

Title: Pussyfooting around November? A Longitudinal Analysis of Politicians' Twitter Use in 2014

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Abstract: In the November 2014 Midterm Elections, social media was used by more members of Congress and with greater frequency than ever before. We employ an established metric for interpreting the short but influential posts made by members of Congress via Twitter to determine how they position themselves relative to other politicians, candidates, and issues. This is crucial as we invoke a traditional theory of a two-party system – the median voter model – to explain why positioning via Twitter fluctuates in the period surrounding Election Day. Based on more than 338,000 Twitter postings by 422 politicians, our analysis shows that the extent to which a member of Congress positions one's self is a function of how far ahead (or behind) Election Day is. Our findings are robust to local polynomial trend line- and fixed effects-based analyses. We also show that Republicans are much more volatile in their use of positioning, and that – for both parties – the minimum point at which members of Congress reduce their positioning is not Election Day itself but approximately two weeks before Election Day.

Keywords: electoral politics, information technology and politics; political communication; median voter model; social media; Twitter

“... [E]ach party strives to make its platform as much like the other’s as possible.... Each candidate ‘pussyfoots,’ replies ambiguously to questions, refuses to take a definite stand in any controversy for fear of losing votes” (Hotelling 1929: 54).

Introduction

Elected officials and those running for political office typically achieve personal political success – (re)election to office – as a function of how effectively they communicate their campaign pledges or receive partisan support. These messages can be distorted in the traditional media by targeting partisan audiences (Bernhardt et al. 2008; Caillaud and Tirole 2007) or by highlighting incumbents’ latest accomplishments (Healy and Lenz 2014). All of this is exacerbated by problems identified in the public’s “issue-attention cycle” (Downs 1972). In short, misinformation from the media polarizes, confuses, and is compounded by existing biases (Kuklinski et al. 2000; Lewandowsky et al. 2012; Nyhan and Reifler 2010). We hold constant but acknowledge these media-related effects as we focus on similar distortions arising through social media. Specifically, we identify crucial fluctuations in the Twitter-based communications by members of Congress during the 2014 Midterm Election.

We acknowledge that social media-based communications from elected officials are but a part of a larger information-sharing campaign. In this way, we are effectively building on the body of research which focuses on the language officials use in traditional media (Cook et al. 1983; Edwards III and Wood 1999; Entman 2007; Kedrowski 2000; Lee 2009) and on websites that report statements and speeches of public officials (Gentzkow and Shapiro 2011). Social media-based communication is important (Gulati and Williams 2007), as it is a proxy for politicians’ ideology and policy preferences (Hemphill, Culotta, and Heston 2013; Shapiro and Hemphill 2014) and predicts how a candidate will behave with (potential) constituents and campaign funders (Williams and Gulati 2013). This paper, thus, is as much a study of how members of the U.S. Congress altered their Twitter-based communications during the 2014 election – “speech acts” in our vernacular – as it is a campaign for broader acceptance of the importance of social media-based communications by politicians.

In the following pages, we explain how we can understand elected officials’ use of social media in traditional theories of electoral behavior. We then examine longitudinally, from November 1, 2013 to February 26, 2015,¹ how members of Congress altered their communication patterns in line with Hotelling’s classic argument, captured in the prefacing quotation. Our findings show that, regardless of party and chamber, members of Congress alter their message particularly for general elections.

Tapping the Median Voter Model

Hotelling’s (1929) claims laid the foundation for a more developed understanding of how a two-party system like that in the U.S. operates. Namely, election seekers present themselves as moderates in order to maximize their vote-share (Bernstein et al. 1988; Canes-Wrone et al. 2002;

¹ The latter date was selected to allow us to clean and analyze the data in a timely manner.

Downs 1957). It is a compelling and elegant argument despite the fact that the public is ideologically divided and especially so among those who are most engaged in politics (Abramowitz and Saunders 2008; Green et al. 2002; Greenberg 2004; Hetherington and Weiler 2009).²

Democratic voters have shifted ideologically less to the left than Republican voters have shifted to the right (Abramowitz and Saunders 2008; Abramowitz 2013; Abramowitz 2014; Mann and Ornstein 2012; Brady and Han 2006), possibly a function of cross-party communication differences. That is, while repetitious communications allow information to enter the recipient's working memory (Chong and Druckman 2007; Chong and Druckman 2011), dramatic changes in the content of this information around Election Day may make it difficult for voters to track shifts in the ideological position of their candidates (Lauderdale 2013). This would be particularly problematic given alignments between social identity and party affiliation (Bartels 2002; Campbell et al. 1960; Hetherington 2001; Mason 2013) as well as the role of party branding (Groeling 2010; Brady et al. 2000; Jones 2010; Kawato 1987).

We make two propositions. First, the incentives for maximizing vote share attract both parties to the median voter but especially around the election. We conceptualize this attraction in the form of decreased rhetoric about one's position about an issue; i.e. to invoke Hotelling (1929), more "pussyfooting." Second, given rightward shifts in the median voter, as implied above, the decrease in partisan rhetoric around Election Day is expected to differ between parties. In light of the connections between social identity and party affiliation, it is difficult to predict how such differences might take shape. On the one hand, Republicans may be more intense in their rhetoric overall, and thus the expected decrease around Election Day could result in a level of rhetoric which still exceeds that of Democrats. On the other hand, Republicans may be more dramatic in how they approach the median voter, decreasing their use of rhetoric closer to the election and increasing it rapidly afterward. It is worth noting that these conditions are not mutually exclusive.

There are several additional directions in which we can examine the phenomenon of changes in communication from members of Congress over time. An obvious choice, for example, is cross-chamber differences, particularly given claims that Senators are more even tempered than Representatives (Grofman et al. 1991; Theriault 2006; Kernell 1973; Hare and Poole 2014). Given differences in how the use of rhetoric is used from politicians to politician, we focus here primarily on how variance in the frequency of communications affects inter-party differences.

Data Collection & Coding

Twitter remains a less preferred communication vehicle for the majority of American voters. Yet, there were approximately 7 million followers of members of Congress on Twitter as

² See <http://www.people-press.org/2014/06/12/political-polarization-in-the-american-public/> for details.

of the fall of 2012,³ and recent research has identified a positive association between Twitter posts by members of Congress and *New York Times* content (Shapiro and Hemphill 2014). We assume, thus, that Twitter is used as a key part of politicians' communication tools. For example, the simple count of Twitter posts by members of Congress from November 1, 2013 to February 26, 2015 shows clear lulls around the winter break, spikes around the President's State of the Union address, and spikes surrounding other policy-related issues.

The collection of Twitter posts was a function of the Twitter Database Server (Green 2011), existing Twitter-collectors (Hemphill 2011), and new Twitter-collectors such as PurpleTag which use the Twitter REST API to collect a maximum of 3,200 Twitter posts from each legislator.⁴ For the period from November 1, 2013 to February 26, 2015, we accumulated nearly 338,000 Twitter postings by 422 politicians.⁵ Classifying positioning Twitter posts is the result of an iterative process of establishing inter-coder reliability across a spectrum of action-based categories and then using an automated algorithm to classify thousands more statements. This approach addresses many if not all of the concerns raised in Grimmer and Stewart (2013) about text analysis at such a massive scale. Six codes were ultimately identified: narrating, positioning, directing to information, requesting action, giving thanks, and "other", the latter dropped in our subsequent analysis. Codes were not mutually exclusive, and Cohen's kappa scores (Cohen 1968) for each code indicate very strong agreement between coders. Given the labor intensiveness of hand-coding each Twitter post, we automated the coding process by training binary classifiers for each of the five action codes. We used MALLET (Machine Learning for Language Toolkit; McCallum 2002), which employs supervised learning algorithms to exploit the words in Twitter posts in order to determine whether or not they exhibit each of the five actions.⁶ The algorithm produces probabilistic results – each Twitter post has a value between 0 and 1 for each action code, and the value indicates how likely that code applies to the Twitter post. For instance, a value of 0.80 for Positioning means there's an 80 percent likelihood the Twitter post is actually a positioning statement. Typically, the differences between high, medium, and low positioning Twitter posts are a function whether or not a bill, person, party, or the Twitter post author's opinion is mentioned.

Results

Our analysis should begin with an examination of all five speech acts over the 2014 election cycle; however, we target only positioning for the purposes of this paper. We use local polynomial trend lines (Fan and Gijbels 1996), fitting the trend line using locally weighted least

³ The number of followers is determined by aggregating the followers for each individual member of Congress. There are, thus, likely to multiple counts of the same individual, particularly members of the media, political pundits, fans of Congress, etc.

⁴ See <https://github.com/casmlab/purpletag/blob/master/README.md> for details.

⁵ Twitter's API makes nearly all Twitter posts available, but occasionally Twitter posts are not indexed and are therefore not made available programmatically.

⁶ Further details about the development of our coding scheme and the automated classifier are available in Hemphill, Otterbacher, and Shapiro (2013) and Otterbacher et al. (2012).

squares. This is consistent with our expectation that more recent events matter more than those across the entire time period. To definitively show that positioning is occurring in line with our expectations, we engage in a second analysis which restricts the time period from August 2014 to the end of February 2015 and employ fixed effects modeling techniques. The fixed effects approach is especially important given the potential for unidentified attributes of individual members of Congress to drive shifts in positioning.

Twitter is used by many but dominated by a few, shown in Table 1. Given the possibility that a handful of users can determine the impact of our graphical results, we control for variance across high- and low-frequency Twitter users in Congress by grouping members of Congress into quartiles based on their Twitter usage from November 1, 2013 to February 25, 2015.⁷ Party-based differences are presented in Figure 1, where each local polynomial trend line represents a quartile (lowest frequency Twitter posters are in the first quartile; highest frequency Twitter posters are in the third quartile).⁸ In this figure, we observe that both Democrats and Republicans begin to decrease their positioning from late-July 2014 in anticipation of Election Day (the vertical blue line), and that the greatest differences among quartiles centers on Election Day. We also observe that both parties increase their positioning after Election Day. More similarities between parties include the divergence of quartile-based trend lines from November 2013 up to Election Day as well as the increased positioning which occurs from April 2014, peaking in mid-summer 2014. We attribute this peak to politicians' appeals during primary elections to the median voter within their respective parties. In sum, our expectation that November 2014 will coincide with the lowest point for positioning in order to attract the median voter is conditionally satisfied. A close inspection of Figure 1 reveals, though, that positioning is least likely to occur not on Election Day itself but rather approximately two weeks before.

TABLE 1 HERE

FIGURE 1 HERE

In terms of party-based differences, Republicans exhibit much more dynamic shifts in their use of positioning while using Twitter, possibly challenging voters' understanding and/or ability to track Republican ideology. The crucial cross-party distinction lies in our comparison of quartiles of frequency. For Democrats, members of Congress that are most likely to position are the least frequent users of Twitter. Yet, the opposite is true for Republicans. More importantly, while we continue to see for Democrats a clear shift from decreased-to-increased positioning in the two weeks preceding Election Day, a close examination of the first and second Republican quartiles indicates that there are small shifts back and forth within the last two weeks of the election. Specifically, Republicans in the first quartile increase their positioning before remaining static in the last few days before the election; Republicans in the second quartile shift between slight increases and decreases in the last couple of weeks, but then increase their

⁷ These quartiles are not based on distributions within party and/or chamber.

⁸ All parties other than Republicans are grouped with Democrats.

positioning in the last few days before the election. Despite these differences, the overall pattern is one in which there is a negative correlation between frequency of Twitter posting and strength of positioning for Democrats. The correlation is positive for Republicans.

Complementing the previous analysis are fixed effects results which predict over time the positioning by party and chamber subgroup. Party-level effects can be superseded by those of individual politicians (Jacobson 2009; Jacobson 1978; Stokes and Miller 1962), so a fixed effects modeling approach focusing on each individual member of Congress allows us to control for and guard against the possibility of omitted time invariant measures that also might be correlated with positioning. The marginal effects, i.e. the predicted changes relative to November 2014, are presented in Table 2. Statistically significant differences between each month and November 2014 are represented by bold font. We realize that November 2014 represents the entire month and not solely the election on November 4 and, thus, that the coefficients in marginal effects are at best representations of general time trends. Nonetheless, the results remained unchanged when using two week bands of time for the period preceding and following the 2014 election.

TABLE 2 HERE

The dynamics revealed in Table 2 are not entirely consistent with the expectations set forth in Hypothesis 1. Rather than moderating language incrementally more in the months leading up to the election, members of Congress tend to fluctuate in their positioning. Relative to November 2014, House Democrats, for example, position less in September and October only. Senate Democrats, House Republicans, and Senate Republicans all position less in August and October only. Finally, for all four subgroups, positioning increases in the months following the election, implying that the period surrounding Election Day is indeed a minimum point.

Conclusion

Researchers have not reached consensus regarding how the Internet impacts the political campaign process (Druckman et al. 2014), but the evidence provided here confirms that communications via social media are consistent with and contribute to the corpus of electoral behavior and media-based communication. Our research confirms that the November 2014 election – possibly every general election from this point forth – can be used to predict how members of Congress will use rhetoric via Twitter. Higher levels of positioning by members of Congress between election cycles and lower levels of extreme language use in the period leading up to the election have the potential to draw in the median voter and dictate what is reported in the traditional media. These findings are robust to both local polynomial trend line- and fixed effects-based analyses. Yet, there are a number of alternative explanations for our findings, and we make a broad call for future and sustained research on political behavior and communication through social media.

In terms of inducing theory about political communication, we observed that members of Congress represent themselves and/or their colleagues in very different ways in the final days

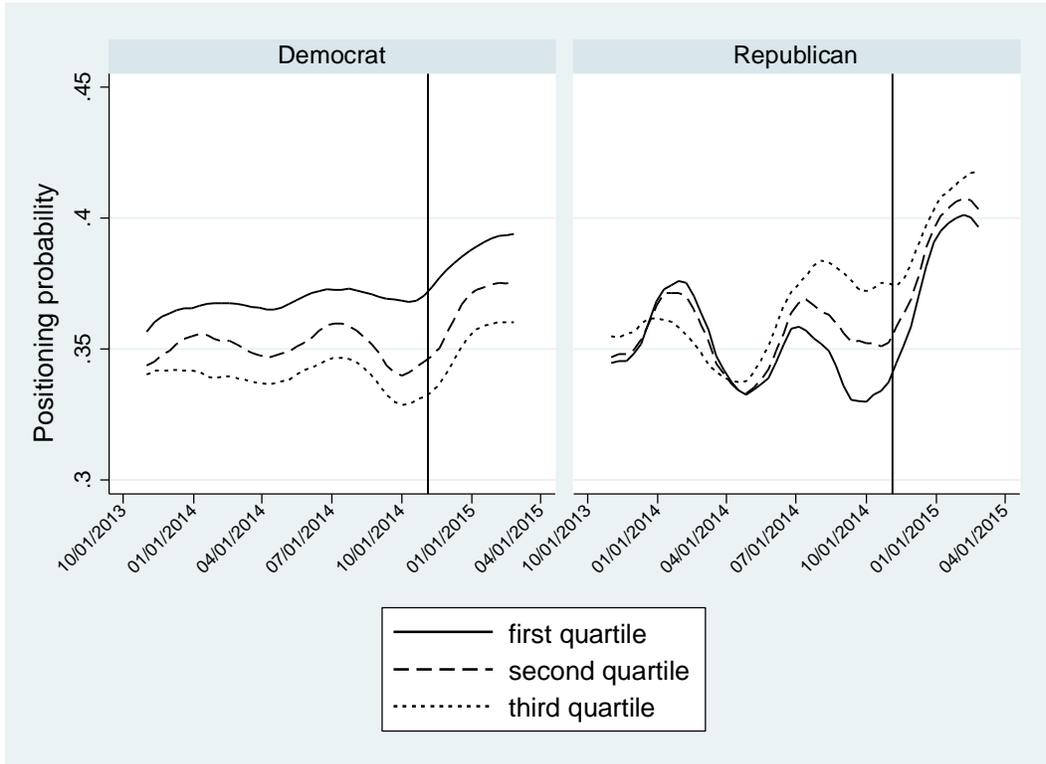
before the election. We do observe conflicting evidence with regard to our expectation that members of Congress will be more restrained in their use of positioning. For both parties, the final two weeks of an election is a period during which politicians seem to assert themselves by positioning more. This may occur because a member of Congress believes that more extreme positioning in the final days before the election will produce an appearance of confidence about the election's outcome. Yet, roughly one quarter of all voters do not finalize their vote choice earlier than two weeks before the election (Nir and Druckman 2008), a share that has continued to grow in recent years (Box-Steffensmeier et al. n.d.). Perhaps politicians expect that voters have essentially made up their minds about their vote choice, and thus the final two weeks provide an opportunity to further secure the votes of the one's existing base of support. Whatever the case – and to again repeat the call for future research on this topic – the late-campaign shift represents but another piece of Twitter-derived evidence not previously identified for members of Congress *en masse* or longitudinally.

Figures and Tables

Table 1. Most frequent Twitter posters by congressional chamber and political party, November 1, 2013 to February 26, 2015

<i>House Democrats</i>		<i>Senate Democrats</i>		<i>House Republicans</i>		<i>Senate Republicans</i>	
Chaka Fattah	3,228	Bernard Sanders	3,240	John A. Boehner	3,244	Mitch McConnell	2,796
Keith Ellison	3,193	Patty Murray	3,223	Darrell Issa	3,205	John McCain	2,429
Kyrsten Sinema	3,190	Richard Blumenthal	2,961	Bradley Byrne	2,814	Rand Paul	1,889
Frederica Wilson	3,161	Christopher Murphy	2,867	Billy Long	2,702	Ted Cruz	1,603
Paul Tonko	3,118	Tammy Baldwin	2,568	Robert Pittenger	2,311	Daniel Coats	1,498
Tony Cardenas	2,532	Heidi Heitkamp	2,557	Keith Rothfus	2,022	Roy Blunt	1,457
James Langevin	2,299	Charles Schumer	2,134	Renee Ellmers	1,975	Orrin Hatch	1,419
Dina Titus	2,214	Benjamin Cardin	1,934	Steve Scalise	1,841	Mark Kirkfe	1,407
Eric Swalwell	2,204	Richard Durbin	1,736	Martha Roby	1,745	James Inhofe	1,330
John Garamendi	2,150	Thomas Carper	1,292	Michael Fitzpatrick	1,631	Michael Crapo	1,297

Figure 1. Local polynomial probabilities of positioning, 11/1/2013 to 2/26/2015, by party



Note: Vertical line indicates Election Day, 2014. Quartiles represent groups of members of Congress according to frequency of Twitter posts.

Table 2. Probabilities (as percentages) of positioning by party and chamber in the months surrounding November 2014

	House Democrats	Senate Democrats	House Republicans	Senate Republicans
August 2014	34.3	33.2	32.5	33.4
September 2014	33.8	36.8	36.8	37.8
October 2014	34.1	33.8	33	33.4
November 2014	35.1	36.6	36.2	37.2
December 2014	36.6	37.5	36.9	37.1
January 2015	37.2	38.9	40.8	40.8
February 2015	36.5	40.8	39.2	40.2

Note: Marginal measurements based on fixed effects modeling; bold text indicates significant differences at the $p < 0.1$ level relative to probability of positioning in November 2014.

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