Information Valence and Evaluations of Congress and Individual Legislators: Experimental Evidence Regarding Negativity Bias in Politics

Kal Munis, PhD Candidate, University of Virginia
Henry "Bennie" Ashton, PhD Candidate University of Oklahoma
November 21, 2019

Abstract

We use a survey experiment to assess whether negativity bias affects voters’ judgments of the legislative effectiveness of Congress (MCs) and Congress as an institution. These political actors allow us to evaluate voters’ perceptions of somewhat impersonal attitudinal objects (MCs) and very impersonal attitudinal objects (Congress as an institution). We find strong evidence of negativity bias, where individuals tend to place more weight upon negative information when evaluating MCs/Congress, and require less negative information to make an overall negative judgement of these actors. Specifically, our experiments indicate that less negative information is required to reach a judgement than is positive information. Similarly, our evidence suggests that voters are quicker to punish politicians and institutions for negative behavior than to reward them for positive behavior. In most cases, these effects are moderated by partisanship, with negativity bias being more severe against members of the partisan out-group.

WORD COUNT: 9998
Introduction

In contemporary American politics, Congress is often lambasted as a do-nothing body. Indeed, there is some truth to this assessment: by some metrics the 115th Congress had a dismal record at passing substantive legislation.\(^1\) However, a significant body of research demonstrates that voters are not sophisticated arbiters in judging the records of Congress, legislators, or the president.\(^2\) Rather, politicians consciously manipulate voters’ perceptions to present the most favorable aspects of their activity, often focusing on particularistic spending (Cain, Ferejohn & Fiorina 1987; Mayhew 1974; Levitt and Snyder 1997) rather than try to explain the “tortuous” process of making laws (Davidson 1999, p. 68).

In this paper, we focus on one metric that has been the subject of much extant political science research: lawmaking. In particular, we focus on the concept of negativity bias, one distortion that we argue exists in voters’ evaluations of lawmaking by politicians and Congress. In plain language, negativity bias is the concept that people tend to place more weight upon negative information when evaluating the world around them, and require less negative information to make an overall negative judgement of another individual. Thus, we predict that voters will experience a stronger (i.e., more negative) reaction to information that a lawmaker or Congress has been less “effective” at passing laws than they will when they see information that these political actors have been more effective (positive reaction).

We present the results of several between-subjects experimental studies that investigate how valence affects voters’ evaluations of Congress and individual members. We focus on Congress for two main reasons: first, Congress is an institution that is highly salient for the public, regularly dominating news headlines. Many factors contribute to the privileged status of Congress (as well as legislators) within the American media, including the central of the legislative branch within the American constitutional system, the high frequency of con-

---


\(^2\) e.g. Achen and Bartels 2016; Anderson 2007; Healy and Malhotra 2013
gressional elections, and the appeal for the media of depicting the “clash” between members of Congress (MCs). Second, as noted above, much of the reporting pertaining to Congress is negative. From an institutional perspective, the implications of negative coverage of Congress could be considerable. For example, because of the effect of negative coverage on congressional approval, Congress has an even harder time consolidating its media messaging in comparison to the president, who enjoys the advantage of being a single actor and inspiring significantly fewer negative emotions among the public (Hibbing & Theiss-Morse 1995).

Based on these attributes, we present survey respondents with fictional information about Congress to study negativity bias in politics. We predict that negativity bias will operate in voter evaluations of lawmakers’ legislative effectiveness, which we operationalize as a legislator or institution’s effectiveness at lawmaking. In our experiments, we provide respondents with hypothetical information spanning a period of several years about the overall performance of either Congress or a fictional legislator. This information is equivalent across experimental conditions except for its valence. Thus, in accordance with past research on negativity bias, we predict that this systematic variation will reveal that respondents will be the most sensitive to negatively valenced information when making a decision to punish an institution or individual legislator at the ballot box or to individually conclude that a political actor’s behavior has officially changed, meaning that the institution or legislator’s behavior has changed in a consistent and lasting way rather than as a temporary blip. We also randomly vary the presence of information regarding partisan identity/composition as

---

3See, for example, this summary report regarding news coverage of Congress: http://www.dirksencenter.org/print_expert_media2.htm

4In technical terms, we focus on the concept of negative potency, which refers to the principle that “given inverse negative and positive events of equal objective magnitude, the negative event is subjectively more potent and of higher salience than its positive counterpart” (Rozin & Royzman 2001, p. 298). In particular, our experiments assess whether negativity bias affects judgments regarding the legislative effectiveness of MCs.

5We choose this definition in order to converse with existing institutional literature on legislative effectiveness (e.g. Volden & Wiseman 2014).

6Compared to respondents that consider an analogous amount of positive information/ (e.g. whether to reward a political actor or conclude their behavior has changed for the better).
well as whether recent behaviors related to effectiveness have trended in a positive or negative direction.

We find strong evidence of negativity bias across six survey experimental studies. Respondents were quicker to draw conclusions about and punish individual legislators and Congress as an institution when exposed to negative information than they were to reward them when exposed to positive information. Moreover, respondents handled negative information differently when making decisions to punish or reward politicians, and when forming retrospective judgements concerning their overall effectiveness. We also find that, in a majority of studies, negativity bias is moderated by partisanship, with respondents appearing to process negative information differently depending on the partisan identity of the subject under evaluation.

Overall, our findings suggest that negativity bias pervades citizens' evaluations of Congress and its members. There are potentially severe implications for democracy when voters are quicker to punish “bad” politicians and institutions in light of negative information than they are to reward “good” politicians and institutions when confronted by logically equivalent positive information about these actors, in terms of degree. Likewise, it is concerning that negativity bias more severely distorts individual evaluations when partisan out-group members are the object of evaluation. This result suggests that citizens respond differently to the actions of elites based upon their group (partisan) affiliations, rather than only considering the substance of their actions. In short, we argue that negativity bias is too often an overlooked process that fundamentally shapes individual evaluations of legislators, institutions, and election outcomes.

The Roots of Negativity Bias

The first social scientist to document the asymmetry between negative and positive information was political scientist Nehemiah Jordan (1965). Jordan’s presentation of several
studies suggested for the first time that “the custom of finding an arithmetic average of attitude and opinion ratings now seems unjustifiable” (p. 322). Since Jordan’s study, many other social scientists have addressed the primacy of negative information in the process of evaluation, dubbed “negativity bias” within social psychology. Under this principle, negative events are in general “more salient, potent, dominant...and efficacious” than are positive ones (Rozin & Royzman 2001, p. 297). Specifically, this paper is concerned with negative potency, which refers to the principle that “given inverse negative and positive events of equal objective magnitude, the negative event is subjectively more potent and of higher salience than its positive counterpart” (Rozin & Royzman 2001, p 298). Negative potency is a powerful phenomenon and can be seen as foundational in individuals’ aversion to losses (negative) above and beyond their enthusiasm for gains (positive), which is also at the heart of prospect theory (Kahneman & Tversky 1979).

Recent research on negativity bias has also begun to investigate the quantity of negative information versus positive information required before an opinion can be formed. Results reveal a negativity bias in the amount of evidence necessary to arrive at judgments of character (Klein & O’Brien 2016). In other words, “across five experiments...participants were quicker to diagnose decline but slower to diagnose improvement” (Klein & O’Brien, p. 161). Moreover, evidence also suggests that people are quicker to punish historically good individuals than they are to reward historically bad individuals. Below, we argue that understanding the concept of negativity bias provides crucial insights into understanding voter evaluations of legislative actors.

---

Negativity Bias and Vote Choice

Bias in Voter Evaluations of Candidates

Existing evidence regarding voters’ evaluations of candidates largely centers on how voters’ information processing ability affects their perceptions of candidates and institutions, as well as their vote choice. Many scholars accept that some level of informational asymmetry affects voter evaluations of candidates and other political elites (Lau 1982; Claggett 1985; Holbrook et al. 2001; but see Shepsle 1989), due to the “perceptual salience” of negative information and the empirical evidence that voters know very little about their member of Congress (Lau 1985). Additionally, given voters’ lack of knowledge about the American political system\(^8\) and their tendency towards exhibiting cognitive biases in decision making (Kahneman & Tversky 1982; Kahneman 2003), there seems to be considerable room for elites to use misleading information to manipulate voter attitudes and evaluations. While some research questions elites’ ability to influence the considerations voters draw upon (e.g. Druckman 2001; Druckman and Nelson 2003), in the current polarized political environment (Hetherington 2001) voters seem vulnerable to fallacious evaluations of candidates and institutions.

Insights from extant literature point to an environment where MCs may be uniquely vulnerable to certain types of negative information, or at the very least will be challenged by the increasing torrent of negative messages in the media and from campaigns (Geer 2006; Fridkin & Kenney 2004) as well as the arbitrary nature of citizen evaluations. In addition, Congress faces the unique challenge of not having a unified institutional voice and being tied to a complex lawmaking process that is difficult to explain to citizens (Davidson 1999). In the next section, we reflect on how these unique barriers, as well as the propensity of voters to evaluate political actors asymmetrically, affect evaluations of Congress as an institution in an environment that tends towards negativity.

\(^8\)e.g. Campbell et al. 1960; Converse 1964; Delli Carpini & Keeter 1993; Bartels 1996; Lupia 2016
Negative Information in Evaluations of Congress as an Institution

Cognitive biases in voter evaluations have the potential to create problems for democratic systems when politicians emphasize negative institutional traits to serve self-interested electoral goals. Fenno (1978) argues that MCs pervasively run for Congress by running against Congress, and by extension make the institution’s shortcomings especially salient in voters’ minds. As a result, scholars in the Congress literature argue that evaluations of Congress as an institution do not factor much at all into Americans’ vote choice. Evidence from the Roper Center’s iPOLL database from 1974-2006, though, indicates that voters are just as likely to hold Congress responsible for national conditions and events as the president (Jones & McDermott 2009).

We argue that voter evaluations of Congress are important, and provide a ripe subject for furthering the literature on negativity bias and voter evaluations. This is in part because Congress is often assaulted by a variety of negative perceptions. Indeed, media coverage of Congress highlights conflict (Hibbing 1999; Vinson 2013), creating the perfect cocktail for fomenting negative perceptions (Tidmarch & Pitney 1985; Rozzell 1996; Vinson), leading to a Congress that is less popular than lice, colonoscopies, and Nickelback (Matthews 2013). In part owing to the increased openness of the modern Congress, the institution is perceived as a “creature of the Washington scene,” an entity that works against the public interest, instead favoring special interest groups (Hibbing and Theiss-Morse 1995, p. 81). This is problematic when some “reservoir of good will” (Easton 1966, p. 273) would seem to be required for Congress to be effective as an institutional body.

Citizens (perhaps ironically) seem to react negatively to the passage of consequential legislation as well as the perceptions of clash within the institution created by the mass media (Durr, Gilmour, & Wolbrecht 1997). In evaluations of Congress as an institution, citizens often form a gut reaction when asked to consider Congress’ relation with interest groups or

9E.g. Fenno (1978); Mayhew (1974); Stokes and Miller (1962)
how they are represented by MCs, and this gut reaction is likely to be biased by negative perceptions (Hibbing & Theiss Morse 1995). Extant research is silent, however, on how the relative magnitude of this information might play into members’ strategic calculations regarding what information about the institution to emphasize or whether to tie themselves to Congress. In the next section, we develop a theory of how a specific aspect of congressional behavior, legislative effectiveness, is influenced by negativity bias.

**Negativity Bias and Legislative Effectiveness**

As our overview of the literature related to negativity bias in the evaluations of political actors and institutions attests, negative information—particularly behavior—plays a powerful role in influencing the evaluation of others. To further the literature on negativity bias and political actors, we exploit both the privileged status of Congress in the American news media as well as the high frequency of negative coverage of MCs and Congress as an institution. In short, if one is looking for something not to like about Congress and its members, the search remains quite easy.

In addressing the tendency of citizens to face negativity bias in evaluations of legislators or Congress, our analysis speaks directly to the extant literature we have discussed above; however, we address a neglected domain within the evaluation of incumbent politicians and institutions: the legislative effectiveness of political actors, a phenomenon addressed in the literature on U.S. institutions but largely neglected thus far in studies of political behavior. Survey data has demonstrated that voters care generally about the effectiveness of their representatives (Jacobsen 2009) and that lawmakers are aware of the importance of their accomplishments in constituent evaluations (Adler and Wilkerson 2012). Citizens in general also seem to know little about their member’s personal effectiveness in Congress, but when presented with information about their effectiveness express greater approval of their

10See, for example, Bratton and Haynie 1999; Jeydel and Taylor 2003; Miquel and Snyder 2006; Anzia and Berry 2011; Volden, Wiseman, and Wittmer 2013; Volden and Wiseman 2014.
member (Butler et al. 2019). Little is known, though, about the mechanisms that voters use to process claims of effectiveness by legislators or the processes of influencing the mass public that effective legislators may have access to.

To provide evidence regarding how negativity bias might impact voter evaluations of legislative effectiveness, we conduct a series of experimental studies to investigate further the effects of information valence upon citizen evaluations of incumbents and Congress as whole. The studies provide information pertaining to the behavioral trends of either Congress or a legislator, and are designed to assess the differential effects of information valence in evaluation and judgement. We innovate on previous studies by focusing on legislative effectiveness, and in particular the lawmaking efforts of MCs and Congress as an institution (Volden & Wiseman 2014). Based upon prior research findings in this area, especially those studies showing that voters are more likely to utilize negative information pertaining to the economy to evaluate candidates (Bloom & Price 1975; Kiewiet 1983; Claggett 1986), we expect that:

**Hypothesis 1:** Participants that read about recent negative behaviors committed by Congress or a legislator will require a *lesser* amount of time before concluding that the institution/actor changed for the worse. Those exposed to positive behaviors will require a *greater* amount of time to conclude that a change for the better has occurred.

**Hypothesis 2:** Those reading about negative behaviors will require knowledge of *fewer* instances of behavior to indicate a willingness to punish Congress or a legislator, compared to the willingness of those reading about positive behaviors to reward political actors.

**Hypothesis 3:** When considering a legislator or Congress of “average” effectiveness, voters informed of a decrease in their legislator’s/Congress’ effectiveness will express a change of greater magnitude on their personal evaluation of said legislator/Congress as compared to respondents that read about a positive change in effectiveness, relative to the baseline control condition of no change.
Partisan Identity and Affective Polarization Hypothesis

One potentially confounding factor in a design that asks voters to evaluate MCs with regard to effectiveness could be that voters do not evaluate MCs in a vacuum, but through partisan-colored glasses. Indeed, the concept of partisanship has become increasingly relevant to evaluations of legislators due to a rise in affective polarization among the American public. Since the groundbreaking insights of Campbell et al. (1960) and Converse (1964), political scientists acknowledge partisanship to be the key driver of political behavior. Partisanship is generally relevant not through channeling voters’ ideological preferences, but rather in its relationship to primal expressions of group attachment and loyalty. Subsequently, a host of scholarship has been undertaken in order to flesh out the psychology of partisanship, with the predominant view today being that partisanship functions as a social identity (Green, Palmquist & Schickler 2002; Huddy, Mason, & Aarøe 2015; Mason 2018).

Moreover, the most important development in American politics regarding partisanship has been the growing disagreement, heightened animus, and shrinking common-ground between the two parties—a phenomenon commonly referred to as political polarization. While much of the initial debate surrounding polarization centered upon deepening fissures pertaining to issue positions between political elites (McCarty, Poole, & Rosenthal 2008) and within the electorate itself (Abramowitz & Saunders 1998; Fiorina 2009; Ahler 2015; Hill & Tausanovitch 2015), recent work related to polarization in the mass public focuses on social identity theory. Indeed, recent research argues that political polarization is primarily an affective phenomenon driven by dislike of one’s partisan opponents rather than disagreements over ideas and policy prescriptions (Iyengar et al. 2012).[11]

Considering Congress in particular, Rogowski and Sutherland (2015) find that when comparing two candidates, citizens’ affective evaluations are affected not only by the partisan

[11] Though, see Webster and Abramowitz (2017), who provide evidence of a connection between ideological and affective polarization, as well as Mason (2018) who suggests this connection may actually be an artifact caused by “social sorting” including the growing union of ideological and partisan identities.
identity of officials but their ideological divergence as well. Additionally, Butler et al. (2019) find that, when presented with evidence about their member’s effectiveness, voters revised evaluations of their member are strongly mediated by partisanship, with voters approving of effective copartisans but disapproving of members from the opposite party. This same finding seems to hold for Congress as an institution; that is, the direction of partisanship matters for evaluations of Congress (Patterson et al. 1992). Based upon these prior studies and consistent with affective polarization, we hypothesize that:

**Hypothesis 4:** Negativity bias will be accentuated when evaluating individual legislators of the opposite political party or a Congress wherein the majority of its members are affiliated with the opposite party.

**Research Design**

In order to investigate negativity bias in political information processing, six between-subjects experimental studies were conducted. Each of the experiments presents respondents with information about either a fictional congressman or about Congress as an institution.

**Data**

In total, 1,755 respondents were recruited using Amazon’s Mechanical Turk (MTurk) online labor market service and the studies were conducted in spring 2017. Like many studies using MTurk, our sample is younger, better educated and more racially diverse (see Appendix Table A1). Though our results are confined to our particular sample, multiple studies suggest that for most types of research questions MTurk samples yield results that are not significantly different than representative probability samples (Berinsky, Huber & Lenz 2012).
2012; Clifford & Jerit 2014; Clifford, Jewell, and Waggoner 2015; Coppock 2018; Mullinix et al. 2015), and do not seem to differ from population-based samples in ways that are measurable (Levay, Freese, and Druckman 2016). Further, given the nature of our treatment intervention and the extant social psychological literature on negativity bias, we do not anticipate that our findings would differ significantly in other samples (including more representative ones) of the U.S. electorate, though we cannot rule out this possibility. Coupled with the experiments we present here triangulating the effects of negativity bias, we believe that our findings provide valid evidence regarding negativity bias in the evaluation of U.S. legislative behavior.

A recent concern in the research community regarding MTurk involves the specter of so-called “bots:” automated survey responses stemming from human assisted computer algorithms. Bots defraud researchers of research funds and have a negative impact on research quality. While there is evidence that bot responses on MTurk stem at least as far back as 2013, the problem appeared to reach its zenith in the latter half of 2018 (Kennedy et al. 2019). While MTurk takes some rudimentary measures to ensure this does not occur, it is easy for frauds to get around such measures by using Virtual Private Servers (VPSs) or Virtual Private Networks (VPNs) to make it appear that each survey response is coming from a different person in a different location. For experimental research, the specter of bots is highly concerning because the random responses they make across conditions artificially diminish any average systematic differences between treatments, making treatment effects more difficult to detect. Luckily, however, once researchers become wary of bot presence it is relatively easy and straightforward to screen and remove these responses from the data.

Because our study was conducted within the rather extensive window that MTurk was identified as having been at risk for bots, we undertake efforts to identify and remove fraudulent respondents from our dataset. To do so, we follow the protocol outlined by Kennedy et al. (2019)\footnote{We would like to thank Reviewer 1 for suggesting we assess whether bots were in our sample and to}. Specifically, we use the rIP R (Kennedy et al. 2018) package
to analyze the IP addresses of our respondents to detect those using known VPNs, a clear indication of a fraudulent response. Our analysis of respondent IP addresses revealed 102 instances of VPN usage. After analyzing all of our studies with both the inclusion and exclusion of these responses, only one of our results changes meaningfully: after the removal of probable bots, the results of study 3B are significant at the $p < 0.05$ level. This change makes sense – bots answer questions in random fashion, which adds artificial noise that makes detecting significant treatment effects less likely. Below, we discuss and present results of analyses wherein probable bots have been excluded. For transparency, all results run on the full sample – including probable bots – are included in the supplementary materials.

Stimuli Overview

We chose to construct our vignettes around congressional politics based upon two criteria: Congress’s role in American politics, and the type of information commonly available about Congress and MCs. Congress is an ideal institution upon which to frame our studies as it enjoys a preeminence in American politics, second only to the presidency. This is ideal for our purposes, as we can expect most Americans, including our respondents, to at least have a cursory understanding of what it is that Congress does and to be accustomed to hearing about its activities. Second, because a plurality of coverage about Congress is negative, it is an important case to study regarding negativity bias.

To help facilitate logical equivalence in our experimental studies across conditions, we rely on the language of “legislative effectiveness” to frame our vignettes. Beyond better ensuring logical equivalence, this choice facilitates our studies’ engagement with the Congress literature’s insights on characteristics that make legislators effective lawmakers. In a recent book on legislative effectiveness, Volden and Wiseman (2014) define legislative effectiveness as “the proven ability to advance a member’s agenda items through the legislative process...
and into law” (18). While obviously a variety of aspects of legislator behavior contribute to effectiveness, the “primacy” of passing legislation as a metric of effectiveness (Frantzich 1979, p. 409) seems to be a relatively non-controversial assumption within the Congress field.

Below, each of the dependent measures we use was devised in a fashion that allows our results to speak to the broader literature on negativity bias. In particular, as most experimental studies of negativity bias have been conducted by social psychologists, we adapt measures – see especially Klein & O’Brien (2016) – used in previous social psychological research. While alternative dependent measures (including staples of political science research, such as feeling thermometers, etc.) could have been devised, we believe that our dependent measures allow us to incrementally advance our knowledge of negativity bias by adhering to best normal scientific practices while also measuring outcomes of inherent interest to scholars of legislative politics.

**Study 1: Negativity Bias and Reputation Change**

Experiments 1A and 1B are designed to assess valence associated biases in reputation/impression change. Participants in experiment 1A read about a fictional U.S. Representative Davis, who is described as having previously served six terms in office. Participants were informed that, over the course of his congressional career, Representative Davis’s record has been consistently average in terms of legislative achievement/effectiveness. In addition, partisan identifying information (e.g., “Democratic Congressman Gary Davis”) was also

---

To confirm that Volden and Wiseman’s (2014) conceptualization of what makes an effective legislator comports reasonably with the American public’s conceptualization of legislative effectiveness, we fielded a survey question with definitions, as well as leaving a write in space. Results (see Table A2 of the Appendix) stemming from this question suggest that Volden and Wiseman’s conceptualization is roughly consistent with lay notions of effectiveness (45% of respondents chose the definition approximating theirs, while 46% chose the option comporting with what is commonly known as the “delegate” model of representation). Upon sifting through the write-in responses, we note that many such responses focused on MCs’ ability to work across the aisle and find compromise, which, while this might be indirectly related to Volden and Wiseman’s measure, it seems to us that many favored this as an end in itself as opposed to a means of passing bills into law. We believe that further research is needed to validate Volden and Wiseman’s measure as it pertains to public opinion, but our single survey item here provides tentative evidence that it is capturing something that citizens care about.
randomly assigned in order to assess whether negativity bias operates differently when evaluating partisan in-group members versus those of the out-group. Participants were then, based upon random assignment, asked to imagine that Representative Davis seems to have been more ineffective by introducing and passing less bills (bad) lately than usual or that he seems to have become more effective by introducing and passing more bills (good). Additionally, whether and which partisan identity was ascribed to the candidate was randomized. Then, as our primary dependent measure, participants reported how many consecutive congressional terms (from 1 to 6+) of such consistent legislative activity would be necessary in order to convince them that the legislator’s overall effectiveness had officially changed—as opposed to a chance, happenstance, or fluke change.

Experiment 1B is highly similar in design to 1A—the main difference being that it is conducted in order to investigate the evaluative negativity bias in evaluations of reputation change of the institution of U.S. Congress as a whole. Participants in this experiment read a fictional account of the general trend of congressional output over the past six sessions. Participants were informed that during this time Congress has been moderately effective in its output as an institution, passing an average number of bills per session over the past six years identical to that of the previous ten. Next, based upon the condition to which they are randomly assigned, participants were asked to imagine that, in recent months, Congress becoming especially ineffective—passing a lower number of bills in areas deemed important by the public—(bad) or especially effective—passing a higher volume of bills deemed important by the public—(good). Additionally, whether participants are informed of the partisan distribution of the members of Congress was randomized. To safeguard experimental realism to a reasonable extent, we did not include a condition featuring a Democratically controlled Congress. Assigning partisanship at random for the legislator was less problematic because the legislator was hypothetical. For the primary dependent measure, participants were asked to report how many consecutive legislative sessions (from 1 to 6+) of the sort of behaviors they read about would be required in order for them to conclude that the
institution of Congress has officially changed for better or worse.

**Study 2: Negativity Bias and the Willingness to Punish or Reward**

Going beyond study 1, an important potential consequence of a negativity bias in impression formation may be a similarly asymmetrical willingness to punish negatively valenced actions versus rewarding positive actions. To test this, in Study 2A we presented respondents with information about a fictional legislator, telling them that the congressman has in the past been either especially weak or strong in terms of legislative effectiveness. Respondents were then presented with up to six individual legislative behaviors of either a positive or negative valence and instructed that they should indicate a willingness to vote for (against) the individual legislator once they believe that the new behaviors are enough outweigh the past behavioral trend presented in the first part of the vignette. After each behavior is presented, participants were asked whether or not the sum of information presented thus far was enough for them to vote for (against) the legislator or whether more information was required. The DV is the number of behaviors needed to make a determination (1-6+).

Study 2B is highly similar to 2A, with the exception again being that study 2B focuses on Congress as a whole as opposed to an individual legislator. As with study 2A, participants either read about a very effective or non-effectual Congress, and are then presented with individual congressional behaviors and asked whether they new information is enough cause to reward or punish the Congress by indicating approval or disapproval of the institution. As with study 2A, the dependent variable is the number of behaviors needed to a make determination (ranging from 1 to 6+).

**Study 3: Negativity Bias and Evaluation of Legislative Effectiveness**

Studies 3A and 3B are designed to investigate negativity bias in performance evaluation. Participants were presented with information about either an individual legislator (study 3A) or Congress (study 3B) and were told that their performance was average over 80% of the duration under consideration but that, in the final 20%, their performance had
either become above or below average (by equivalent amounts) or stayed average. Then, respondents rated the overall legislative effectiveness using a 5 pt Likert measure.

**Results**

In studies 1A and 1B, we are interested in the differential effects of information valence upon reputation updating. Specifically, in study 1A we investigate whether there is a significant difference in the duration of consistently negative legislative behavior necessary to conclude that a legislator known formerly to be effective has “officially” become ineffective versus the duration of consistently positive legislative behaviors required to conclude that a previously known ineffective legislator has officially transformed into an effective legislator. In study 1B we investigate the same question, except rather than focusing on an individual fictional legislator, we focus on respondents’ evaluation of Congress as a whole. To address this question, we utilize ordinary least squares (OLS) regression, regressing the duration (measured in U.S. House terms in study 1A and congressional sessions in study 1B) indicated by the respondent upon the valence of the information that the respondent read about and whether the partisanship of the respondent matched that of the labels included in the vignette, as well an interaction term of valence and partisanship.\(^{16}\)

Results, which are presented in Table 1, indicate that in study 1A, there is a significant and negative main effect for valence. In other words, when presented with negative information regarding both legislators known previously to be effective, the average duration of negative behaviors required by respondents to conclude that Congress and legislators had officially changed for the worse (i.e., becoming less effective) is significantly less than the duration of positive behaviors required to conclude that a previously ineffective Congress or

\(^{16}\)All analyses were conducted in Stata 14. We utilized Stata’s full factorial regression command feature to analyze the interaction effect of information valence and partisanship (in)congruence between respondents and the object under evaluation (either Congress or a fictional legislator). This statistical tool is highly beneficial as it makes discerning main effects and interaction effects very straightforward. Marginal effects were calculated utilizing Stata’s “margins” command. Graphics were constructed in R.
legislator had become definitively effective. Moreover, the magnitude of this main effect is substantial, accounting for nearly an entire U.S. House ($\beta = -0.97$, p < .001) term. Overall, this is clear evidence of negativity bias in how citizens perceive behavioral change of political elites. In study 1B, however, we do not find evidence of a significant main effect for information valence ($\beta = -0.45$, n.s.), signaling that respondents did not exhibit an overall negativity bias when evaluating Congress.

Next we direct our attention to interaction effects of the two models. Specifically, we are interested how information valence is moderated by partisanship—or, the congruence or lack thereof in partisanship between the respondent and the object under evaluation (either a legislator or Congress). To estimate these effects, we regress our behavior duration DV upon a multiplicative-interaction of valence and partisan congruence, setting partisan reference category as “mismatched” respondents (i.e., respondents whose partisanship is opposite of the legislator/Congress with whom they were matched to via random assignment).17

Results indicate that the effects of negative information upon the reputation change of legislators (Study 1A) are not moderated by (in)congruence in partisan identity between the respondents and the legislator being evaluated. This is not the case, however, regarding congressional reputation change (Study 1B), as results indicate that when presented with negative information about the Republican majority Congress, Republican respondents were willing to tolerate over 1.5 more sessions of negative behavior before concluding that Congress had officially become worse. Further, Figure 1 displays a marginal effects plot that shows the impact of negative information (versus positive information) on the required duration until reputation change at different levels of partisan congruency between respondents and Congress. Consistent with the affective partisanship literature, respondents whose partisan

17Note that this is a different specification than that used to calculate the main effects of both valence and partisan-congruence. Specifically, whereas the main effects models utilized those assigned to the non-partisan vignette as the reference category (which is necessary in order to determine the affects of including partisan identifiers), the models generating the interaction effects discussed in the manuscript body set the partisan mis-matched respondents as the reference category, which was necessary in order to draw a comparison in the effects of information valence between mis-matched and matched respondents.
identity is incongruent (Democrats in this case) with the Republican Congress require a significantly shorter duration to come to a conclusion regarding a change in legislative effectiveness when the behavioral change in question is negative than those whose partisan identity is congruent with Congress or in non-partisan contexts.

Figure 1: Study 1B Marginal Effect of Negatively Valenced Information on Duration Until Reputation Change

![Figure 1: Study 1B Marginal Effect of Negatively Valenced Information on Duration Until Reputation Change](Note: This figure plots the marginal effect of negative information valence upon the behavioral duration (measured in number of congressional sessions) required to make a determination regarding reputation change across different levels of partisan congruity between the experimental stimulus and the respondents self-reported partisan identity (including being matched with the opposite party, seeing a non-partisan vignette, and being matched with a co-partisan). Marginal Effects were calculated using Stata’s “margins” and “dydx” command, and MODEL.)

Next, in studies 2A and 2B, we investigate the differential effects of information valence in citizens’ willingness to punish and reward individual legislators and Congress. In study 2A, we regress the number of behaviors—either positive or negative in valence depending on random assignment—that respondents felt was sufficient to either punish or reward (i.e., vote for or against) the legislator on the valence of the behaviors, degree of partisan congruence between the legislator and respondent, and an interaction term of these two vari-
ables. Results, presented in Table 2, indicate that there is a positive and significant main effect for valence, which does not support our second negativity bias hypothesis (Hypothesis 2). Indeed, while this result does suggest that respondents processed negative information differently from positive information, we see that respondents were quicker to make decisions when exposed to positive information than they were when exposed to negative information. Results also indicate a significant interaction between information valence and partisan congruence whereby, in comparison to those who were evaluating a legislator of the opposite party, those whose partisanship is congruent with the legislator being evaluated were willing to excuse an additional 1.92 negative behaviors on average before expressing a willingness to vote against him.

Exploring this result further by shifting our attention to the the marginal effects plot displayed in Figure 2, we can see that this result is being driven by an information valence effect asymmetry in co-partisan evaluation–i.e., while a shift from positive to negative information leads to a 1.6 increase \((p < .001)\) in the pieces of information needed on average to reach a decision regarding a co-partisan, there is no significant difference when evaluating candidates of the opposite party.\(^{18}\) This result, while perhaps somewhat surprising at first glance, makes better sense upon closer inspection.

To make proper sense of this result, one must appeal to prospect theory and to loss aversion in particular (Kahneman & Tversky 1979). The result in question suggests that partisans require a statistically significantly lesser amount of positive information to vote for a co-partisan candidate than they do negative information to vote against a co-partisan candidate. When evaluating candidates from the opposite party, however, the volume of information necessary to reach a decision does not differ significantly as a function of the valence of that information. Taken together, these results are entirely consistent with both motivated reasoning and loss aversion – two key components of prospect theory as well.

\(^{18}\)Though failing to reach statistical significance, the coefficient (-.29) is in the direction we would expect given the affective partisanship hypothesis.
as to understanding negativity bias in polarized partisan contexts. Loss aversion follows a familiar logic to negativity bias, essentially positing that people lose more satisfaction from losing what they already have (e.g., losing $50) than the amount of satisfaction they gain from acquiring an equivalent sum (e.g., gaining $50). Applied to a partisan context, the average partisan voter likely derives for utility from "preventing lost esteem" than they do from "gaining schadenfreude" at the out-party’s expense. In other words, in many cases those with meaningful partisan identities may be more cognitively preoccupied with avoiding an admission that their own co-partisan politician is dropping the ball than they are with demonstrating that the out-party is doing so.\footnote{We humbly and sincerely thank Reviewer 3 for suggesting we engage more with prospect theory to help square this result with the broader study – this paper and our own understanding of negativity bias is much better for it.} While admittedly post-hoc, we believe that taking loss aversion and motivated reasoning (as well as prospect theory more broadly) into consideration is necessary for understanding negativity bias in contexts in which powerful social identities are salient and meaningful. Moreover, we urge other researchers to continue to flesh this out in a more robust and thorough way than we are able to do here.

While neither of our hypotheses were supported in study 2A, we find support for our affective polarization hypothesis in study 2B. Directing our attention once again to Table 2, we see that there no statistically significant main effect for negative valence. Put plainly, this means that respondents do not require a greater amount of negative information to make a decision regarding punishment than positive information to reward. Regarding the interaction effect of valence and partisan congruence, we find clear evidence in favor of the affective polarization hypothesis (Hypothesis 4). Our results indicate that, when reading about negative actions (i.e., legislative failings) carried out by the Republican majority Congress, Democratic respondents allow 2.3 fewer negative behaviors ($p = .004$) on average before disapproving of Congress than do Republican respondents. The marginal effects plots presented in Figure 3 help to further clarify this relationship. As Figure 3 illustrates, for those Democratic leaning respondents randomly assigned to evaluate the Republican
Table 1: Study 1 Regression Results - Negativity Bias and Reputation Updating

<table>
<thead>
<tr>
<th></th>
<th>Study 1A Ind. Legislator</th>
<th>Study 1B Congress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence (main effect)</td>
<td>-0.97* (0.26)</td>
<td>-0.45 (0.34)</td>
</tr>
<tr>
<td>Party-Match (main effect)</td>
<td>-0.06 (0.26)</td>
<td>-0.24 (0.38)</td>
</tr>
<tr>
<td>Party-Mismatch (main effect)</td>
<td>0.03 (0.27)</td>
<td>0.42 (0.34)</td>
</tr>
<tr>
<td>Constant</td>
<td>3.08 (0.19)</td>
<td>3.84 (0.21)</td>
</tr>
<tr>
<td>N</td>
<td>304</td>
<td>202</td>
</tr>
</tbody>
</table>

Note: Asterisk (*) denotes a p-value of less than 0.05. DV is the duration (measured in house of representatives terms in 2A and congressional sessions in 2B) of time that the new behaviors would need to continue before an “official” change in effectiveness would be cemented. Main effects are calculated with using linear regression, regressing the DV on a full-factorial interaction of information valence and a nominal variable capturing whether respondents read about a politician or Congress that matched their own partisan leanings or if they politician or Congress was described in a non-partisan way (in this instance, those who read about a politician or Congress of ambiguous partisanship comprise the reference category). Because the interaction effects of interest (and that which is discussed in the results body) involve using a different category as the reference group (i.e., mis-matched partisans), the interaction effect from the model used to calculate the main effects is not presented in this table.

Congress (the opposing party condition), those reading about negative behaviors reached a decision to punish Congress after exposure to 1.5 behaviors fewer, on average, as compared to those deciding to reward the Congress after reading about positive behaviors. Meanwhile, for respondents randomly assigned to the party match condition or to the non-partisan condition, there is no significant difference in in the average number of negative behaviors necessary to punish Congress versus the number of positive behaviors needed to reward Congress.
Lastly, in studies 3A and 3B, we investigate whether negativity bias is present in retrospective evaluations of overall legislative effectiveness. In study 3A, respondents read about a congressman who, for the first five of his six terms, had been of average effectiveness – proposing an average of 13 bills per term. Prior to being asked to rate the legislator’s effectiveness over his entire career, respondents either learned that, conditional on random assignment, the congressman had been more effective (proposing 18 bills), less effective (proposing 8 bills), or had stayed the same (proposing 13 bills again) in his final term.

In this study, we are interested in distinguishing whether there was an asymmetry in the impact of negative information versus positive information upon retrospective evaluations of legislative effectiveness. To do so, we conducted a one-way analysis of variance or ANOVA (N = 327). Unsurprisingly, results indicate that information valence has a significant effect
Table 2: Study 2 Regression Results - Negativity Bias and the Calculus to Punish or Reward

<table>
<thead>
<tr>
<th></th>
<th>Study 2A</th>
<th>Study 2B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ind. Legislator</td>
<td>Congress</td>
</tr>
<tr>
<td>Valence (main effect)</td>
<td>1.18*</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td>(0.40)</td>
<td>(0.39)</td>
</tr>
<tr>
<td>Party-Match (main effect)</td>
<td>-0.55</td>
<td>-0.20</td>
</tr>
<tr>
<td></td>
<td>(0.42)</td>
<td>(0.53)</td>
</tr>
<tr>
<td>Party-Mismatch (main effect)</td>
<td>0.58</td>
<td>1.29*</td>
</tr>
<tr>
<td></td>
<td>(0.40)</td>
<td>(0.47)</td>
</tr>
<tr>
<td>Constant</td>
<td>2.96</td>
<td>2.80</td>
</tr>
<tr>
<td></td>
<td>(0.29)</td>
<td>(0.30)</td>
</tr>
<tr>
<td>N</td>
<td>292</td>
<td>201</td>
</tr>
</tbody>
</table>

Note: Asterisk (*) denotes a p-value of less than 0.05. DV is the number of behaviors (either positive or negative) respondents required before deciding to reward or punish the legislator/Congress. Main effects are calculated with using linear regression, regressing the DV on a full-factorial interaction of information valence and a nominal variable capturing whether respondents read about a politician or Congress that matched their own partisan leanings or if they politician or Congress was described in a non-partisan way (in this instance, those who read about a politician or Congress of ambiguous partisanship comprise the reference category). Because the interaction effects of interest (and that which is discussed in the results body) involve using a different category as the reference group (i.e., mis-matched partisans), the interaction effect from the model used to calculate the main effects is not presented in this table.

on evaluations of legislative effectiveness $F = 4.35, p = .012$). Post-hoc comparisons utilizing Tukey’s test reveals that evaluations of legislative effectiveness for those assigned to the negative condition were significantly lower than the neutral condition ($\Delta = -.24, p < .05$). Meanwhile, however, no significant difference in effectiveness ratings emerged between the positive and neutral conditions ($\Delta = .12, p < .44$).\(^{20}\)

These results represent clear evidence in favor of our third negativity bias hypothesis (“Hypothesis 3”). Indeed, while respondents rated as significantly less effective the legislator who proposed 5–or 39%–fewer bills than his average in his most recent term (compared to a legislator who remained average in the most recent term), respondents did not rate significantly more effective the legislator who showed an equivalent improvement (5 more bills). The negativity bias illustrated here is all the more notable considering the minute difference in average bills proposed throughout the legislator’s career across the three conditions—12.17

\(^{20}\)Results of studies 3A and 3B are robust to other post-hoc comparison tests, such as the Student-Neuman-Keuls and Duncan methods. We present Tukey’s here because of its ubiquitousness in the literature.
in negative condition, 13 in the neutral condition, and 13.83 in the positive condition. That voters are sensitive minor slips in legislative performance, while ignoring equivalent boosts, is noteworthy and, perhaps, somewhat troubling.

Study 3B (N = 321) follows a nearly identical structure to 3A, however it is designed to assess whether negativity bias is present in evaluations of Congress as a whole as opposed to a single legislator. As such, statistical procedures are also identical. Like study 3A, results of study 3B do provide evidence in favor of Hypothesis 3. One-way ANOVA results indicate that information valence significantly affects retrospective evaluations of the legislative effectiveness of Congress at conventional thresholds (F = 3.54, p = .03). As with study 3A, the most noteworthy takeaway from the results of the Study 3B is that while a slight dip in effectiveness leading to a notably small change in overall effectiveness sees
respondents evaluate Congress significantly less favorably relative to the neutral condition of no-change ($\Delta = -.34$, $p < .05$), and equivalent boost in effectiveness does not significantly alter evaluations on average ($\Delta = -.03$, $p = .97$). Overall, studies 3A and 3B reveal perhaps the most clear-cut evidence of negativity bias in evaluations of legislative performance.

Figure 4: Study 3A and 3B results

Discussion & Conclusion

The results of the six studies (summarized in Table 3) provide evidence of negativity bias in evaluations of legislators and institutions. We show that negativity bias is present to some extent in three distinctive areas of congressional evaluation: retrospective evaluation of overall legislative effectiveness, reputation formation, and the psychological calculus to punish and reward. Furthermore, our evidence suggests that negativity bias in politics is

Note: This figure plots the mean evaluation by respondents of the fictional congressman (Study 3A) or Congress as an institution (Study 3B). Voters were randomly assigned to receive information of a positive (increased effectiveness), negative (decreased effectiveness), or a neutral (effectiveness was unchanged) valence. The bands represent 95% confidence intervals.
Table 3: Summary of Study Results

<table>
<thead>
<tr>
<th>Study</th>
<th>Hyp. 1</th>
<th>Hyp. 2</th>
<th>Hyp. 3</th>
<th>Hyp. 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A: Rs assess how many terms of the legislator’s activity mentioned would be necessary to convince them the legislator’s effectiveness has changed (partisanship randomly assigned)</td>
<td>Supported</td>
<td>N/A</td>
<td>N/A</td>
<td>Not Supported</td>
</tr>
<tr>
<td>1B: Identical to 1A but Congress is the object of evaluation (mention of Congress as Republican randomly assigned)</td>
<td>Not Supported</td>
<td>N/A</td>
<td>N/A</td>
<td>Supported</td>
</tr>
<tr>
<td>2A: Rs assess how many consecutive behaviors would be necessary to outweigh the past strength/weakness of their legislator’s previous (in)effectiveness</td>
<td>N/A</td>
<td>Not Supported</td>
<td>N/A</td>
<td>Not Supported</td>
</tr>
<tr>
<td>2B: Identical to 2A but Congress is the object of evaluation (mention of Congress as Republican randomly assigned)</td>
<td>N/A</td>
<td>Supported</td>
<td>N/A</td>
<td>Supported</td>
</tr>
<tr>
<td>3A: Rs evaluate whether the effectiveness of an “average” legislator has changed when presented with their performance in the final 2 years of their service</td>
<td>N/A</td>
<td>N/A</td>
<td>Supported</td>
<td>N/A</td>
</tr>
<tr>
<td>3B: Identical to 3A but Congress is the object of evaluation</td>
<td>N/A</td>
<td>N/A</td>
<td>Supported</td>
<td>N/A</td>
</tr>
</tbody>
</table>
often moderated—indeed, amplified—by group based attachments and social identities such as partisanship.

While negativity bias may be considered a heuristic that leads to more efficient judgments, we should be skeptical of its benefits in political settings. The fact that people systematically place more subjective weight on negative acts (even under objectively equal conditions) suggests that negativity bias is likely to result in suboptimal outcomes at a rate greater than chance in the context of day-to-day interactions. Imagine a scenario where the performance of a moderate to highly effective politician dips in the run-up to an election: our evidence suggests that citizens are likely to give undue weight to this negative information, increasing the probability of voting quality and experienced public servants out of office. However, one possible concern that has merit regarding the conclusions we reach about voter evaluations of MCs is that we use hypothetical legislators in our vignettes, possibly leading to a sacrifice in external validity. This concern has merit, but we argue that our conclusions remain valid. Voters do not know about the lawmaking effectiveness of their representative (Butler et al. 2019) and most cannot even name their legislators.21 On average, the evaluations we have constructed are not likely to be significantly different than voters’ evaluations of real life legislators.

Moreover, the impact of negativity bias is likely to be stronger within the current media environment and on the campaign trail where candidates hypberbolically enhance and embellish the negative traits or past behaviors of their opponents. As prior research has documented, the amount of negative news pertaining to Congress and MCs far outpaces that which is positive or neutral. Our evidence that the effects of negativity bias are amplified by partisan attachments seems especially pertinent to our contemporary hyperpolarized political climate wherein congressional approval has dipped to historic lows. For instance, since low approval may undermine Congress’ ability to “check” the other branches, a consequence may be the potential emboldening of the executive and judicial branches. This

21 A 2017 Haven Insights poll showed that only 37% of citizens could name their Representative.
may help us to make more complete sense of other empirical observations, such as presidents’ heightened ability to unilaterally influence policy during periods of congressional gridlock (Howell 2003) since, ostensibly, gridlock would receive negative coverage and perhaps make unilateral presidential action more palatable to the public as a result. This paper, however, cannot empirically weigh in on the question of negativity bias and inter-branch dynamics, though we do believe this is a fruitful avenue for future research.

While the studies presented in this paper advance our understanding of negativity bias in congressional politics, there are a number of important questions which our studies do not focus on or address. For instance, because our studies are framed in terms of legislative effectiveness (Volden & Wiseman 2014), we have focused rather narrowly on legislative action. However, much of politics (or coverage in the media) deals with individuals’ personal actions, such as charitable giving or scandals, that the public would not consider related to public officials’ job descriptions. Future research should investigate negativity biases within evaluations of such behavior and determine the potential impact of such behaviors on overall evaluations of public officials. Additionally, due to our research design, our study was limited in its ability to assess the moderating effects of partisanship, although we did bring some evidence to bear.

Future research should also devote more attention to uncovering the mechanism underlying observed differences in evaluations of legislators versus evaluations of institutions. Extant theories such as Fenno’s paradox (1978) and Sears’ (1983) “person-positivity bias” suggest that voters may evaluate MCs more favorably on average than Congress as an institution. Our results are mixed regarding this particular dynamic. While we found evidence of negativity bias in evaluations of Congress but not legislators in study 2, the same dynamic did not hold for study 1 or study 3, where we found significant evidence of negativity bias in evaluations of legislators.

Moreover, recent research in other areas of social science, such as a study finding that
gender biases influence teaching evaluations (Mengel, Sauermann & Zolitz 2017), suggest that an important and potentially fruitful avenue for future research regarding negativity bias is the potential moderating effect of candidate gender and other characteristics. Lastly, thanks to benefits of the peer-review process, we believe that this paper – especially the results and discussion of Study 2A – begins to shed light on the explanatory power of prospect theory for helping understand the contours of negativity bias, particularly in contexts where powerful social identities are activated. We recommend that a more focused study and elaboration of theory on this question be undertaken.

Overall, this paper adds to a growing body of evidence illustrating that negativity bias is widespread in information processing about legislative politics. Furthermore, the evidence presented and discussed in this paper joins others (e.g., Soroka 2014) in furthering our understanding of how cognitive biases have the potential to be detrimental to democratic government. Enacting reforms to counteract these biases would be difficult to say the least: the phenomenon appears to be ingrained in our psyche, and may even be an evolved trait. Indeed, negativity bias is likely to remain an enduring feature of our politics, and thus merits further research regarding its implications for democratic society.
References


Vinson, C. D. (2013). Congress and the Media: Who has the upper hand?. In New Directions in Media and Politics (pp. 159-175). Routledge.


Appendix

Experimental Stimuli

The stimuli for each of the experimental studies are provided below. Italicized words indicate which components of the text were randomized, and forward-slashes separate the potential values.

**Study 1A:** Gary Davis \( [(R/D)] \), a Republican/Democrat, has been serving in the U.S. House of Representatives for six terms (12 years). According to an official measure developed by political scientists, Representative Davis has been of overall average or mediocre effectiveness in Congress so far, passing an average of 2 bills into law in each of his first five terms (10 years). As a comparison, in recent congresses the average legislator has passed 2 bills into law per congressional term (every 2 years).

In his most recent term, Representative Davis \([(R/D)]\) has shown signs of becoming a less/more effective representative by introducing 1/3 bills that were successfully signed into law, which is 1 less/more than his average over his first five terms, and one less/more than the average legislator in Congress.

Question: How many consecutive terms of this behavior would it take for you to officially conclude that Representative Davis \([(R/D)]\) has become an (in)effective legislator? Remember, each term lasts 2 years.

**Study 1B:** Over the past six sessions since 2010 (6 years), according to an official measure developed by political scientists, [Republican majority] Congress has been of overall average or mediocre effectiveness, passing an average of 336 bills into law in each of the first five of the last six terms. As a comparison, since the year 2000, the average number of bills passed into law by other congresses was 335, or about the same.

In the most recent session, [the Republican controlled] Congress has shown signs of becoming a less/more effective legislative institution by passing 252/420 bills, which is 84 less/more than their average over the other five sessions since 2010, and eighty five less/more bills than the average since 2000. Question: How many consecutive sessions of this behavior would it take for you to officially conclude that [Republican majority] Congress has become an (in)effective institution? Remember, there is one session per year.

**Study 2A:** [Republican/Democratic] Representative Ted Richardson has been in Congress for five years. He will be facing reelection soon. During these five years in Congress, Richardson has been a(n) below/above average legislator in terms of effectiveness. In fact, Richardson has introduced several bills and none/each of them successfully became laws.

While Representative Richardson’s past record has been bad/good and (in)effective, voters should still/refuse (to) vote for him if he shows signs of officially declining/improving and becoming an (in)effective legislator. In other words, voters should refuse to vote for Representative Richardson only if his change in legislative effectiveness seems to be real and here to stay, rather than a mere fluke.
We now ask you to consider some behaviors that Representative Richardson (\([R/D]\)) has engaged in recently. After considering the behavior, please indicate whether you would vote \textit{for/against} Richardson based on such behavior(s), or whether you would require more information.

**Study 2B:** Over the past three years, [Republican majority] Congress has \textit{failed/succeeded} in passing many pieces of legislation. This \textit{failure/success} has \textit{upset/satisfied} many of the nation’s citizens.

While Congress record of passing important pieces of legislation over the past three years has been \textit{poor/good}, citizens should still \textit{(dis)approve} of Congress if Congress shows signs of officially \textit{improving/worsening} and becoming a \textit{more/less} effective institution incapable of passing major pieces of legislation. In other words, citizens should \textit{(dis)approve} of Congress only if the institution’s negative behavior seems to be real and here to stay rather than a mere fluke.

We now ask you to consider some behaviors that \textit{the Republican} Congress has engaged in recently. After considering each behavior, please indicate whether you would \textit{(dis)approve} of Congress based on such behaviors, or whether you would require more information to \textit{(dis)approve} of their performance.

**Study 3A:** Gary Davis \([R/D]\), a Republican/Democrat, has been serving in the U.S. House of Representatives for 6 terms (12 years). In his first 5 terms (10 years), Representative Davis \([R/D]\) proposed an average of 13 bills each term. As a comparison, the average legislator in Congress proposed about 13 bills per 2-year term.

In his most recent term, Representative Davis \([R/D]\) proposed \(5/13/18\) bills (five \textit{below/above} average for Rep. Davis and \textit{less/the same number of/more proposals} than the average legislator in Congress). In your opinion, how effective or ineffective of a legislator has Representative Davis been during his career?

**Study 3B:** From 2010 to 2014 (4 years), \textit{Republican majority} Congress passed an average of 336 bills per year (about average). But over the past two years, 2015 and 2016, Congress has passed an average of \(252/420\) bills (\textit{below/above} average).

In your opinion, how effective or ineffective has [Republican majority] Congress been during the last 6 years, from 2010-2016?
Tables and Figures of Results of the Entire Sample (Including Possible Bots)

Table A1: Survey Sample Statistics

<table>
<thead>
<tr>
<th></th>
<th>MTurk Sample</th>
<th>ANES 2016 Pilot Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>38.35</td>
<td>48.06</td>
</tr>
<tr>
<td>% Male</td>
<td>54.68</td>
<td>47.50</td>
</tr>
<tr>
<td>% White</td>
<td>74.82</td>
<td>72.91</td>
</tr>
<tr>
<td>% College Degree</td>
<td>54.78</td>
<td>35.83</td>
</tr>
<tr>
<td>% Republican</td>
<td>24.63</td>
<td>32.08</td>
</tr>
<tr>
<td>N</td>
<td>1807</td>
<td>1200</td>
</tr>
</tbody>
</table>

Table A2: What Best Describes an Effective Legislator?

<table>
<thead>
<tr>
<th></th>
<th>Percentage Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voting in a way that is consistent with the opinion of their constituents.</td>
<td>46.36%</td>
</tr>
<tr>
<td>The ability to secure federal funds for use in the legislators district</td>
<td>4.34%</td>
</tr>
<tr>
<td>The ability to get legislation passed that is important for the country and district</td>
<td>44.58%</td>
</tr>
<tr>
<td>Other</td>
<td>4.72%</td>
</tr>
<tr>
<td>N</td>
<td>2141</td>
</tr>
</tbody>
</table>

Note: Percentage of respondents who selected each answer to the question “Which of the following qualities best represents the most important quality that an effective legislator should have? If another quality comes to mind other than those listed below, please choose “other” and write in the quality you have in mind next to your choice.” Question order was randomized.

Table A3: Study 1 Regression Results - Negativity Bias and Reputation Updating, Pre-(Likely) Bot Removal

<table>
<thead>
<tr>
<th></th>
<th>Study 1A</th>
<th>Study 1B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ind. Legislator</td>
<td>Congress</td>
</tr>
<tr>
<td>Valence (main effect)</td>
<td>-0.88*</td>
<td>-0.45</td>
</tr>
<tr>
<td></td>
<td>(0.25)</td>
<td>(0.33)</td>
</tr>
<tr>
<td>Party-Match (main effect)</td>
<td>-0.36</td>
<td>-0.26</td>
</tr>
<tr>
<td></td>
<td>(0.26)</td>
<td>(0.38)</td>
</tr>
<tr>
<td>Party-Mismatch (main effect)</td>
<td>0.01</td>
<td>-0.33</td>
</tr>
<tr>
<td></td>
<td>(0.26)</td>
<td>(0.38)</td>
</tr>
<tr>
<td>Constant</td>
<td>3.04</td>
<td>3.86</td>
</tr>
<tr>
<td></td>
<td>(0.18)</td>
<td>(0.21)</td>
</tr>
<tr>
<td>N</td>
<td>322</td>
<td>210</td>
</tr>
</tbody>
</table>
Figure A1: Distribution of Relevant IP Address Types in the Full Sample

Note: This figure, produced using the rIP R package (version 1.2.0), plots the distribution of relevant IP Address types within our full MTurk sample, collected in July of 2017. The blue bar represents the number of clean (i.e., confidently non-bot) responses, whereas the gray and red bars represent IP addresses traced back to foreign IP addresses and known VPS/VPNs respectively. Analyses in the main manuscript exclude responses that fell into the gray and red bars. Replications of these analyses using the full sample (including responses in the gray and red bars) are included elsewhere in the Appendix.
Figure A2: Study 1B Marginal Effect of Negatively Valenced Information on Duration Until Reputation Change, Pre-(Likely) Bot Removal

Note: This figure plots the marginal effect of negative information valence upon the behavioral duration (measured in number of congressional sessions) required to make a determination regarding reputation change across different levels of partisan congruity between the experimental stimulus and the respondents self-reported partisan identity (including being matched with the opposite party, seeing a non-partisan vignette, and being matched with a co-partisan). Marginal Effects were calculated using Stata’s “margins” and “dydx” command, and MODEL.
Table A4: Study 2 Regression Results - Negativity Bias and the Calculus to Punish or Reward, Pre-(Likely) Bot Removal

<table>
<thead>
<tr>
<th></th>
<th>Study 2A</th>
<th>Study 2B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ind. Legislator</td>
<td>Congress</td>
</tr>
<tr>
<td>Valence (main effect)</td>
<td>1.17* (0.40)</td>
<td>0.18 (0.38)</td>
</tr>
<tr>
<td>Party-Match (main effect)</td>
<td>-0.53 (0.41)</td>
<td>-0.31 (0.52)</td>
</tr>
<tr>
<td>Party-Mismatch (main effect)</td>
<td>0.52 (0.40)</td>
<td>1.29* (0.45)</td>
</tr>
<tr>
<td>Constant</td>
<td>2.96 (0.29)</td>
<td>2.84 (0.28)</td>
</tr>
<tr>
<td>N</td>
<td>305</td>
<td>214</td>
</tr>
</tbody>
</table>

Note: Asterisk (*) denotes a p-value of less than 0.05. DV is the number of behaviors (either positive or negative) respondents required before deciding to reward or punish the legislator/Congress. Main effects are calculated with using linear regression, regressing the DV on a full-factorial interaction of information valence and a nominal variable capturing whether respondents read about a politician or Congress that matched their own partisan leanings or if they politician or Congress was described in a non-partisan way (in this instance, those who read about a politician or Congress of ambiguous partisanship comprise the reference category). Because the interaction effects of interest (and that which is discussed in the results body) involve using a different category as the reference group (i.e., mis-matched partisans), the interaction effect from the model used to calculate the main effects is not presented in this table.

Figure A3: Study 2B Marginal Effect of Negatively Valenced Information on Number of Behaviors Until Decision, Pre-(Likely) Bot Removal
Study 3A Results, Pre-Bot Removal:

results indicate that information valence has a significant effect on evaluations of legislative effectiveness $F = 4.35$, $p = .012)$. Post-hoc comparisons utilizing Tukey’s test reveals that evaluations of legislative effectiveness for those assigned to the negative condition were significantly lower than the neutral condition ($\Delta = -.24$, $p < .05$). Meanwhile, however, no significant difference in effectiveness ratings emerged between the positive and neutral conditions ($\Delta = .11$, $p < .53$).  

Study 3B Results, Pre-Bot Removal:

One-way ANOVA results indicate that information valence does not significantly affect retrospective evaluations of the legislative effectiveness of Congress at conventional thresholds ($F = 2.26$, $p = .10$). Moreover, while the magnitude of the negativity bias in study 3B appears to be slightly larger in this study—the difference in means between the negative and neutral conditions being -.27—(and the relevant pairwise comparisons appearing as statistically significant utilizing the Student-Neuman-Keuls and Duncan methods), pairwise comparisons utilizing Tukey’s method are insignificant. Because these results are lacking in statistical clarity, we cannot with confidence reject the null hypothesis. We do note that, p-values aside, because the estimates are in line with those in study 3A.

\footnote{These results are robust to multiple post-hoc comparison tests. We present Tukey’s here because of its ubiquitousness in the literature.}