that the incumbent is not a party stalwart. Similarly, spending one’s finite time working with the opposition party (at the extreme, creating a reputation for being a “Dissident” – area ‘D’ in our simplex) decreases the threat of drawing a serious challenger in the following general election. An opposition-party challenger will find it difficult to portray the incumbent as too distant from the challenger’s own party. Of course, given the finite resources available to any incumbent, moving away from a reputation shared with copartisans and members of the opposition increases the vulnerability to an attack from the relatively neglected side.

Taken together, then, these theoretical effects have clear empirical implications. Our hypotheses define the locations – top to bottom, left to right, in our simplex – of the reputation we would expect incumbents to try to build. Assuming that the difficulty of the last pair of races are reasonable indicators of the likely sources of a challenge in future elections, our reasoning implies the following empirically testable hypotheses regarding the reputations incumbents should build through their cosponsorship decisions:

Hypothesis 1. As *both* races are expected to be easy, constructing a reputation as a “Loner” becomes less risky.

Hypothesis 2. As the primary race is expected to be tough, and assuming an incumbent has faced an easy general election, constructing a reputation as a “Partisan” becomes the best strategy.

Hypothesis 3. As the general race is expected to be tough, and assuming an incumbent has faced an easy primary election, constructing a reputation as a “Dissident” becomes the best strategy.

It is important to note that this theory is not about how legislators choose allies, but rather it is an implication of Harry S. Truman’s likely apocryphal (Pflaum, 2016) admonition that those seeking friendship in Washington ought to seek canine over human companionship. Because these reputations are meant to head off challenges, willingness to work together does not necessarily constitute loyalty to that group, and indeed likely means the exact opposite. A legislator’s willingness to work with a particular group is exactly equivalent in our model to feeling threatened by members of that same group. In this sense, our model provides an explanation for how we can have homogeneous parties that are also largely incapable of “responsibility” in the sense of the APSA report (Committee on Political Parties, 1950).

In order to test our theory, we need to capture legislators’ efforts

to declare themselves Loners, Partisans, and/or Dissidents. In the next section, we develop a novel means of placing Members of Congress on the reputational simplex developed above using their “cosponsorship portfolios.” Like “Dear Colleague” letters (Craig, 2015), signing on to (and off of) proposed legislation, or showing with whom, if anyone, a Member is willing to work is an ideal opportunity to construct the reputations noted above. As we show below, using bill sponsorship/cosponsorship patterns, the House is always composed of Members who vary dramatically in the extent to which they are Loners, Partisans, or Dissidents.

2. Capturing reputations built through cosponsorship

We reason that the electoral connection has an impact on reputation building, including reputation building through bill sponsorship patterns. Legislators can productively use it as part of their efforts to dissuade quality challengers from entering and to make the efforts of any challenger who does emerge to paint the incumbent as out-of-step with important constituents more difficult. Legislators consider their constituents when deciding whether or not to cosponsor (Koger, 2003), they sponsor bills on issues their previous electoral challengers championed (Sulkin, 2005), and they maintain bipartisan cosponsorship patterns even as access to the floor has been limited to only the most partisan bills (Harbridge, 2015). As we noted briefly above, bill cosponsorship is typically viewed as a means of communication among Washington elites (Kessler and Krehbiel, 1996; Wilson and Young, 1997; Rocca and Gordon, 2010). We simply extend the recipients of these signals to include potential challengers in the district.

Media coverage of legislators' actions also make cosponsorship patterns useful for electoral purposes. For example, California Republican Jeff Denham touted his ability to work across the aisle when back home in his half-Democratic district. “I’m somebody who wants to get things done, and the only way to get things done is to work across party lines,” he said in a newspaper account when describing his work with, among others, California Democrat Sam Farr. Indeed, Denham and Farr cosponsored several pieces of legislation together (Doyle, 2012). Similarly, Democratic Senator Elizabeth Warren cosponsored legislation with several Republicans to reform Fannie Mae and Freddie Mac because she was “eager to rebut charges during last year’s contentious campaign that she would not work across party lines.” During the campaign she promised to work with Republicans and once in office she made sure to build a reputation for having kept that promise (Bierman, 2013).

We are not claiming that cosponsorship patterns are the only, or even the primary, behavior that potential challengers might key in on. However, we are arguing that they are part and parcel of an overall reputation-building effort and that, if the incumbent’s cosponsorship portfolio is out of step with key voters, it can be used against him or her. Having Members’ cosponsorship records come back to haunt them need not even be common to be effective. As we have long known, incumbents who are by all accounts firmly entrenched in their districts often act *as if* their electoral demise were imminent (Fenno, 1978). The mere threat of exploitation at

the hands of a quality challenger is enough to convince legislators to exercise caution when cosponsoring. When considering the introduction of a bill, a Member of Congress has to decide carefully, first and foremost, whether to work alone or as part of group.² If as part of a group, the Member must decide how to share the credit for the bill with members of his or her own party and with members of the opposition.

Given these choices (i.e. alone or with others and, if not alone, with copartisans or with members of the opposition), sponsorship/cosponsorship decisions must live on the decision space created by the three mutually exclusive alternatives of working alone, sharing credit exclusively with copartisans, and sharing credit exclusively with members of the opposition. In turn, these categories correspond to *reputations* a Member of Congress may enjoy. Members can potentially be thought of as “loners”, when they shun the cooperation of their fellow Members all of the time; as “partisans”, when they work exclusively with members of their own party; and as “dissidents”, when they work exclusively with members of the opposition. In reality, of course, reputations are almost always a mixture of these “pure” types.

Each Congressperson’s set of sponsored bills over the course of a Congress creates what we call a cosponsorship *portfolio*. Some examples of cosponsorship patterns will illustrate the variety of reputations that can be constructed. Iconoclast Harley Staggers is an example of the type of legislator who did not mind being a “loner.” Staggers was known for having, for example, once filed a Federal Communications Commission complaint based on a radio station’s choice to play a John Lennon song. In fact, he worked alone over 80 percent of the time during the 93rd Congress. California Democrat Don Edwards, on the other hand, worked hard to establish a reputation as a “partisan” during the 102nd Congress. He worked alone only 4% of the time, and when he worked with others, more than 80% of his cosponsors were fellow Democrats. During the 100th Congress Rhode Island Republican Claudine Schneider also rarely worked alone – on barely 3% of the bills she sponsored. However, she sought to build a reputation as a “dissident” rather than a “partisan.” When she worked with others, more than 72% of her cosponsors were members of the opposition Democratic Party. Finally, then-sophomore Republican Bill Young built a remarkably balanced portfolio during the 93rd Congress. He worked alone on 40% of the bills he sponsored, and when he worked with others, the copartisan/opposition split was 54%/46% respectively.

We can obtain a summary measure for an individual House Member from the kind of information described above by using observed relative frequencies of work done alone, with copartisans, and with the opposition. It is easy to find the share of sponsorship work done alone (as the share of all undersigned bills in which the representative is the only signatory), and then of work done with copartisans and with opposition members *given* that a representative has chosen not to work alone (as the share of work done with either copartisans or opposition members *times* the share of work conducted with at least one more representative). By calculating these mixtures, we can create a single point that lies on the simplex defined by the three “pure” reputation categories – “Loner”, “Partisan”, and “Dissident” – we discussed earlier.³ Bill cosponsorship is dynamic, and signatories may worry that subsequent

² Although legislators cannot control if the legislation they sponsor is undersigned by other Members, they can probably predict with some accuracy who is likely to cosponsor a bill based on its content, and they can work more-or-less hard to get cosponsors of any kind, partisan or opposition. What is more, they can most certainly have their names removed from the list of cosponsors on a bill if they do not feel comfortable sharing a reputation with whomever chooses to cosponsor afterwards.

³ One might wonder whether DW-NOMINATE or IDEAL might not be more conventional means for aggregating cosponsorship choices into a single measure of a legislator’s reputation. In our [Online Appendix](#) we detail our theoretical and empirical concerns about DW-NOMINATE and IDEAL. Despite these misgivings, we then do our best to use them in a test of our theory, and find that, to the extent that they can be brought to bear on our theory, they support the findings we report below.

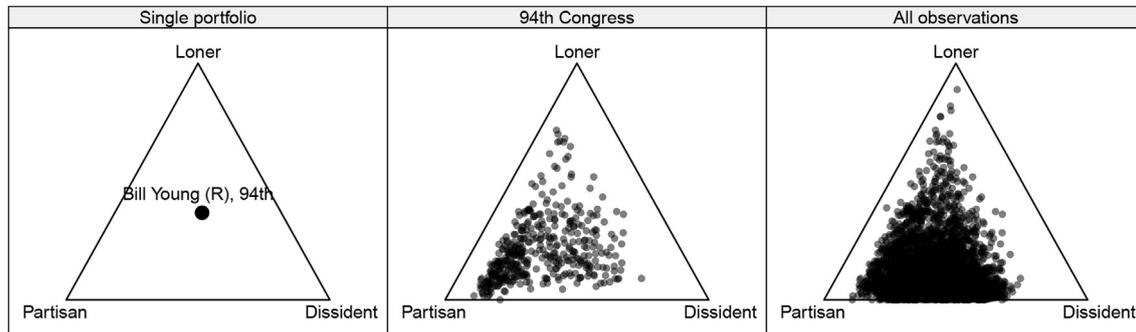


Fig. 2. Cospponsorship portfolios at the congressperson-congress level.

cospensors may “move” a particular bill on the simplex. However, legislators can consider the *content* of the bill in order to estimate who else is likely to sign on. In other words, legislators who seek “partisan” reputations choose partisan-type bills, or those which will attract largely copartisans. Of course, legislators always reserve the right to remove their name from the list of cospensors of a bill. According to data collected from congress.gov, from the 97th (data is incomplete prior to that) to the 114th Congress, on average 139 cospensors removed themselves as cospensors of 76 bills per Congress. The practice is actually quite widespread. On average 104 unique individuals per Congress went to the trouble of having their names removed as cospensors of a bill, 23 of those individuals more than once in a given Congress.⁴ Given these dynamics, we can think of legislators selecting a point on the simplex – a preferred reputation – and then choosing a set of bills to cospensor that best represents that point.

The left panel of Fig. 2 presents a ternary plot of Republican Bill Young’s cospensorship portfolio in the 94th Congress, built in the manner just described. The centrality of his overall portfolio’s position on the ternary plot indicates that, as we discussed earlier, he managed to distribute the reputation he developed roughly equally across the three possible types – loner, partisan, and dissident. The central panel in Fig. 2 presents the location of the summary measure of Young’s portfolio in the context of the whole 94th Congress by displaying the aggregated reputations of every other representative in that Congress as captured by their (co)sponsorship decisions.

We have constructed a dataset comprising a single observation per Member of Congress per Congress using the process described above, capturing a cospensorship-driven reputation for that term in office – or the period between elections (Fowler, 2006). Each such Member–Congress reputation can be visualized as a point on the 2-simplex. The right panel of Fig. 2 shows every Member–Congress portfolio in our dataset, containing 4344 observations of cospensorship-driven reputations spanning from the 93rd through the 107th Congresses.⁵

Notice that the bulk of the reputations concentrate toward the

“Partisan” edge of the ternary plot, conveying the intuitive idea that most Members of Congress in the 30 years under study have chosen to cospensor bills primarily with other members of their own party. Notice also that the number of reputation portfolios that feature a substantial “Loner” component is not inconsequential. Ignoring the possibility of sponsoring legislation alone (effectively forcing all points to fall on the base of the simplex – as roll call vote results would) would force out of existence a widely used reputation-building strategy.

In sum, we have an intuitive means of capturing reputation building through cospensorship decisions. We can create a single measure to capture the totality of a Member’s actions between elections, and this measure can distinguish among the locations of every Member based on their reputation-building strategies. Let us turn now to the empirical evaluation of our theory of reputation building.

3. Cospensorship portfolios as responses to electoral conditions

Our theory focuses on how Members of Congress use legislative work, and more specifically cospensorship choices, to build a reputation with which to respond to their likely challenges, defending themselves as they seek reelection in the future. We derived expectations about the reputation-based relationship between electoral outcomes and cospensorship decisions. We will now empirically test those hypothesized relationships with electoral and sponsorship data spanning 30 years of American legislative history – from the 93rd through the 107th Congress.

We will measure the toughness of primary and general election challenges continuously (as the inverse of the margins of victory) and then estimate their conditional impact on sponsorship portfolios with values that capture the easiest of victories and the toughest of challenges (Ansolabehere et al., 2007). Challenger quality is a notoriously difficult concept to measure empirically (Squire, 1992), since simple measures of experience fail to capture candidates’ abilities to exploit factors such as mistakes in reputation-building – exactly the phenomenon we hope to measure here. This is especially true at a time in which status as a political outsider can be billed as a strength. For this reason, we use a straightforward *ex post* measure of challenger quality: How well the candidate actually performed in the election.

Although there are growing literature on the politics of bill cospensorship, our treatment of an incumbent’s portfolio of bill sponsorship choices as a single reputation is, as far we know, a novel theoretical and empirical approach. As we discussed earlier, a

⁴ In a very recent example, Arizona Republican Martha McSally withdrew her support from H.R. 3443 which would have defunded Planned Parenthood, but threatened to cause a government shut down in the process. She originally cospensored the bill with 7 other Republicans. When she was criticized for her brinkmanship by a potential challenger in the next general election, Democratic state legislator Victoria Steele, McSally withdrew her name from the bill.

⁵ We were forced to drop a relatively small number of Members due to missing electoral data and outlier electoral systems, such as the one in place in Louisiana. In addition, the inclusion of lagged variables forced us to drop data for the 93rd Congress.

single location on a cosponsorship portfolio simplex can capture that reputation. Being defined on a 2-simplex, such locations are *compositional* in nature – that is, they form sum-to-one vectors of size 3. Accordingly, we use the model originally developed by Katz and King (1999) to handle these types of outcomes, further allowing for the existence of Member-specific random effects. Specifically, and letting $\mathbf{s}_{i,c} = [Alone_{i,c}, Copartisan_{i,c}, Opposition_{i,c}]$ be the vector-valued random variable tracking the sponsorship portfolio created by Member i in Congress c , our modeling strategy first generates vector $\mathbf{y}_{i,c} = \left[\log \frac{Copartisan_{i,c}}{Alone_{i,c}}, \log \frac{Opposition_{i,c}}{Alone_{i,c}} \right]$, and models it using a multivariate t distribution. More formally,

$$\mathbf{y}_{i,c} \sim MVT(\boldsymbol{\mu}_{i,c}, \nu, \boldsymbol{\Sigma}_y)$$

$$\boldsymbol{\mu}_{i,c} = \mathbf{x}_{i,c}\boldsymbol{\beta} + \alpha_i$$

$$\alpha_i \sim N(0, \sigma_\alpha)$$

$$\boldsymbol{\beta} \sim MVN(0, \boldsymbol{\Sigma}_\beta)$$

where $\mathbf{x}_{i,c}$ is a predictor vector including the interaction between immediately preceding primary and general election margins of victory,⁶ along with its constitutive terms and appropriate controls (discussed below); $\boldsymbol{\beta}$ is a *matrix* of predictor coefficients – one for each predictor and for each dimension of \mathbf{y}_i ; α_i is a Congressperson-specific random intercept; ν is the degrees of freedom parameter⁷ and both $\boldsymbol{\Sigma}_y$ and $\boldsymbol{\Sigma}_\beta$ are variance-covariance matrices. The model is completed by assigning proper but weakly informative priors for these parameters,⁸ and estimated by taking 500 (post-warm-up) samples from 10 parallel chains in Stan. All parameters show evidence of convergence, with Gelman-Rubin statistics close to 1.0 and large effective samples (i.e. all greater than 150).

As we mentioned earlier, we must address the possibility of simultaneity bias – since our theory suggests not only that electoral expectations ought to affect cosponsorship decisions, but that such decisions ought to, in turn, affect future elections. Specifically, we could end up with incorrect estimates because sponsorship decisions in the past affect the electoral challenges considered when forming the current portfolio (and, presumably, these decisions as well). As such, simultaneity is in this case an “omitted variable” problem (Cox and Thies, 2000), and what is

required are controls that correctly account for *anticipated* cosponsorship strategies. Accordingly, and to avoid such biases, our models include what we consider to be the best sources of information about the types of cosponsorship-based reputations Members can be anticipated to build – namely the *previous* share of work done either with copartisans or with opposition members.⁹

In addition to controlling for the lagged shares of work, we control for features that can be expected to impact both the toughness of electoral challenges faced and the proclivity to form various types of reputations. Firstly, the number of copartisan legislators from one’s state creates a ready-made pool of potential cosponsors with whom a legislator shares tangible interests – both partisan and geographic. In turn, ideological extremism on votes would seem to make sharing a reputation with the opposition via cosponsorship less likely – and it might even be positively associated with working alone.¹⁰ In addition, we include the ideology of the district (as captured by the district’s moving average of the presidential vote for the party of the Member), as it seems logical that a Democratic House Member from a liberal district, for example, would not want to devote a great deal of time initiating bills solely or primarily with members of the Republican party. We also include an indicator of whether redistricting has occurred to serve, in a sense, as an indicator of the legislator’s uncertainty about future challenges. Additionally, we include a control for whether the legislator holds a position of leadership within his or her party, as these positions could translate into a greater likelihood of having a conciliatory, moderate approach to reputation building (Woon, 2008). We also include a measure of each Member’s seniority, reasoning that experienced Members may feel less need to drum up copartisans. Finally, we include a fixed effect by Congress, to capture any term-specific shifts in the probability of working alone.

After obtaining posterior samples of all relevant parameters in the above model (summary statistics for which we report in Table 1 in Appendix A),¹¹ we calculate our quantities of interest: the types of reputations legislators are expected to build through cosponsorship decisions (i.e. $\mathbf{s}_{i,c}$) under different electoral scenarios.¹² Fig. 3 presents probabilities on the reputational simplex we presented earlier (in the form of 90% highest density regions). Overall, the intuitions we discussed through Fig. 1 are supported by the various covariate combinations.

Consistent with Hypothesis 1, the “Loner” reputation is predicted to appeal most to those legislators who can expect to face similarly weak challenges in both primary and general elections, as indicated by the density in the top left panel of Fig. 3. In support of

⁶ We retain uncontested races, coding their margins of victory as ‘1’. Dropping such races from the analysis does not alter our substantive results.

⁷ Katz and King’s approach differs from most other models of compositional data in the use of a multivariate t distribution to model the log-ratio transformed variables \mathbf{y} , which generalizes the more commonly used multivariate Normal model – a special case as $\nu \rightarrow \infty$. As they did, we find that the use of the t distribution is justified by the low posterior estimated value of the degrees of freedom parameter ν . Substantively, the importance of using the fatter-tailed t lies in the need to capture rare (but meaningful) Loner portfolios.

⁸ Specifically, we define

$$\nu \sim \text{Gamma}(2, 0.1)$$

$$\sigma_\alpha \sim \text{Cauchy}(0, 2.5)$$

$$\boldsymbol{\Sigma}_y = \text{Diag}(\tau_y)\boldsymbol{\Omega}_y\text{Diag}(\tau_y)$$

$$[\tau] \sim \text{Cauchy}(0, 2.5)$$

$$\boldsymbol{\Omega}_y \sim \text{LKJcorr}(3)$$

⁹ To further address the possibility of simultaneity bias, we estimated our model using the subset of Freshmen Members, under the assumption that their (first) electoral results are not associated with the cosponsorship strategies adopted during their first term in office. The results, which we report in our Online Appendix, produce evidence of substantively similar, if slightly larger, effects to the ones we report in the main text. We believe this is a better approach than including measures of cosponsorship effort of predecessors, as these may be worst predictors of a Member’s own electoral risks.

¹⁰ In order to assuage issues of post-treatment bias, we calculate the *average* WNOINATE score for each Member during the period they are observed and include this as the ideological control.

¹¹ Replication data code are available at github.com/***/KeepEnemiesCloser.

¹² These predicted probabilities can be obtained by taking samples from the posterior distribution of all model parameters, using specific electoral scenarios and any given set of covariate values that are held constant for all scenarios, then taking samples from a multivariate t distribution to produce values of $\mathbf{y}_{i,c}$, and finally transforming these samples back to the cosponsorship space $\mathbf{s}_{i,c}$ using the inverse softmax function. We use the 95th, 102th, 107th and 106th Congresses to produce predicted probabilities under the “Both easy”, “Tough primary, easy general”, “Easy primary, tough general”, and “Both tough” electoral scenarios, respectively.

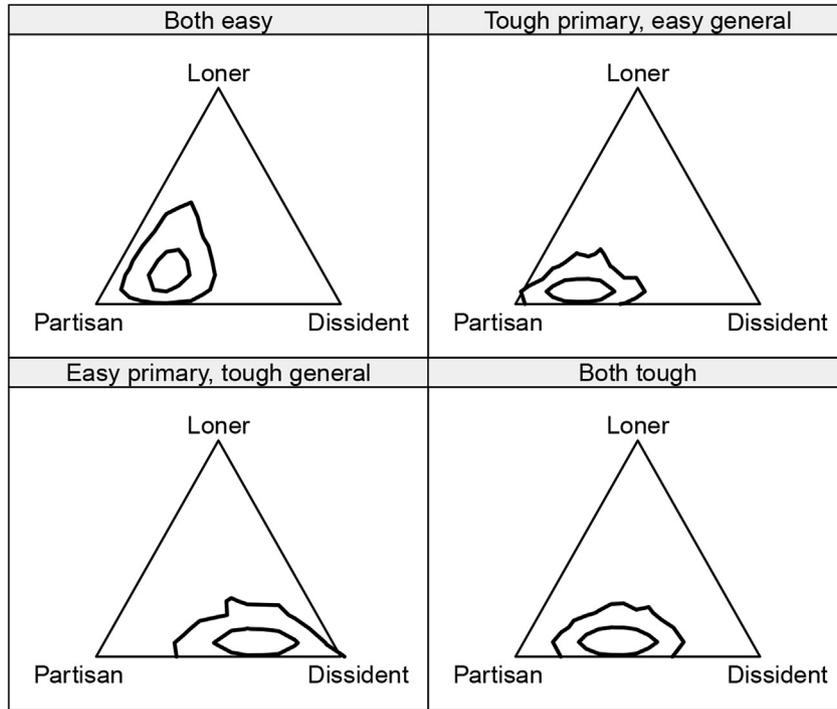


Fig. 3. Predicted cosponsorship-based reputation portfolios under four electoral scenarios, with 99% and 90% highest density regions.

Effects of Change in Electoral Challenge

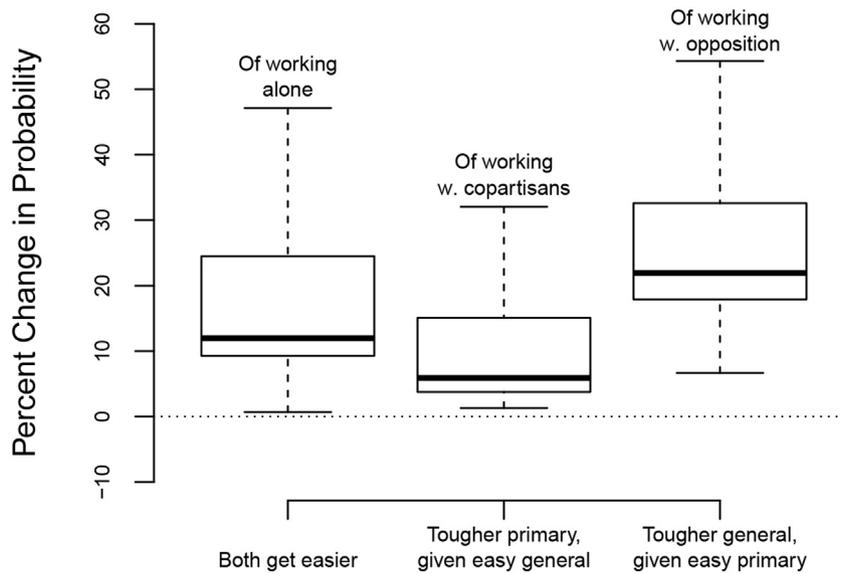


Fig. 4. Distribution of predicted percent change in probability of (co)sponsorship style as margins of victory change, holding other covariates at all observed values.

Hypothesis 2, and in situations in which legislators expect to face an easy general and a tough primary, the predicted reputation-building strategy is located nearer the ‘Partisan’ corner of the simplex, as can be gleaned from the top right panel. As we anticipated in **Hypothesis 3**, the reputational strategy of those legislators who expect to face an easy primary and a tough general (displayed in the bottom left panel) is closer to the “Dissident” corner of the simplex. Finally, the predictions when facing two tough challenges entails striking a more balanced approach to cosponsorship, as depicted in the bottom right panel.

Given that we have defined non-linear models, the predicted probabilities depicted in Fig. 3 depend heavily on the values at which we have chosen to hold other covariates constant. In particular, they depend strongly on our choice of Congress.¹³ However, an evaluation of the effect of changing electoral scenarios while holding other covariates at their observed values (rather than at artificial, “mean” values) reveals that our conclusions hold for the vast majority of observations. We show the observed distributions of those effects in Fig. 4.¹⁴

The left plot in Fig. 4 shows the distribution of predicted percent-changes in the probability of working alone (across all observed values of our included covariates) as electoral challenges simultaneously change from their toughest to their easiest (i.e. as margins of victory go from their observed minimum to their observed maximum). The change in probability is always positive, suggesting that going from two close elections to two easy ones increases the probability of working alone. In general, such a change in challenges would lead to a 14% mean increase in the probability of sponsoring a bill alone (**Hypothesis 1: Loner**).

The central plot in Fig. 4 shows the observed distribution of percent changes in the probability of working with copartisans as the primary election changes from easiest to toughest (i.e. as the margin of victory changes from its maximum observed to its minimum observed), conditional on having had an easy general election. In general, the observed percent changes can be relatively large. The mean percent change in our observed dataset is around 4.5%, and the effect can be as large as an 8% increase in the probability of working with members of one’s own party as a result of the primary becoming tougher (**Hypothesis 2: Partisan**).

The right plot in Fig. 4 shows the distribution of percent changes in the probability of working with opposition members as the general challenge goes from its easiest to its toughest observed level (i.e. as the margin of victory changes from its maximum observed to its minimum observed), conditional on the primary being held at its easiest. Once again, the effects are always positive, indicating that the described change in margins of victory always increases the probability of working with Members across the aisle

(**Hypothesis 3: Dissident**).¹⁵

4. Electoral conditions as a result of cosponsorship strategies

What happens if incumbents ignore the signals received in past primaries and general elections? Conversely, are future reelection prospects positively affected by responding to the vulnerabilities previous election outcomes uncover? Sulkin (2005), for example, finds that Senate incumbents who cosponsor legislation on subjects their challengers introduced (i.e. who engage in “issue uptaking”) are more likely to run uncontested in the next primary or the next general. In other words, her findings suggest that heeding the lessons of previous election results makes it less likely the Senator will face a similar challenge in the immediate future.

As an example, consider the 2012 election to the 3rd district in Florida. Republican Ted Yoho won a Tea Party-backed primary against 24-year Republican incumbent and staunch conservative Cliff Stearns by running to Stearns’ right and painting him as out of touch with the district (Leary and Davis, 2012). Yoho spent his time in office building a highly conservative reputation, calling the Civil Rights Act unconstitutional, decrying a tax on tanning beds as racist against whites, and suggesting that the franchise should be limited to property owners (Madsen, 2014). Because he anticipated that the next general election would remain easy for whichever Republican emerged from a contentious primary, Yoho focused on building the reputation he thought would best serve him in the primary stage of his bid for reelection. When his challenger in the next Republican primary tried to claim that Yoho himself was too liberal for the district, the charge did not stick and Yoho won the nomination with nearly 80% of the vote.

In general, our reasoning suggests that building the right reputation can improve electoral chances, and that failing to build the appropriate reputation for electoral realities could indeed provoke a tougher challenge in the future. Past election results should provide Members with information, but, once in office, they can fail to capitalize on the signals sent by primary and general election voters. In other words, keeping one’s enemies close, or failing to do so, has dynamic implications. Hence, for instance, our theory prescribes that a legislator who previously faced a tough primary and an easy general should dedicate most of her cosponsorship efforts to building a reputation as a Partisan in order to ward off such a challenge in the future. If she fails to establish her partisan *bona fides*, however, by choosing to work alone or with members of the opposition more often, then our theory suggests that she should have a harder primary challenge in the next election.

Our empirical strategy for evaluating these prospective claims consists of modeling primary and general election margins of victory as functions of the strategies in cosponsorship-based reputations built during the term immediately preceding the election. In particular, we are interested in whether increases on each of the dimensions of the reputation simplex are systematically related to future electoral challenges. When an increase in reputation-building effort is in a direction that does not, according to our

¹³ Rule changes gradually removed caps on the number of cosponsors allowed per bill, ultimately eliminating the final 25-cosponsor cap in the 96th Congress. Lifting the cap may have shifted the goal of cosponsoring towards that of building a voting coalition for the bill in question. Once lifting the cap makes the number of cosponsors a clue about the likelihood of adoption, being a “Loner” (or even working in small groups) might lose some of its appeal. The effect of having both an easy primary and an easy general is statistically discernible throughout the period under study, but when considering individual Congresses, the *baseline* probability of working alone (i.e. the α fixed effects of our defined model) shows a systematic decline over time, lending support to the idea that rule changes affected legislators’ incentives.

¹⁴ These predicted (or predictive) effect distributions are obtained by first calculating the predicted percent change in probabilities as the margins take on their minimum and maximum values, while all other covariates are held at their observed values. For a more detailed discussion on the benefits of this interpretative approach in the case of non-linear models, see Gelman and Hill (2007) and Hanmer and Ozan Kalkan (2013).

¹⁵ While many of our control variables fail to achieve traditional levels of significance (which suggests that they do not help us discern between Members’ inclination to work alone rather than with either members of the opposition or with copartisans after conditioning on previous electoral challenges), those that do appear to have effects in the anticipated directions. For instance, we find that the percent of the state delegation belonging to one’s party makes legislators less likely to work with members of the opposition. We also find that more senior legislators tend to prefer working alone, and that the opposite is true for Members in leadership positions.

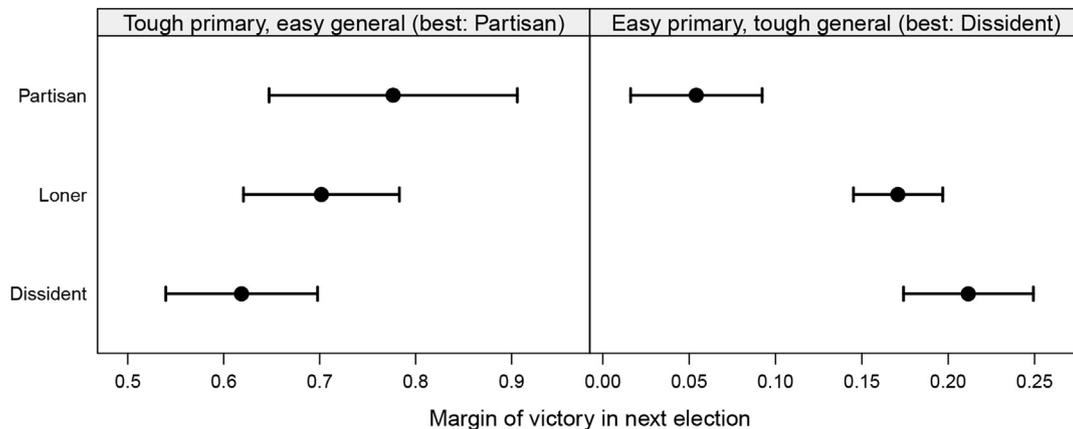


Fig. 5. Median (solid point) and 95% HPD regions of predicted next primary (left panel) and next general (right panel) election margins of victory under different (co)sponsorship strategies and different electoral scenarios, holding other covariates at their average or modal values. Higher margins of victory indicate safer races.

theory, contribute to undercutting one's toughest challenge (or keeping one's enemy closer), we call them "errors" in reputation building. We are able to evaluate the effects of erring in the "Loner", "Partisan" and "Dissident" directions on margin of victory in the next primary and the general elections *simultaneously*, using a seemingly unrelated regression (SUR) model. We let each systematic component be a function of efforts dedicated to each dimension of the reputational simplex (as defined earlier) during the previous term, the margins of victory in the previous election, the interactions between these efforts and the margins, and the same control covariates discussed in the previous section.¹⁶

Using 4580 observations of legislators who ran for at least two consecutive terms,¹⁷ we estimate the model's coefficient vectors (the results of this estimation are presented in Table 2 in Appendix A). In general, we find somewhat mixed support for mistakenly choosing to be a loner, but much stronger support for mistakenly ignoring a signal to be a "partisan" or "dissident." Given the complex conditional nature of our model, we once again take advantage of graphical means of conveying the effects of making reputation building errors, as well as the expected effects of choosing the correct cosponsorship strategy for a given electoral challenge.¹⁸

Accordingly, the left panel of Fig. 5 shows the predicted margins of victory in primary elections (along with 95% confidence intervals) for three hypothetical Members of Congress who differ only on the type of cosponsorship strategy chosen during the previous term in office (while having mean or modal values in all other

covariates), conditional on having had a challenging primary election and an easy general election. The prediction represented at the top of the panel, which corresponds to the expected margin in the primary victory for a legislator who chooses to devote all her efforts to working with copartisans (i.e., the best strategy under the circumstances, according to our theory), is relatively higher than it is for alternative strategies, indicating that such a legislator can expect her next primary election to be easier than it would have been had he or she chosen a different to build the wrong reputation.

Yet when an identical legislator in an identical situation chooses to work with members of the opposition – thus building the perfect dissident reputation – her expectations are markedly different, as indicated by the bottom plot of the left panel of Fig. 5: Indeed, and consistent with expectations, incorrectly building a dissident reputation under such circumstances is expected to make the primary challenge tougher – decreasing the predicted margin of victory by about 0.18 points. The contrast is similarly stark when considering the right panel of Fig. 5, which shows that the difference in predicted margins of victory in the next general election after facing an easy general but a tough primary is expected to be about 0.16 points, when considering the right (i.e. Dissident) and wrong (i.e. Partisan) strategies given the electoral circumstances.

However, and contrary to our expectations, working to build a reputation as a Loner does not necessarily result in worse primary or general election prospects, as gathered from the central plots on the both the left and right panels of Fig. 5. Why would working alone not produce results that are discernible from those of working with copartisans under such electoral circumstances? Returning to the data, a pattern immediately emerged – one group of Members who shunned their copartisans despite seemingly needing the party's reputation tended to be freshman Members who were ideologically extreme. When a hard-fought primary led to the nomination and election of an ideological extremist over a party stalwart, the extreme Member apparently did not feel at home amongst his or her copartisans. So, as freshmen, Members like Elizabeth Holtzman and Eliot Engel tended to go it alone. Having chosen a relatively extreme candidate, voters in the legislator's district seemed to appreciate the fact that their representative did not choose to moderate her position by working with

¹⁶ We check the robustness of this modeling approach by estimating a more "traditional" incumbency advantage model – one specified similarly to the models in Jacobson (2015) and Gelman and King (1990), differing only in that we use general margin of victory as our outcome of interest, and (more importantly) in that we include an interaction between previous election results and cosponsorship strategies. Our findings, which can be found in the Online Appendix, are consistent to the more general results reported in the main text.

¹⁷ In choosing to drop Members who only ran once (or, more consequentially, who ran twice, but lost the second time around), we expect to underestimate the dynamic effects of committing errors in reputation building. Thus, finding any discernible effects should constitute even stronger evidence in favor of our prospective story. We thank an anonymous reviewer for noting this issue.

¹⁸ Regarding our empirical modeling strategy, our choice of a SUR model would not have been justified if the error structures involved in our analysis had shown no evidence of dependence. The estimated correlation between the two errors is positive and discernible from zero (more specifically, it is 0.089), lending support to our modeling strategy.

others.¹⁹

5. Conclusion: reputation building through cosponsorship as a defense against challengers

Undoubtedly, bill cosponsorship is a reflection of district or personal ideology (Wilson and Young, 1997; Balla and Nemacheck, 2001). It also serves to signal other legislators where a Member stands in terms of policy preferences (Krehbiel, 1995; Wawro, 2001). Beyond those uses, we have shown that bill cosponsorship can be used as part of a reputational shield designed to defend an incumbent from his or her strongest potential challengers. Although challenger deterrence has been pinpointed as a reason for collecting a campaign war chest (Box-Steffensmeier, 1996) or securing federal funds for the district (Bickers and Stein, 1996), we find evidence that undercutting prospective challengers could also account for decisions about with whom a Member should collaborate while doing legislative work. Most generally, we find evidence that legislators strive to eliminate the possibility of being “called out” by their most likely type of opponent for having spent too much time working with the Members most different from that opponent. Avoiding being “called out” requires that legislators build reputations that make it difficult for their toughest challengers to draw a distinction between them.

In press releases, a medium we know affect constituents' views of legislators, an incumbent can tout a reputation for being willing to “cross the aisle” in order to ward off a strong challenge in the general, while another incumbent might emphasize that he or she is a “party loyalist” as defense in the primary (Grimmer, 2013). When building a reputation, a legislator must also be cognizant that a challenger can exploit the wrong reputation to “define” the incumbent in ways unattractive to constituents (Lau et al., 1999). During the primary a copartisan may claim that an incumbent is “insufficiently pure” in ideological terms. During the general, an incumbent who has misspent his or her time may be successfully characterized as an uncompromising “partisan hack.” Put simply, reputations that incumbents can tout in the primary are the same reputations that challengers can exploit in the general, and vice versa.

Our theory also has something to say about the often bemoaned lack of bipartisanship or, conversely, the gridlock inducing level of polarization that characterizes modern Washington. According to our reasoning regarding reputation building for the purpose of undercutting electoral challenges, the only Members of Congress who have an incentive to spend their time cooperating roughly equally with copartisans and the opposition – engaging in bipartisan behavior – are Members who expect to face roughly equal and relatively tough challenges in both the primary and the general. Members of Congress facing this particularly difficult set of circumstances are few and far between. For example, in our 6,284 legislator-term observations,²⁰ only 73 – or about 1.2% – obtained their seats after winning both their primary race and their general race by 10 percentage points or less. In future work, we intend to focus on the behavior of these Members who are at risk of being

“called out” by two very different but equally dangerous challengers.

This result also offers one explanation for the puzzle that began this paper – how can parties be so homogeneous yet have such a hard time collectively getting things done? Above we mentioned the example of Republican Congressman Ted Yoho, who “primaried” Cliff Stearns. To be sure that he would not suffer the same fate as Stearns, Yoho went to Washington and, among other things, mounted an unsuccessful (at the time) attack from the right on the speakership of his copartisan John Bohener (Klimas, 2015). The “getting primaried” phenomenon is not new (Boatright, 2014). However, like most districts in the U.S. (Silver, 2012), Yoho suspected he would face no real competition in the general election, making the primary his only potential source of vulnerability. As more districts become like that of Ted Yoho, where the general election is so easy as to be considered a foregone conclusion, perhaps we should expect to see more legislators eager to prove their merit as “true bloods” to the point they are even unwilling to work with their own copartisans.

Although relatively novel in the literature, these findings – that electoral outcomes matter when it comes to sponsoring bills, and that sponsoring bills matter when it comes to electoral outcomes – are far from counterintuitive and are indeed the conventional wisdom among practitioners of politics. In fact, since bill cosponsorship plays a large role in the legislative process, it could be considered surprising that more works have not connected cosponsorship with electoral outcomes.²¹ Our paper contributes to filling this gap in the literature, stressing the importance of electoral institutions – in this case, institutions that assure both intraparty and interparty competition – in translating voter preferences into representative behavior.

Perhaps most importantly, our results provide an explanation for how outcomes correlate with constituent preferences, despite the inability of most constituents to monitor carefully the behavior of those who represent them (MacKuen et al., 1989). Members of Congress seek to avoid being accused by their opponents of being out of step with the district. In order to make sure their toughest challenger has no evidence to use against them, among other things, they assure that with whom they are seen collaborating does not allow that challenger to distinguish himself or herself from the incumbent. Undoubtedly, being in step entails not only with whom one works but also how one votes and what one says. The potential check in the form of a quality challenger prompts incumbents to think about their two sets of constituents when deciding what type of reputation they ought to pursue. In other words, anticipating what a future challenger might effectively use against them keeps legislators “honest” and ensures that those who do not properly anticipate the possibility are punished. Cosponsorship patterns, then, although previously thought to be unrelated to the constituency connection, actually provide strong evidence that the connection is robust.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.electstud.2017.01.005>.

¹⁹ Once again, many of the variables chosen as controls fail to achieve standard significance levels. Among those that do, we find that having a larger pool of copartisan Members of Congress from the same state discernibly reduces the following primary margin, while being an ideological extremist seems to slightly improve Members of Congress future general and primary margins. Interestingly, future primary margins improve not only when the previous primary margin increases, but also when general election margins improve.

²⁰ Some of these observations were dropped from the earlier analysis due to missing data.

²¹ One exception is the previously cited work by Sulkin (2005). For evidence from a comparative perspective, see Crisp et al. (2004).

Appendix. Regression tables

Table 1
Multilevel multivariate *t* model of log-ratios of cosponsorship portfolios.

	First dimension		Second dimension	
	Point estimate	C.I. (95%)	Point estimate	C.I. (95%)
(Intercept)	2.69	(2.42, 2.89)	−0.52	(−0.71, −0.26)
Primary Margin of Victory	2.26	(1.94, 2.50)	−0.44	(−0.67, −0.13)
General Margin of Victory	−0.03	(−0.14, 0.09)	−0.62	(−0.82, −0.38)
Interaction of Margins	−1.07	(−1.30, −0.76)	−0.09	(−0.38, 0.08)
Size of state copartisan pool	0.03	(−0.07, 0.17)	−0.51	(−0.73, −0.19)
Average Ideological Extremism	0.04	(−0.10, 0.31)	−0.12	(−0.32, 0.11)
MA of Copartisan Presidential Margin	−0.09	(−0.27, 0.16)	−0.19	(−0.43, 0.09)
Leader?	0.04	(0.01, 0.06)	−0.09	(−0.29, 0.13)
Redistricting Year?	−0.01	(−0.037, 0.011)	−0.02	(−0.25, 0.28)
Lagged Partisan Work	−0.001	(−0.03, 0.03)	0.09	(−0.08, 0.35)
Lagged Dissident Work	−0.05	(−0.09, −0.02)	0.17	(−0.04, 0.48)
Seniority	−0.03	(−0.06, −0.01)	0.08	(−0.11, 0.34)
σ_α	0.09			
ν	4.29			
Σ_y variance	0.40		0.40	
Σ_y covariance	0.37			
<i>N</i>	4344			

Posterior estimates of coefficients and ancillary parameters. All continuous variables are standardized and mean centered. Fixed effects by Congress were included in the estimation, but are not reported here.

Table 2
SUR model of next primary and general election margins of victory.

	Eq. 1: Next primary margin		Eq. 2: Next general margin	
(Intercept)	0.42	(0.12, 0.73)	0.32	(−0.01, 0.64)
Partisan	0.39	(0.044, 0.741)	−0.25	(−0.62, 0.12)
Primary Margin of Victory	0.56	(0.21, 0.90)	−0.11	(−0.47, 0.26)
General Margin of Victory	0.57	(−0.06, 1.20)	−0.19	(−0.86, 0.47)
Dissident	0.48	(0.13, 0.83)	0.081	(−0.29, 0.45)
MA of Copartisan Presidential Margin	−0.01	(−0.02, −0.01)	0.04	(0.03, 0.05)
Average Ideological Extremism	0.004	(−0.01, 0.01)	0.002	(−0.01, 0.01)
Seniority	−0.03	(−0.03, −0.02)	−0.01	(−0.02, 0.00)
Party	−0.03	(−0.05, −0.01)	0.10	(0.08, 0.12)
Partisan × Primary	−0.44	(−0.83, −0.04)	0.03	(−0.38, 0.45)
Partisan × General	−0.83	(−1.57, −0.10)	0.97	(0.20, 1.75)
Interaction of Margins	−0.62	(−1.32, 0.09)	0.46	(−0.29, 1.21)
Primary × Dissident	−0.57	(−0.96, −0.17)	0.18	(−0.23, 0.60)
General × Dissident	−0.71	(−1.50, 0.08)	0.42	(−0.41, 1.25)
Partisan × Primary × General	0.78	(−0.05, 1.61)	−0.52	(−1.40, 0.35)
Primary × General × Dissident	0.93	(0.06, 1.81)	−0.58	(−1.51, 0.35)
Est. Correlation	0.09			
<i>N</i>	4580			
<i>R</i> ²	0.32			

Generalized Least Squares estimates of coefficients. All continuous variables are standardized and mean centered. Fixed effects by Congress were included in the estimation, but are not reported here.

and $\sum \beta$ similarly parameterized and sampled.

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