

# Appealing to the Base or to the Moveable Middle? Incumbents' Partisan Messaging Before the 2016 U.S. Congressional Elections

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## Abstract

This paper examines partisan communications of incumbent members of Congress during the nine weeks leading up to the U.S. 2016 election. The central premise is rooted in the median voter theorem, which is coupled with theories of political activation and reinforcement, to show how politicians communicate in order to attract support from large swaths of the public. We analyze the partisanship of tweets posted by incumbents in Congress using mixed-effects models to examine the relationships between party, time, and race competitiveness on the degree of partisanship expressed by politicians. Our results reveal that Democrats and Republicans exhibited different partisanship signaling patterns in the weeks before the election. Specifically, Democrats decreased their partisanship, perhaps to appeal to the median voter, while Republicans stayed consistent in their partisanship, potentially using Twitter to activate and reinforce voters rather than to win them over.

## Introduction

Political polarization has been widely discussed in political communication research and the popular press for over half a century (see, e.g., Sunstein, 2001). Politicians sort into clear camps with little overlap between groups, making it hard for them to establish common ground from which to govern<sup>1</sup>. These polarized parties have clear differences even if the gap between those positions is narrow. The general sense is that partisanship—parties' efforts to make the distinction between parties clear—is increasing (see, e.g., Andris et al., 2015; Baldassarri & Gelman, 2008; Brady & Han, 2006; Poole & Rosenthal, 1984), meaning politicians are more effectively sorting themselves into non-overlapping groups, creating problems for multi-party governance (Jesuit & Williams, 2017). As parties become more clearly differentiated, the inter-party gap becomes institutionalized.

In this paper, we examine the dynamics of the inter-party gap, focusing particularly on the nature of partisan communications of incumbent members of Congress (MCs) during the 2016 U.S. election cycle. We formally test hypotheses rooted in campaign-related theories—the median voter theorem in particular—that predict various strategies for partisan or nonpartisan messaging. We use #polar scores (Hemphill, Culotta, & Heston, 2016) to measure the partisanship of tweets posted by incumbents in Congress and then use mixed-effects models to examine the relationships between party, time, and race

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<sup>1</sup> We use the term “polarization” when referring to measures of how dispersed political actors are or how ideologically consistent they are, not how extreme they are (Curini & Hino, 2012; Pew Research Center, 2014; Smidt, 2017).

competitiveness on the degree of partisanship expressed by candidates. #Polar scores are a partisanship measure that rely on the hashtags used by MCs to estimate individuals' positions on a liberal-conservative spectrum, and #polar scores' correlation with DW-NOMINATE shows that politicians effectively sort themselves into parties through their hashtag use. By analyzing how #polar scores change over time and vary between parties, we are able to specifically analyze how candidates adjust their partisan signals in the period leading up to an election.

We found Democrats and Republicans exhibit different partisanship signaling patterns in the weeks preceding the 2016 elections: Democrats decreased their partisanship, following the "median voter" (Downs, 1957) playbook, while Republicans remained consistent in their messaging and thus used Twitter to activate and reinforce (Lazarsfeld, Berelson, & Gaudet, 1948) their base. These differences suggest that the two parties use social media differently, and that we are just beginning to understand the impacts of those differences.

## Background and Hypotheses

### Political Polarization and Partisanship

From 1972 to 2008, both Democrats and Republicans among the general public moved further to, respectively, the left and right of "ideologically center," effectively widening the gap between each party's average member (Abramowitz & Saunders, 2008; Lee, 2008). Over the same period, moderates positioned at the center of the ideological spectrum dropped from 35 to 27 percent of the American voting public (Abramowitz & Fiorina, 2013) while party loyalty, measured by the percentage of Democrats and Republicans voting along straight-ticket lines, increased (Baldassarri & Gelman, 2008). For example, 2016 exit polls show 89 percent of Democrats and 90 percent of Republicans voted for, respectively, Clinton and Trump (Huang, Jacoby, Strickland, & Lai, 2016). Some argue the polarization of the American electorate is not a recent phenomenon (Fiorina & Abrams, 2008; Fiorina, Abrams, & Pope, 2011; Jensen et al., 2012) and that it simply reflects a more "sorted" electorate where party affiliation and ideology are now more strongly affiliated (Fiorina et al., 2011; Levendusky, 2010).

Polarization is, in part, a function of shifts in political marketing as politicians attempt to reframe the policy agenda and their own political positions in ways that eventually filter into the traditional media (Shapiro & Hemphill, 2017). This process has been occurring over an extended period of time with analyses of congressional language over 130 years revealing higher levels of ideological polarization in the past (Jensen et al., 2012)<sup>2</sup>. However, after controlling for finite-sample and other previously ignored biases, Gentzkow, Shapiro, & Taddy (2016) showed that partisan language has in fact significantly increased since the early 1990s. They analyzed Congressional speeches and argued that the specific type of language used within each party has grown increasingly distinct from the opposite party when communicating about virtually the same topics. The original #polar score study (Hemphill et al., 2016) reveals that these distinctions are also present on Twitter in that parties use distinctly different hashtags even when discussing the same issue<sup>3</sup>. Given that politicians attempt to reach particular and targeted

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<sup>2</sup> The methods employed in (Jensen et al., 2012) are consistent with those identifying key policy topics in congressional press statements via Bayesian inference, shown elsewhere in Grimmer (2010) and Quinn et al. (2010).

<sup>3</sup> For instance, #getcovered and #trainwreck were both used to discuss the Affordable Care Act. Democrats used #getcovered to encourage constituents to purchase insurance on the exchanges the ACA established while Republicans used #trainwreck to criticize the bill and the exchanges.

audiences (Hemsley, Stromer-Galley, Semaan, & Tanupabrungsun, 2018; Kreiss, 2016), it follows that their partisanship is part of an overall messaging strategy.

In summary, polarization and partisanship are not new, but the effects of nuanced language differences are a more recent phenomenon. In addition, the extant research does not yet explain the relationship between the political campaign cycle and the short-term patterns of partisan messages used by American politicians. Assuming such patterns of partisan messaging play a significant role in politicians' campaign strategies, it is now prudent to expand upon and integrate novel forms of communication into our current understanding of the impacts of partisanship.

## Congress and Its Audiences

The impact of Congress's social media use depends in part on the audience of their messages, which in turn influences how social media tools might be used. There is research showing that Congress assumes its social media audience is more politically engaged (Williams & Gulati, 2010) and that they consider campaign websites, Facebook pages, and Twitter feeds effective tools for communicating with voters (Druckman, Kifer, & Parkin, 2017a). Little work has been done to examine who follows politicians, but the existing research suggests that followers are opinion leaders (Karlsen, 2015) or at least people who are more politically engaged than most voters (Norris & Curtice, 2008). Research also shows that Congress's Twitter use impacts mainstream media coverage of political issues (Shapiro & Hemphill, 2017). Taken together, the research on the likely audiences and impacts of congressional Twitter use suggest multiple routes through which messages can reach voters, with some pathways more direct than others. We assume congressional tweets are used to present a more or less partisan image, and we measure how partisan their tweets make them appear. Because Twitter is a source for political journalists (Broersma & Graham, 2013; Lawrence, Molyneux, Coddington, & Holton, 2014), tweets often appear in mainstream media where they can reach voters, even those voters who do not use Twitter or follow politicians. Social media is an increasingly important source of political news for Americans (Mitchell, Gottfried, Barthel, & Shearer, 2016), and Congress influences the topics and framing that appear in that news (Conway, Kenski, & Wang, 2015; Shapiro & Hemphill, 2017; Towner & Muñoz, 2017). That the audience for politicians' tweets is not solely comprised of their constituents but also journalists and the public outside of a politician's district suggests Twitter use can influence electoral politics by impacting which issues and actors receive media attention (Shapiro & Hemphill, 2017). Interviews with campaign staffers highlight the importance of political journalists as targets of campaign messages (Kreiss, 2016)<sup>4</sup>.

Politicians and candidates recognize the strategic importance of social media for appealing to individual constituencies and raising their individual profiles and even use paid consultants to help craft their online messaging strategies (Howard, 2005). Further, between parties, there is little variation in social media adoption (Chi & Yang, 2011; Shapiro & Hemphill, 2017; Vergeer & Hermans, 2013; Williams & Gulati, 2010). With regard to Twitter specifically, we know that MCs are getting more sophisticated in how they use it, with early studies showing that most tweets served to disseminate information (Golbeck, Grimes, & Rogers, 2010; Hemphill, Otterbacher, & Shapiro, 2013), while more recent research confirms that articulating policy positions and communicating to constituents are increasingly common (Glassman, Straus, & Shogan, 2013; Straus, Williams, Shogan, & Glassman, 2014; Zhang, Stromer-Galley, et al., 2017). Existing research suggests that campaigns' online messaging strategies change over time,

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<sup>4</sup> On Twitter, politicians are also engaged in many simultaneous forms of political communication: e.g., press outreach, agenda setting, constituent engagement, and issue debate. We recognize that active campaign messaging is not the only, or even necessarily the primary, purpose of tweets. This does not diminish their utility for examining partisanship before elections, however.

increasing calls to action and reducing persuasive messages as elections near (Zhang, Tanupabrunsun, et al., 2017)<sup>5</sup>. Twitter's affordances, such as mentions, are also used to specify audiences for content (Hemsley et al., 2018); for instance, mentioning a specific media outlet when providing information about an upcoming event. Given this research about how Congress uses social media generally, and Twitter specifically, Twitter is an appropriate site for studying Congress's messaging strategies.

## Campaign Strategies

Literature on campaigns and party strategy offers explanations about why politicians select certain partisan messages over others, but it is also connected to theories about campaigning, voters' decisions, and how party loyalty and unity help lawmakers appeal to voters. The primary reason that these areas of research are not entirely distinct from each other is that the relationships between party loyalty, party unity, and voter choice help explain why politicians would invoke varying degrees of partisanship while campaigning for office. Here, we provide a brief overview of the literature on these relationships.

First, the median voter theorem suggests that a majority-voting mechanism will result in the outcome preferred by the median voter. The theorem assumes that voters occupy a single point on an ideological spectrum (i.e., conservative vs liberal) at which they are most satisfied, and, as the electoral outcome gets further from that point on the spectrum, they become consistently less satisfied. Campaigning in line with the median voter theorem would suggest that moving to the middle before a general election would be a successful strategy. Research indicates that this rhetorical shift does occur; for instance, in 2012 Obama and Romney both invoked a language style unique to each party early in their campaigns but both candidates sounded more and more similar as the election neared (Hart & Lind, 2013).

To clarify, according to Downs (1957), and in line with updates to this line of inquiry (e.g., Cormack, 2016), the median voter theorem specifically argues that

1. Politicians will communicate in ways that will attract support from large swaths of the public; politicians will primarily emphasize those issues that the majority of the public, represented by the median voter, agrees about; and
2. Politicians will communicate in ways which differentiate themselves from members of the opposite party in order to provide a clear distinction when it comes time for individuals to vote; politicians will take positions different from those of their opponents.

We predict that, as the election nears, politicians will adjust their rhetorical strategies to be less partisan in attempts to appeal to the median voter. While Downs (1957) makes no explicit mention of the influence of time, we test whether appeals change over time in light of research suggesting that candidates position themselves on Twitter differently during primaries and general elections (Shapiro, Hemphill, & Otterbacher, 2017). We examine the general election period (roughly Labor Day to Election Day - see, e.g., (Broh, 1980; Traugott, 2005; Wlezien & Erikson, 2002)) specifically to determine whether change occurs within that time frame; prior work indicates a rhetorical shift to the median among presidential candidates during that period (Hart & Lind, 2013). Any movement toward the center would still leave candidates more appealing to more extreme voters of their party than their opponent, leading us to our initial hypothesis:

H<sub>1</sub>: As the election nears, politicians will communicate in less polarized ways.

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<sup>5</sup> In general, campaigns did not use Twitter for get-out-the-vote campaigns or for fundraising (Frechette & Ancu, 2017).

Second, we turn to the literature on party loyalty in campaign messaging. Schoenberger's (1969) study of the 1964 presidential election—in which Barry Goldwater (Republican) ran unsuccessfully against incumbent Lyndon Johnson (Democrat)—focuses on one of the most lopsided elections in U.S. history given Goldwater's 38.5-percent vote share. For Schoenberger, this election provided the basis for understanding how presidential races influence down-ticket campaign strategies: Goldwater was wildly unpopular as a candidate for the general public, and his lack of popularity presented down-ticket Republicans with a more appealing choice of dissociating themselves from the top of the ticket to create broader appeal to the electorate. Indeed, candidates who withheld support for Goldwater benefited from that choice, demonstrating that party unity and loyalty are not always requirements of the electorate and thus not axiomatic preferences for candidates. In contrast to Downs' (1957) assumption of party loyalty among candidates, Schoenberger's (1969) finding suggests partisan messages—i.e., indicators of party loyalty—provide varying benefits to candidates depending on how their party's presidential nominee is viewed by the electorate. In the weeks before the 2016 election, candidate Trump trailed candidate Clinton in public polls and among their parties' elites. During the time period we analyzed in the present study, Gallup estimated Congressional approval between 18-20 percent (Gallup, n.d.). The literature suggests that under those conditions, Republicans would demonstrate less party loyalty and that minority party incumbents (Democrats) could have enjoyed an advantage by positioning themselves against Congress.

Incumbents debate policy issues online openly (Druckman, Hennessy, Kifer, & Parkin, 2009) and enjoy wide advantages in large part because of the press coverage they have already received while serving in office (Prior, 2006). However, whether they are in the minority or majority party still matters. When Congress is popular, majority party incumbents enjoy stronger advantages, and the race is essentially theirs to lose (Jones, 2010). This can lead to decreases in messaging overall as candidates avoid saying things that may hurt their reelection chances.

Given this literature on the relationship between in- and out-party strategies and the influence of a presidential candidate, we expect that, in 2016, Republican and in-party candidates adopted less extreme polarization strategies in order to counter the effects of low Congressional approval and an unpopular presidential candidate. This leads us to a second hypothesis:

H<sub>2</sub>: Majority party incumbents (Republicans) will exhibit lower levels of polarization than minority party incumbents (Democrats).

Third, we discuss other implications low approval had for incumbents. Coupled with low Congressional approval, increased polarization increases the risk of vote loss for majority-party candidates, meaning that polarization would have been more dangerous when approval was low (Jones, 2010), as it was in 2016. This may explain why, in a study of campaign websites, candidates in competitive races were less likely to link to their party's sites given the desire for control over their messaging (Druckman, Kifer, Parkin, & Klar, 2011). The same practice may have occurred on Twitter in 2016 as politicians attempted to control connections to their party by including or excluding party links from their descriptions and tweets. Based on televised advertisements from Congressional elections held between 1998 and 2008, Neiheisel and Niebler (2013) found that candidates running where voters are predisposed to vote according to party affiliation emphasized their own party affiliations. Candidates in open races (i.e., where there is no incumbent), however, were less likely to advertise their party affiliations, implying that the electorate is necessarily malleable. There are nuances to this malleability, however, as Lazarsfeld, et al. (1948) showed that campaign propaganda were far more effective at reinforcing (i.e., strengthening the resolve of existing support) and activating (i.e., triggering voters to make decisions based on existing predispositions) voters' choices than converting them. Partisan messages are also employed by candidates as a function of how they perceive the ideological positions of both their respective parties as

well as their opposition. Assuming that two categories of voters must be attended to by candidates—base voters and swing voters (Cox & McCubbins, 1986)—campaigns may strategically avoid highlighting party loyalties, or even party affiliation. Based on this literature, and reflecting Schoenberger's (1969) finding that party loyalty offers varying benefits based on how the party's presidential nominee is viewed by the electorate, we expect that candidates in close races will adopt less extreme messaging strategies as they attempt to avoid being defined solely by their party affiliation. This leads to our final hypothesis:

H<sub>3</sub>: Incumbents in close races will exhibit lower levels of polarization.

In summary, campaign effects, party loyalty, and polarization predict that candidates will align themselves with their party when the top of the ticket is popular and when the party's message appeals to voters' predispositions. Reasonable strategies emphasizing reinforcement and activation could produce partisan messaging. Yet, when focusing on voters who are not predisposed to support a particular candidate, these same messaging strategies would no longer be effective. In order to test these hypotheses about the overall trend in partisanship and the impact of party affiliation and race closeness, we analyzed the tweets posted by incumbents in the weeks prior to the election. We turn now to the methods we employed to test these hypotheses.

## Method

We collected 25,483 tweets posted by 458 official Twitter accounts for members of both chambers of Congress (259 Republicans and 199 Democrats; 396 Representatives and 62 Senators) who were running for re-election in 2016<sup>6</sup>. We then used those tweets to calculate weekly measures of polarization (#polar scores) over the last nine weeks of the campaign. By "official" accounts, we mean those paid for with public funds, which are not supposed to support re-election efforts but rather serve as official communication channels for the office. This affords us an opportunity to study partisanship in official communications and provides what is likely a conservative measure of partisan behavior by MCs, meaning that MCs are constrained in what they may post on their official accounts (Committee on House Administration, n.d.; Davidson McGuire Woods, 2014). These 458 accounts include all sitting MCs who ran for re-election in 2016 and whose accounts were still accessible in early 2017. We then employed mixed effects regression models to predict #polar scores, using party, time, and margin of victory as fixed effects<sup>7</sup>. Because we collected data in 2017, some MCs had deleted their tweets or accounts, meaning there are eleven missing accounts from the period. Individual tweets may also be missing because they were deleted. Accounts or tweets were deleted for different reasons, including losing a re-election campaign, winning but being nominated to Trump's cabinet, or a tweet containing a typo. To check the robustness of our models against deletion of both tweets and accounts, we used regressions with random deletions and outlier deletions. In all cases, the effects remained unchanged<sup>8</sup>.

## Sample and measures

To collect Twitter handles, we used a crowd-sourced list of official Twitter accounts for MCs from the @unitedstates project<sup>9</sup>. We analyzed the tweets posted by 458 accounts associated with MCs, which

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<sup>6</sup> 469 seats were up for election in November 2016.

<sup>7</sup> Both our data (in CSV format) and our analysis (as R notebook and HTML files) are available in Supplementary Materials.

<sup>8</sup> Complete model specification and output for all regressions are available in Supplementary Materials.

<sup>9</sup> <https://github.com/unitedstates/congress-legislators>

comprise the population of verifiable accounts active during the period under examination and who ran in the 2016 election. For all the Twitter accounts available for MCs as of November 2016, we then used purpletag (Culotta & Hemphill, 2016) to collect tweets and calculate #polar scores, i.e., estimates of politicians' positions on a liberal-conservative spectrum based on the hashtags they include in their tweets. #Polar scores provide a measure of how well-sorted various hashtags and users are, and it uses Congress's own tweets to generate scores. They employ a machine learning approach, specifically a chi-squared feature selection algorithm, to predict party affiliation based on hashtag use and achieve 98 percent accuracy (Hemphill et al., 2016). MCs demonstrate sophisticated use of hashtags within tweets, and individual tags are rarely employed by both parties (Gainous & Wagner, 2014; Hemphill et al., 2016; Shapiro & Hemphill, 2017; Straus et al., 2014). Like other left-to-right, two-dimensional measures (e.g., Carroll et al., 2011; Gabel & Huber, 2000), #polar scores collapse multidimensional policy issues into a single spectrum. We assume this spectrum serves as a sort of "super issue" under which variation exists but that generally maps to the two major parties (Gabel & Huber, 2000).

To calculate #polar scores, and based on the assumption that "polarization" refers to ideological consistency rather than extremity (Curini & Hino, 2012; Pew Research Center, 2014; Smidt, 2017), each hashtag is first scored, and then the scores of all hashtags a user posts are summed to create a user's #polar score. For instance, #flashbackfriday and #wagegap were the most liberal tags used during the week of the election, while #betterway and #obamacare were the most conservative during the same week. Democrats use the #flashbackfriday Twitter convention more often than Republicans, typically to refer to a time when policies they preferred were being implemented (e.g., "#flashbackfriday: This year 57,000 kids didn't get the same chance I did w .@HeadStartgov. Time to end #sequestration <http://t.co/v3DZTfem3h>" - Rep. Loretta Sanchez [D-CA]) or when they did something their followers supported (e.g., "#flashbackfriday Why I supported Occupy Wall Street <http://t.co/G8M5EfuL2T> [@Azi <http://t.co/DfAsXTBKua>" - Rep. Charles Rangel \[D-NY\]; "#flashbackfriday to delivering Meals on Wheels in Nashua. We can't allow a program that brightens the lives of so... <https://t.co/MFTHROGwwV>" - Rep. Ann McLane Kuster \[D-NH\]\). Republicans used #betterway to refer to their platform generally \(e.g., "#OH12 families deserve a #betterway <https://t.co/wMCz06S6A3>" - Rep. Pat Tiberi \[R-OH\]; "It's time for Conservative ideas to shine. Check out our plans here: #betterway <https://t.co/dKkh9haZF4>" - Rep. Steve Scalise \[R-LA\]\). These examples illustrate MCs common, nuanced, and sophisticated use of hashtags as well as their use of @mentions and providing links to more information. We calculated #polar scores for each user for each day and analyzed their changes over time by averaging scores over each of the nine weeks in our sample.](http://t.co/FbtObOuptT)

#Polar scores are centered around zero where negative scores are liberal and positive scores are conservative. This scaling recognizes and builds on other polarization measures using negative-to-positive or liberal-to-conservative scales, including DW-NOMINATE (Carroll et al., 2011; Lewis & Poole, 2004; Poole & Rosenthal, 1985) and variants of it based on campaign finance data that connect candidates to their supporters and affiliated interest groups (Barber & McCarty, 2013); (Bonica, 2013, 2014). In the original #polar scores study, Hemphill and colleagues (2016) found correlations between #polar scores and DW-NOMINATE were high for both the House ( $r(331) = 0.80, p < 0.001$ ) and the Senate ( $r(76) = 0.83, p < 0.001$ ). Tausanovitch and Warshaw's (2017) meta-analysis of measures of candidates' ideological orientations suggests that unobserved incentives and contexts are likely impacting measures differently; #polar scores correlate with DW-NOMINATE more closely than the other measures they examined (e.g. CF Scores (Bonica, 2014), Twitter followers (Barberá, 2015)).

Unlike standard calculations of #polar scores, we modified the typical #polar score calculated method by generating hashtag scores based on the entire nine-week period and then using those scores to calculate scores for individual users. Hashtag scores change over time as different users adopt them and their

attention to issues vary. #Polar scores default calculations use one-day and one-week time windows over which hashtag use is measured. By setting the time window to the entire period from Labor Day to Election Day, which is usually considered the general election period (see, e.g., (Broh, 1980; Traugott, 2005; Wlezien & Erikson, 2002)), and by calculating just one score per hashtag based on its use during that period, we effectively control for variance in the level of attention issues receive week-to-week. By Weeks run Monday—Sunday and began on September 5, 2016 (Labor Day).

We used election results data from BallotPedia (“Election results 2016,” n.d.) and individual state election records to construct measures of race competitiveness, which is in line with Cox and Munger’s (1989) closeness measure. This approach is adequate for two-party races such as those for individual congressional seats. Our outcome and predictor measures are listed in Table 1.

<b>Table 1. Measures included in linear mixed-effects models</b>		
<b>Variable</b>	<b>Type</b>	<b>Operationalization</b>
abs	outcome	Absolute value of the average partisanship of the member of Congress’s Twitter feed for a particular week, i.e., the absolute value of the #polar score
handle	predictor	Twitter handle associated with the member of Congress’s account
party (Republican)	predictor	1 = Republican; 0 = Democratic
week	predictor	Number of the week where 1 = week following Labor Day
margin of victory	predictor	Ratio of votes separating the winner and the runner-up to sum of votes both candidates received

## Analysis approach

Linear mixed models were used to analyze the effect of party and week on #polar scores. We used R (R Core Team, 2016) and *lme4* (Bates, Mächler, Bolker, & Walker, 2015) to analyze the relationships between time, party, margin, and partisanship. A mixed model approach was employed rather than a standard linear model because #polar score and handle are interdependent (i.e., how partisan an MCs’ messages are depends in part on individual characteristics such as the state he represents or his prior partisanship). In this way, we expected variation in both party and handle to influence partisanship (#polar score) from week to week. All models were fit using maximum likelihood estimation. For fixed effects, we included *week*, *party*, and *margin*. We also include fixed main effects for measures for *gender*, *congressional chamber*, and *years in office*, as these characteristics are commonly included in studies of MCs. For random effects, we included intercepts for Twitter *handles* and by-handle random slopes for *week*, allowing us to assume that handles may start with different #polar scores and that handles may respond to time differently. For instance, events like polls may occur during the focal time period in some jurisdictions but not in others, triggering a different response from handles with new polling information.

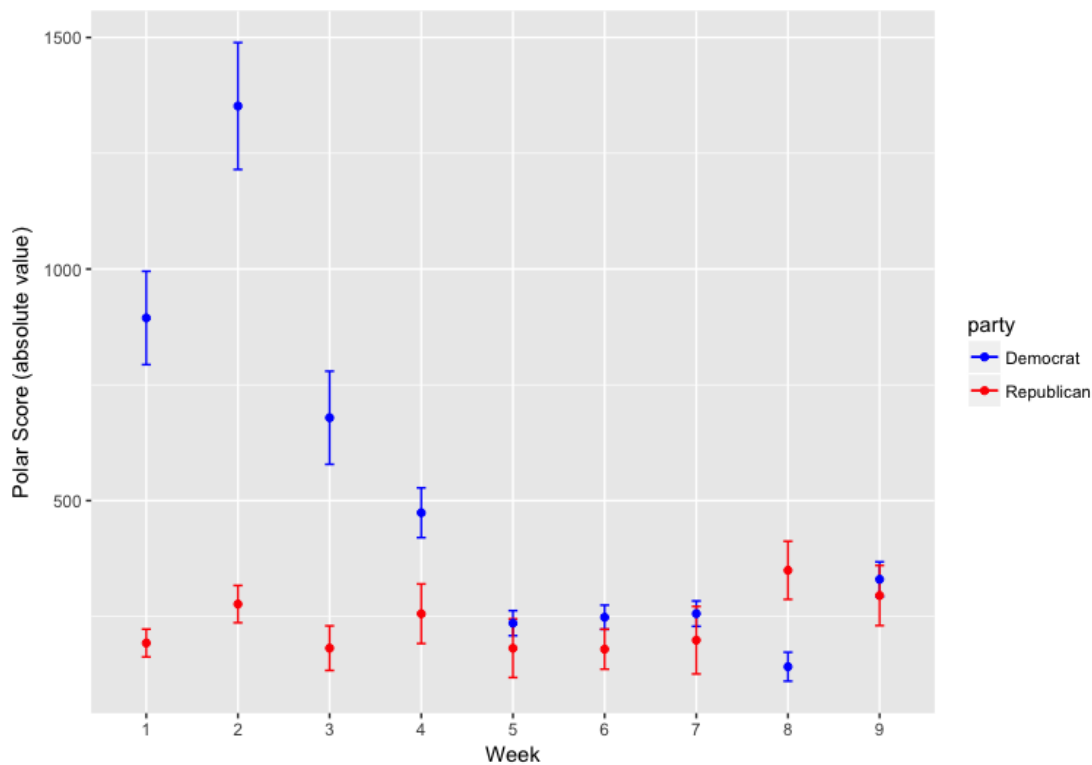


We visually inspected residual plots and used  $p$ -values from likelihood ratio tests of the full model compared with other models to evaluate the significance of the variables in question<sup>10</sup>.

## Results

### Descriptive Statistics

Figure 1 shows each party's average #polar scores for each week, highlighting how Republicans exhibited more variation within their party (on average, larger variance within each week), while Democrats exhibited more variation from week to week. It also makes clear that week two was an outlier for Democrats<sup>11</sup> and that most communication by members of each party was partisan, i.e., primarily falling above zero.



<sup>10</sup> For instance, we constructed models with fewer predictors (e.g., party alone) and without random effects. The results of all models are available in the supplementary materials.

<sup>11</sup> Democrats had average scores that were nearly two to three times as large during week two relative to other weeks. When we analyze just the last seven weeks (weeks three–nine), the direction and magnitude of our results remain unchanged. During week two, the most polarized tags among Democrats were #closethe loophole (-59), #gunvote (-37), #doyourjob (-35), and #noflynobuy (-31). The Congressional Record shows House Democrats made multiple attempts to bring gun-related legislation to the floor on September 14 (e.g., Rep. Lawrence [D-MI] on H.R. 1217 and Rep. Matt Cartwright [D-PA] on H.R. 1076). The large #polar scores for that week resulted from the Democrats' coordinated efforts to message around gun control legislation on the 14<sup>th</sup>; our data include 300 tweets with the #GunVote hashtag on September 14 alone. Not all, but the vast majority of those tweets were posted by Democrats.

**Figure 1. #Polar scores (absolute value) over time for each party.**  
Dots represent means, and whiskers represent standard errors.

## Regression Results

To evaluate our hypotheses, we ran linear mixed-effects models predicting the partisanship of messages using combinations of party, time, and Twitter handle. The results of our models are available in Table 2. Model 3 achieved best fit. ANOVA-based comparisons of these models confirmed that, although models 4 and 5 have lower AIC than model 3, these differences were not significant. The results in Table 2 also indicate that partisanship decreased over time ( $\beta = -117.29$ ,  $p < 0.001$ ). In order to examine the precise interaction between party and week, we present the results of their interaction in the last two columns of Table 2: Democrats' messages grew significantly less partisan as the election drew near ( $\beta = -110.01$ ,  $p < 0.001$ ) while Republicans' partisanship did not change significantly ( $\beta = 2.82$ ,  $p = 0.522$ ).

We also checked for influential individuals and outliers using Cook's distance measures. Though we did identify outliers by this measure, removing them (individually or as a group) did not change the significance or direction of the results in the overall model. The inclusion of gender, chamber, or tenure of office as control variables, shown in model 5, also had no impact on the significance or direction of the results in the overall model. We used ANOVA to compare models and found Model 3 to be the parsimonious model of best fit.

	1	2	3	4	5	GOP	Dems
Week	-47.44 *** (6.91)	-53.61 *** (4.64)	-117.29 *** (9.32)	-117.27 *** (9.32)	-117.54 *** (9.32)	0.56 (4.36)	-113.18 *** (12.42)
Party (GOP)		-290.64 *** (58.20)	-878.60 *** (95.63)	-873.08 *** (96.15)	-846.05 *** (97.79)		
Party (GOP) x Week			125.10 *** (12.56)	125.08 *** (12.56)	125.01 *** (12.56)		
Margin				0.65 (1.17)			

Gender (man)					-96.59 (70.19)		
Chamber (senate)					112.85 (80.64)		
Years in office					2.39 (2.92)		
(Intercept)	555.13 *** (51.72)	747.41 *** (48.76)	1048.39 *** (71.50)	1022.76 *** (84.99)	1064.54 *** (92.12)	195.80 *** (31.17)	1049.94 *** (95.34)
<b>Random Effects</b>							
Handle	964130.89	304616.43	779071.66	779229.61	769754.84	159828.49	1612766.75
Handle, week	13112.30		9409.81	9409.48	9390.46	1373.98	22359.31
N <sub>handle</sub>	458	458	458	458	458	273	218
AIC	49,962	50,321	49,875	49,876	49,875	27,434	25,533

**Table 2. Results of linear mixed model regressions predicting the absolute values of #polar scores.** Standard errors are reported in parentheses under coefficients, and \*\*\* indicates  $p < .001$ .

## Hypothesis Testing Results

### H<sub>1</sub>: Less Partisanship as Election Nears

Our results indicate that overall, Congress exhibits less partisanship as the election nears (for “week”,  $\beta = -117.29$ ,  $p < 0.001$ ), but most of this effect is driven by less partisanship among Democrats. This is confirmed in the last two columns of Table 2, presenting separate Republican-only and Democrat-only models where *week* is insignificant for Republicans. In other words, Republicans exhibited more partisan messaging as the election neared, but the increase was not statistically significant overall. Partisanship among Republicans peaks in week 8 (see Figure 1), but there is not an overall trend of increasing

partisanship. Over the same period, Democrats' polarization decreased significantly. Overall, we find support for H<sub>1</sub> both overall and among Democrats: partisanship decreased near the election.

## H<sub>2</sub>: Lower Partisanship among Republicans

Compared to Democrats, Republicans were less polarized throughout the time period. Even as Democrats became less polarized and Republicans became more so, Republicans still exhibited lower scores. As illustrated in Figure 1, only in week eight were Republicans' scores higher than Democrats'. Therefore, we find some support for H<sub>2</sub>: majority party users exhibited less polarized messaging. In the first month of the general election period, Democrats' scores were much higher than Republicans'. In the last few weeks, their scores were not meaningfully different except for the week before the election where Republicans' scores were higher.

## H<sub>3</sub>: Lower Scores in Close Races

We used the margin of victory to measure race competitiveness. Including margin of victory in the models did not improve their performance as measured by ANOVA. With regard to H<sub>3</sub> specifically, we found no significant relationship between margin and partisanship ( $\beta = 0.65$ ,  $p = 0.577$ ). This was also the case when we tested the impact of race competitiveness using margin thresholds of 6 percent, 12 percent, and 25 percent. While the distribution of *margin* suggested these thresholds were meaningful, they did not significantly impact #polar scores. Therefore, we do not find support for H<sub>3</sub>: incumbents in close races, where closeness is measured using any competitiveness threshold, did not appear to use different partisan messaging strategies.

## Discussion

We set out to understand whether legislators were appealing to (a) voters near the middle of the political spectrum or (b) voters in their respective bases. Based on prior work about the median voter (Downs, 1957), activation, conversion, and reinforcement (Lazarsfeld et al., 1948), and polarization (Jones, 2010; Schoenberger, 1969), we generated hypotheses about the changes in polarization that would appear over time as well as the differences that would be visible between parties. We found that Democrats and Republicans behaved differently throughout the nine-week period before the election. Specifically, Democrats began the period quite polarized in their rhetoric but moved toward the middle as the election neared. Republicans started the period near the middle and finished it virtually unchanged. These findings reveal a number of novel distinctions between the parties and confirm the impacts of time, but not race competitiveness, on a politician's messaging strategy.

We found that time, i.e., *week*, was a significant predictor of messaging for Democrats and throughout the period. According to the median voter theorem (Downs, 1957), candidates should attempt to appeal to voters near the middle of the political spectrum in order to capture the votes of all people more extreme than they are in one direction and those who are less extreme than their opponent in the other. Democrats' messaging behaviors indicate that this model provides a reasonable explanation of their strategy. The margin of victory in races—our measure of closeness or race competitiveness—was not a strong predictor, indicating that messaging in close races was not different from messaging in likely victories. Candidates did not appear to downplay their party affiliations or to appear less partisan in an effort to appeal to centrists. Party loyalty may in fact be dominating candidates' preferences. We also note that, though prior work has found differences between men and women in Congress on Twitter (Wagner, Gainous, & Holman, 2017), especially during campaigns (Evans & Clark, 2016; Evans, Cordova, &

Sipole, 2014; Meeks, 2016), we observed no meaningful differences here. We turn now to possible explanations for the differences we found.

## Appealing to the Median or to the Base

For a median voter or centrist appeal to work, candidates must convert at least some voters from the other party. Lazarsfeld and colleagues (1948) suggest that this is quite difficult, even when voters face choosing an extreme candidate within their own party. This difficulty partially explains how Republicans' pattern of starting with low polarization but becoming marginally more polarized over time could be an effective election campaign strategy<sup>12</sup>. That is, by selecting a low baseline position, Republicans made appeals consistent with the attitudes of centrist voters, potentially capturing those that could be easily converted. Meanwhile, by increasing their polarization just before the election (in week 8), they could be effectively appealing to existing partisans and likely activating them—i.e., convincing them to vote Republican—just in time for the election. The stark partisan divides on social media (Mergel, 2012; Smith et al., 2011) suggest that it would be an opportune venue for reaching those already predisposed to a lawmaker's message—to activate and reinforce existing preferences—rather than to target the non-predisposed with social media-based messaging. That we saw *more* rather than *less* partisanship among Republicans as the election neared suggests they were following an activation strategy rather than appealing to a median voter or attempting conversion. Given this greater voter turnout advantages Democrats (Radcliff, 1994), it may better serve Democrats to work to activate and reinforce and increase turnout instead of spending communication resources to convert voters.

## Party Loyalty and Particulars of the 2016 Election

Republicans may have chosen a comparatively less extreme messaging strategy because they led an unpopular Congress and had an unpopular presidential candidate at the top of their ticket (Andrews, Katz, & Patel, 2016). Both of those features of the election indicate much greater risk to Republicans of losing voters relative to Democrats. Given the number of Republican incumbents in Congress, the election was Republicans' to lose (Jones, 2010), and downplaying one's party affiliation is common in close races (Druckman et al., 2011), but we were ultimately unable to confirm that close races predict partisanship.

The 2016 presidential election also presented additional challenges for MCs, especially Republicans, deciding whether and how to leverage party affiliation. First, as mentioned above, the top of the Republican ticket—Donald Trump, the presidential candidate—was unpopular among political elites and used a very different rhetorical style than the party-backed candidates (Oliver & Rahn, 2016). Republican MCs may have been less partisan in their rhetoric because they were wary of activating their party connection to Trump. Second, again because Republicans failed to coalesce around a presidential candidate (MacWilliams, 2016), they may have adopted a less extreme but common ground in their messaging. Third, the 2016 election may have violated the Downsian model's assumptions. As Grofman (2004) explains, when one of the assumptions of the Downsian model is violated, we can expect divergence rather than convergence between the parties. Among those assumptions of the model inapplicable in 2016 are the following: policies can be located on a single dimension; parties and candidates are part of a unified team.

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<sup>12</sup> We conducted logistic regressions to predict election success using combinations of #polar scores and week, both overall and by party, and did not find significant correlations. The results of those regressions are available in the supplementary materials.

## Limitations and Concerns

Because we use a one-dimensional scale, dimensionality is a potential limitation of our approach. However, we do not believe a rejection of the Downsian model's assumptions offers a direct challenge to the effectiveness of using left-right scales to understand what happened in 2016. The original #polar scores paper states, “[#polar scores] assume that the choices of both general topics and specific hashtags are motivated by underlying ideology, and therefore, the tags themselves reflect partisanship” (Hemphill et al., 2016, p. 375). #Polar scores thus are rooted in the party labels associated with hashtag users. Researchers could use other methods of sorting hashtags—topics, locations, etc.—and then calculate #polar scores within those alternate groupings. However, if there were no left-right divide or, rather, if there were other dimensions across which MCs convey information about themselves, we would have witnessed much less coherent groupings among political candidates than those that appear. In rare instances that hashtags are non-party-based, it typically represents a period of cooptation where the parties compete for control of a particular hashtag (also called “hashjacking”, see Bode, Hanna, Yang, & Shah, 2015). As well, and demonstrated by prevalence of geographically-oriented hashtags such as #UTpol, the local particulars of races also matter and likely influence messaging strategies. #Polar scores is a national measure that may obscure local issues driving campaigns and messaging strategies. Indeed, the tight groupings of hashtags and politicians #polar scores reveal that even when using a local hashtag or coming from very safe districts that legitimize the use of ideologically extreme hashtags, we remain convinced politicians signal their membership in one party or another and convey their policy positions through hashtag selection.

Our evidence shows that the left-right scale continues to dominate on Twitter despite any apparent rise in populism or another appeal approach that can be employed by either party. Hashtags remain correlated with DW-NOMINATE, and the groups created through #polar scores show that Democrats look more similar to each other rather than to Republicans, and vice versa. Their correlation to DW-NOMINATE suggests #polar scores are reasonable proxies for spatial positions on the policy spectrum. Democrats are well sorted while Republicans are not. However, whether Republicans were unified and moderate or disparate and extreme is not captured by the #polar scores measure; it's possible they used common hashtags in very different ways and so appeared less extreme than Democrats. Given that Republicans are less sorted, however, this does afford the possibility that the identity of Republicans is in flux or that shared hashtags are becoming less popular across the party. It is also possible that clustering along the #Polar score continuum indicates party consistency or party message loyalty rather than a particular ideological position. There may be fringe groups, or there may be populist tendencies in the wake of Trump's campaign, but hashtag use by MCs reveals a non-overlapping, party-based orientation to determine policy attention (Shapiro & Hemphill, 2017).

We also cannot claim that social media foster populism and identity politics given that the rhetoric of our political leaders—at least the average MC—is tame in comparison to extremist social media accounts of non-politicians. Given their populist nature (Oliver & Rahn, 2016), Trump's communications are distinct from many other Republicans, and we do not specifically examine Trump's communications or how MCs discuss him or the presidential election. Indeed, a cursory analysis of commonly used rhetoric by Trump (e.g., #DrainTheSwamp) indicates that it was not shared by MCs. Given the widespread use of social media for constituent communication, and given the increasing importance of Twitter especially (e.g., Conway et al., 2015; Groshek & Al-Rawi, 2013; Williams & Gulati, 2010), one might assume 2016 was a unique election for social media. It was not: the behaviors legislators exhibited on Twitter can be explained with existing campaign messaging theories and not the presence of candidate Trump in the Twittersphere. Druckman, Kifer, and Parkin (2017b) found similar results when studying web site strategy during the same period, arguing that web campaigning was also relatively stable given the technological

and political change occurring. Despite Trump's outsized presence on social media and in political news, his communications did not meaningfully impact others' online communication strategies.

## Future Work

Future work could examine the effectiveness of MCs' online communication strategies in a number of ways. First, and building off of Glassman (2016) and Roberts and Smith (2003), one could focus on the efforts of aspiring party leaders specifically, examining whether they are more likely to align with their party's majority until reaching a leadership position, at which time they may attempt to move the party into relatively new directions. These sorts of behavioral shifts by elected officials are an important mechanism in moving the median voter over time. Alternatively or perhaps in parallel, one could also focus on the risks relating to in-party and out-party dynamics as described by Jones (2010), particularly how polarization facilitates or inhibits non-incumbents from getting elected. Comparing the partisanship patterns from election to election is one way to gain insight about these majority- and minority-party impacts. A third avenue of future work could focus on the impact of a growing concern about social media use by our elected officials, namely the dissemination of falsehoods and negative campaign messages by political figures. Negative campaign messages have been shown to increase incivility among Twitter users (Hopp & Vargo, 2017), while false stories are widely disseminated and readily accepted via social media (Allcott & Gentzkow, 2017).

Methodologically, and building on our findings, future work may account for the effects of challengers' messages and features of the election such as early voting policies or whether the election is a primary, a midterm, or a presidential election. For instance, in states with early voting and large vote-by-mail efforts, the specific timing of election day may not be as powerful a predictor of behaviors as we have demonstrated here. Future work could also examine relevant legislative activities, such as the relationship between roll call votes or floor debates and campaign messaging. Our results indicated that Democrats were particularly partisan during the second week of the period we examined, which was when the House debated gun control legislation. We did not see a similar spike in partisanship among Republicans that week despite their opposition during the floor debate. We must recognize that a comparison of partisanship of messages in different media is warranted. For instance, do legislators use Twitter for more polarized communication than they do for their floor speeches or press releases? Do challengers use more *conversion* approaches than *activation* or *reinforcement*? If differences exist across the use of these platforms, it would indicate audience-specific strategies worthy of further scrutiny.

## Conclusion

Twitter and related social media are increasingly powerful tools for politicians to communicate directly with the public and with the press. The results presented above suggest that the two major parties in the U.S. use different messaging strategies near elections, and research like ours is increasingly attending to the impacts of social media strategies on political outcomes. While the use of Twitter in 2016 may not necessarily reveal new messaging strategies, it clarifies key differences in the strategies used between the major parties: Democrats were more measurably partisan at the outset but moved to the middle over time while Republicans were modest in their partisanship at the outset and mostly remained so. In short, partisanship is a messaging strategy both parties employ at different times in campaigns. It is also likely used for different purposes—findings that are all the more relevant today given recent and regular claims made by pundits as well as politicians themselves about biased social media and politicized content.

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