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ABSTRACT

This article investigates whether the notion of a "permanent campaign" characterizes politicians' Twitter use by analyzing 285,456 tweets by Members of Congress during and after the 2016 US elections. We distinguished a campaign period, a lame duck period, and a routine period. The inclusion of a lame duck period is novel in studies on social networking sites and allows for more precise conclusions. In the routine period, politicians focused more on hard news, put more emphasis on domestic than foreign content on the country level, had a higher level of negative sentiment and published more tweets, whereas in the campaign period positive sentiment was higher. Additionally, we found large differences in politicians' tweeting behavior between the lame duck and routine period. We conclude that the notion of a 'permanent campaign' does not appropriately describe political campaigning on Twitter, but that the exact differences are still poorly understood, as empirical findings do not align well with previous literature.

Introduction

For politicians choosing means to communicate with the public, the age of press conferences and press releases is steadily giving way to the age of social networking sites, even though traditional means of campaigning still dominate many campaigns (e.g., Ott, 2017; Enli, 2017; Craig, 2016; Nielsen, 2012). In any event, in the last couple of years, we have witnessed pivotal moments of campaigns happening on Twitter. For instance, Hillary Clinton announced her presidential candidacy by tweeting: "I'm running for president. Everyday Americans need a champion, and I want to be that champion. – H" (Clinton, 2015). And most famously, Donald Trump uses Twitter to communicate with the public, bypassing – and often harshly criticizing – traditional media: "The failing @nytimes is truly one of the worst newspapers. They knowingly write lies and never call to fact check. Really bad people!" (Trump, 2015).

However, even though numerous studies have addressed the use of Twitter for political purposes, we know relatively little about *how politicians' use of Twitter differs between campaign periods and routine periods*. In spite of ample anecdotal evidence, systematic large-scale comparative studies are scarce. While deliberative and participatory theories of democracy expect continuous participation of the citizens, representative models assume that citizens mainly participate in election times (e.g., Ferree, Gamson, Gerhards, & Rucht, 2002). However, one stands on this issue, we can reasonably assume that during election campaigns, the stakes are higher for both politicians (who want to win) and citizens (who have to make an informed decision). Therefore, we expect that politicians will switch to 'campaign mode' in their Twitter usage, for instance by shifting the focus of their tweets or by adapting techniques like negative campaigning. On the other hand, some have argued that today's media environment has led to a 'permanent campaign' (e.g., Blumenthal, 1980; Ornstein & Mann, 2000; Ceccobelli, 2018).

Extensive research has been conducted on the use of Twitter during election campaigns (for a literature review, see Jungherr, 2016), and some other studies have focused on Twitter use outside campaign periods (e.g., Aharony, 2012; Peng, Liu, Wu & Shixia, 2016). There is, however, little research investigating the differences between politicians' use of Twitter during election periods vis-

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à-vis routine periods. Moreover, there is, to our knowledge, no research investigating such differences with the inclusion of a lame duck period. Unsurprisingly, social networking sites are used more extensively during campaign periods, but there are also some tendencies towards permanent campaigning (see Vergeer, Hemans, & Sams, 2011; Ceccobelli, 2016; Larsson, 2016). If the latter becomes the norm, then this has serious consequences for our understanding of political campaigning in general. For political actors, it may influence the way they setup their campaign strategies (and help them anticipate the behavior of their competitors); for political scientists, it may affect their conceptualization and measurement of campaign activities; and for citizens, it may mean that the distinction between day-to-day politics and election periods vanishes, and with it their patterns of involvement with politics might change. If, in contrast, substantial differences turn out to persist, it is crucial for campaigners to be aware of them in order to adapt their campaign strategies; for political scientists to adjust their analytical strategies and/or models of campaign effects; and for citizens to better understand the workings of the political discourse.

To investigate such differences in a systematic way, we distinguished between a campaign period, a lame duck period, and a routine period in the 2016 US election cycle. We compiled a list of the Twitter accounts of all US Members of Congress and collected their tweets from 126 days prior to the election day (campaign period), 55 days right after the election day (lame duck period), and 433 days after the lame duck period (routine period), which resulted in a large dataset of N = 285,456 tweets. By comparing the tweets sent in these periods using an automated content analysis, we investigate whether features that are considered typical for campaign messages are equally present in a non-campaigning period.

Theoretical background and related research

Political campaigning in an age of social networking sites

To understand political campaigning on social networking sites, we first need to establish how these relate to 'traditional' political campaigns. Magin,

Podschuweit, Haßler, and Russmann (2016) outline four prototypes of political campaigning, for which they build on the work of Blumler and Kavanagh (1999), Gibson and Römmele (2001), and Blumler (2013). Each of these prototypes is shaped by technological developments of their era. First, printed (mostly partisan) press and face-to-face interactions marked the partisan-centered campaigns from around 1850 to 1960. Second, limited-channel television paved the way for mass-centered campaigns from approximately 1960 to 1990. Third, multi-channel television and the Internet subsequently enabled target group-centered campaigns. For instance, by 1997, more than 65% of U.S. Members of Congress had established a personal website (Adler, Gent, & Overmeyer, 1998), and in 2000 John McCain became the first politician to conduct large-scale fundraising on the Internet (Towner & Dulio, 2012). Fourth, as Internet technologies advanced, it appears we entered a new age of political communication, in which personalized data from Web 2.0 services allow for individual-centered campaigns. As of today, for already a decade, social networking sites have been considered indispensable for political campaigns (Enli, 2017; Perlmutter, 2008). Social networking sites are viewed as unique because of their potential to allow users to transparently display their connection networks (boyd & Ellison, 2007), and can be used to enhance the interaction between the public and politicians (Towner & Dulio, 2012).

Most campaigns combine different social networking sites such as Facebook, Twitter, and – to a lesser degree – Instagram, Youtube, and regionally important networks. Yet, Twitter has a somewhat special role. First, many journalists follow candidates on Twitter, so there is a high change that the message will be picked up by other media. For instance, Ott (2017) argues that televised news now follow the lead of Twitter. In contrast, Groshek and Groshek (2013) found Twitter to be more likely to follow traditional media than the other way around. Yet other studies point to a more complicated agenda-setting relationship between Twitter and traditional media, characterized not by a simple one-way pattern but instead by a dynamic and complex interaction (Neuman, Guggenheim, Mo Jang, & Bae, 2014; Conway et al., 2013).

Second, Twitter contrasts many other social networking sites in that its users commonly use public

profiles that obviate the need to bidirectionally confirm connections (boyd & Ellison, 2007). The social networking site, characterized by its limited-length tweets, is increasingly being used as a political platform to both disseminate information, demonstrated by Hillary Clinton announcing her presidency on Twitter (Clinton, 12 April 2015), and facilitate conversations between politicians and the public, as illustrated by the Obama administration's Twitter Townhall (Office of the Press Secretary, 2011) – even though one could argue that such conversations are no real dialogs, but dialogs in name only (see Kent & Theunissen, 2016). Numerous studies have modeled the news dissemination processes of Twitter networks (e.g., Bakshy, Hofman, Mason, & Watts, 2011; Lerman, Ghosh, & Ray, 2010; Yang & Counts, 2010), illustrating the potential use of Twitter for political campaigns.

Campaign periods and routine periods – or a permanent campaign?

Already in Blumler and Kavanagh's (1999) so-called "third age" of political communication, in which the communication abundance created by the likes of the Internet and 24-h news services led to increased professionalization, competitiveness, and media populism, politicians understood that carefully attending to communication through the media was an indispensable part of their work. This professionalization of political communication led politicians to increasingly adapt their behavior to media logic – the way media cover politics, including the presentation and organization of news material (Altheide, 2013). Politicians can thus be expected to conform to such logic when posting on Twitter, in order to maximize the chances of mainstream media picking up the content of their tweets for publication. This enables us to look for possible hypotheses on politicians' Twitter behavior in literature on media behavior during election and routine periods in general.

Some have argued that politics operate in a mode of permanent campaigning. The notion of the "permanent campaign" (Blumenthal, 1980) entails that politicians need to think about their daily endeavors in relation to media coverage as if the election campaign period never ends. It has been argued that the Clinton, W. Bush, and Obama administrations followed the theory of the permanent campaign,

believing that this "provides the highest probability of political success" (Goidel, 2011, p. 138). If such a state of affairs is indeed in place, then political publicity should follow a uniform logic throughout both campaign and routine periods. Different forms of cyberdemocracy could lead to an intensification of the permanent campaign (Ornstein & Mann, 2000). In studying politicians' behavior throughout a routine and a campaign period on Twitter we aim to answer the question: Do we find support for the notion of a permanent campaign?

In fact, Ceccobelli (2018, p. 125) argues that "each political leader can be located in a continuum that runs between two poles: the 'permanent campaign' pole and the 'electoral poster' pole.", and contrasts this with an approach that assumes a clear-cut dichotomy. In line with Ceccobelli, we are interested in the *extent* to which we can speak of a "permanent campaign" on social networking sites.

Direct comparisons between campaign periods and election periods are scarce, but there are some studies suggest some differences between campaign and routine periods. Van Aelst and De Swert (2009) list three reasons for why campaign and routine periods differ. First, the behavior of parties and candidates changes – they become more active in their pursuit of media attention. Second, rules and practices on balance and fairness (Semetko, 1996) influence the way media report during election times. Twitter, however, is not subject to the professional rules and practices of regular journalism, and we should thus not expect any general tweeting pattern of fairness and balance. Third, ordinary citizens seem to become more interested in politics during campaign periods.

In their analysis of Flemish television news broadcasts, Van Aelst and De Swert (2009) found that during election periods there are more hard than soft news than during routine periods (but see Ceccobelli, 2018 who finds the opposite for Facebook campaigns). Economy, finance and foreign and domestic politics are usually considered to be hard news; news about celebrities, crime, royal families, service, scandals, and sports are commonly referred to as soft news (Reinemann Stanyer, Scherr, & Legnante, 2012). In addition, during election periods there are more domestic than foreign news. In the case of US Congress elections, in which politicians can only gain votes

from citizens in their own state, such differences in focus on domestic and foreign news could also be extrapolated to a regional effect. Even though prior evidence is limited, we test the following hypotheses:

H1: During the campaign period politicians will tweet more about hard news than during the routine period.

H2: During the campaign period politicians' tweets will mention their own country more and foreign countries less than during the routine period.

H3: During the campaign period politicians will tweet more about their own state and less about other states than during the routine period.

In US presidential debates, approximately four out of every 10 candidate statements are attacks (Airne & Benoit, 2005). The extensive journalistic coverage of negative campaign messages incentivizes candidates to employ a negative sentiment for more media attention (Hansen & Pedersen, 2008). Negativity aside, it is possible that also positivity, for example in the slogans of Barack Obama's 2008 "Yes We Can" and Donald Trump's 2016 "Make America Great Again" campaigns, can result in increased attention during campaigns (Geer, 2009). Messages with high positive or negative sentiment fit well into the idea of "tabloidization" in which media are becoming increasingly sensational (see, e.g., Esser, 1999; Sparks, 2000). On the other hand, Ceccobelli (2018) finds less negative campaigning during campaign periods on Facebook. It is important to note that positivity and negativity are not necessarily correlated, and that tweets may also exhibit neither or both sentiments. In election times, in which candidates fight for attention in order to gain votes, both positively and negatively emotional messages thus have potential to attract attention, leading to the following hypotheses:

H4: During the campaign period politicians' tweets will exhibit a higher level of positive sentiment than during the routine period.

H5: During the campaign period politicians' tweets will exhibit a higher level of negative sentiment than during the routine period.

Lassen and Brown (2011) found that the percentage of Members of Congress with Twitter accounts sharply increased slightly after the elections in 2008. Now, all Members of Congress have Twitter accounts, and we can assume that politicians and their media teams are more accustomed to using social networking sites for outreach purposes. Because of the competitive nature of elections, it is expected that politicians seek media attention more actively during campaign periods than routine periods (Van Aelst & De Swert, 2009). This is also what Ceccobelli (2018) and Larsson (2016) find in the case of Facebook.

H6: During the campaign period politicians will publish more tweets per day than during the routine period.

Candidates from highly competitive districts or states have previously been found to have the most solid online presence (Esterling, Neblo, & Lazer, 2005). In their investigation of Twitter use among US Members of Congress, Lassen and Brown (2011) found no indication of any effect of being in a competitive district on high activity on Twitter or on having a high "Twitter Influence" – actual audience size, number of posts reacted to by other Twitter users, or "network score" – a measure which increases if a person's followers also are influential users. Evans, Cordova, and Sipole (2014), similarly, did not find House of Representatives candidates from competitive districts to tweet more than others, but did find them to significantly oftener display an "Attack" style of tweeting. This latter effect is only expected to be present during the campaign period, when candidates are in competition with each other.

H7: Competitive districts or states will display a higher increase in negative sentiment during the campaign period as opposed to the routine period than less competitive districts or states.

Routine periods versus lame duck periods

Studies that compare election campaigns with routine periods usually base their comparison on

a dichotomy between these two periods. For instance, in a recent study about permanent campaigning on Facebook, Ceccobelli (2018) collected Facebook posts in a period of approximately 2 years for 18 different election campaigns. He then compared the 60 days before an election with all the remaining days in the time span. Vergeer, Hermans, Sams (2011), studying campaigning on Twitter, took a symmetric approach: they compare roughly 4 months before election day with roughly 4 months after election day.

Some argue, though, that the period directly *after* an election should be distinguished from a routine period. In particular, in the US context, the period between election day and the day on which the newly elected Congress convenes for the first time is known as a "lame duck" period (e.g., Jenkins & Nokken, 2008), because newly elected senators are not sitting in Congress yet, while retiring senators are still sitting.

Lame ducks are characterized by a lack of efficacy: lame ducks may cease their efforts to achieve something which is not going to happen anyway. In a different context, this lack of efficacy is illustrated by Baum and Kernell (1999), who speculated that lame duck presidents get less airtime because "network executives may find it more difficult to resist the efforts of a new president to launch his policies than a lame duck, whom everyone in Washington is beginning to ignore" (p. 109). If this is the case, then re-elected senators may not feel any need to fight the "lame ducks" anymore and cease their attacks. Understanding such differences is of crucial importance to put politicians' messages into perspective and to understand potential differences in terms of, for instance, content, tone, or frequency.

We do not have any conclusive evidence yet, though, whether this distinction is crucial when it comes to the analysis of politicians' use of social networking sites. This study therefore makes a novel contribution in carrying out analyses comparing *three* periods: the period immediately preceding the election (the campaign period), the period immediately following it (the lame duck period) and a period when Congress was running normally (the routine period). While our main theoretical interest lies in comparing the routine period with the election period, we pose an additional explorative question:

RQ1: In how far does the lame duck period differ from the routine period?

Method

Data collection

The case under study is the 2016 US House of Representatives and Class 3 Senate elections. We collected data for three different periods. For the campaign period, we opted to collect tweets from July 6 to November 9, 2016. This choice of 126 days is partly due to data availability constraints (it was the maximum we could go back in time for *all* accounts of interest), but is also consistent with time frames of similar studies: For instance, Boczkowski, Mitchelstein, and Walter (2012) studied 19 pre-election weeks. The lame-duck period is defined as the day after the election (i.e. November 9, 2016) until and including the day before the newly elected congress convened for the first time (i.e. January 2, 2017). For the routine period, we chose to study 433 days immediately after the lame duck period (3 January 2017–11 March 2018). We chose this length of the routine period because all the Twitter accounts in our dataset were active throughout the entire period – they had published at least 10 tweets throughout the period, and had tweeted after the period. Results do not become more accurate by employing symmetric periods, and the longer routine period offers more tweets on which to base the analysis.

To be able to control for possible differences between campaigning and non-campaigning politicians, Class 1 and 2 Senators were included in the sample. These are senators that were not up for re-election in 2016. The data only contained Members of Congress who were both present in Congress and held a Twitter account during the entire period. C-SPAN's compilation of Twitter accounts pertaining to Members of Congress (C-SPAN, 2016) was used to obtain a list of Twitter handles. The list was manually checked to make sure all relevant politicians were included, resulting in the addition of several accounts. Any Member of Congress with fewer than 10 tweets in either period was excluded. While some Members of Congress are very active on their twitter account, others might not even send

a single tweet within a given period. Furthermore, if they just send one or two tweets, this most likely is insufficient to draw meaningful conclusions regarding our hypotheses. While there, unfortunately, is no established guide to determine an appropriate threshold value, we found a minimum of 10 tweets per period to be a good compromise between having enough data per Member of Congress and not losing too many Members of Congress due to an insufficient number of tweets. Since Members of Congress have a varying numbers of Twitter accounts (generally one to three), the list was reduced to only one per person. Accounts typically belonged to one of three categories: campaign, official, or personal. Many accounts had no information on type of account, but these accounts usually resembled the official account type, for example, by including 'Member of Congress' in the account description. Since the purpose of this study was to investigate differences between the campaign and routine periods, all explicit campaign accounts were excluded. All Members of Congress with a personal account also had an official account. Thus, the final dataset consisted of either explicitly official accounts or accounts with no information on type. Only two accounts pertained to Independent politicians that were members of neither the Republican nor the Democratic party (Angus King and Bernie Sanders). Since two cases are too few to draw meaningful conclusions from, these were excluded.

The tweets were collected by querying Twitter's API using Python. Data collection was performed on November 2, 2018[1]. All retweets were removed to ensure that the analysis only considered content endorsed by the politician. This is illustrated by the fact that some account profiles even feature a disclaimer stating that not all retweets are endorsements. The final sample consisted of 285,456 tweets by 323 individuals. We concatenated all tweets per politician per period, leading to N = 969 documents.

Preprocessing

Python scripts were written to analyze the tweets. For all hypotheses, tweets were prepared by making all characters lowercase and removing punctuation. Given the nature of the variables of interest, stop-word removal and stemming were unnecessary.

Variables

Hard versus soft news

A list of the 2000 most common words used by all politicians throughout both periods was compiled, out of which 180 words suggesting a topic of hard news according to Reinemann et al. (2012) were selected (Table A1). All instances of hard news words in politicians' tweets were counted. To avoid frequent tweeters skewing the data, the count of hard news mentions was divided by the total number of tweets for each politician in the corresponding period, resulting in a ratio ranging from .07 to 2.00 (M= .85, SD= .28).

Domestic versus foreign emphasis

For this hypothesis, a list of all countries and nationalities in the world was used to measure in how many tweets they were mentioned at least once. The acronyms UK and US, with potential punctuation, were also included. America and American were also included as indicators of the US, with the requirement that they were preceded by neither South, North nor Latin. Having the counts of tweets with domestic mentions and foreign mentions for each politician, a ratio between the two variables was calculated. Since some politicians had either no domestic or no foreign mentions, to avoid division by zero both variables were increased with 1 before computing the ratio. The variable had a minimum of .08 and maximum of 17.50 (M= 1.68, SD= 1.56). With strong skew (3.27) and kurtosis (18.43), the variable was transformed to its natural logarithm before testing ($min = -2.56$, $max = 2.86$, $M = .21$, $SD = .78$, $skew = -.01$, $kurtosis = .23$).

Home versus other states emphasis

To investigate the emphasis Members of Congress placed on their home state as opposed to other US states, an identical script as in the previous hypothesis was used, but with states instead of countries. Here, no acronyms but only full state names were used, as manual checks of the data gave no sign of prevalence of the former. The preparation for this hypothesis was equal to that of the previous hypothesis, with the ratio between domestic and foreign states mentions ranging from .06 to 32.00 (M= 3.13, SD= 3.63). The variable exhibited strong skew (3.14) and kurtosis (13.62) and was transformed to its natural logarithm

prior to testing (*min*= −2.76, *max*= 3.47, *M*= .66, *SD*= 1.00, *skew*= −.09, *kurtosis*= .07).

Sentiment

For the hypotheses on sentiment, the external module SentiStrength (Thelwall, Buckley, & Paltoglou, 2012) was used. The SentiStrength algorithm rates a text on its positivity and negativity, enabling a comparison of the sentiment in different politicians' texts. The sentiment score was divided by number of tweets per politician. The negative sentiment score was reversed for ease of interpretation. Positive (*min*= .88, *max*= 3.18, *M*= 1.88, *SD*= .28), negative (*min*= .77, *max*= 2.48, *M*= 1.56, *SD*= .23) and average (*min*= −.94, *max*= 1.91, *M*= .32, *SD*= .41) sentiment were recorded.

Tweet frequency

A simple count of tweets was performed to investigate the hypothesis on tweet frequency in the campaign versus routine period, which ranged from 10 to 1808 (*M*= 294.59, *SD*= 351.03). Since the periods have different number of days, the variable was standardized by dividing by number of days. The average number of tweets per politician per day were 1.44 (*Mdn*= 1.32) in the entire period, 1.21 (*Mdn*= 1.02) in the campaign period, 0.98 (*Mdn*= .84) in the lame duck period, and 1.56 (*Mdn*= 1.45) in the routine period. Due to significant skew of the standardized variable (1.38), we computed its natural logarithm, resulting in a new variable with *min*= −2.16, *max*= 1.86, *M*= .01, *SD*= .70 and *skew*= −.37.

Competitiveness

To construct a measure for competitiveness, scores from four indices (Cook, RealClearPolitics, Rothenberg, and Sabato), last updated before the election day from October 31 to November 7, were merged to create an absolute scale of competitiveness ranging from 0 (all indices classifying a seat as "safe" for either Democrats or Republicans) to 12 (all indices classifying a seat as "tossup"). Case values ranged from 0 to 12 with *M*= .78 and *SD*= 2.49 for the 287 campaigning politicians (non-campaigning politicians were not interesting for this analysis). This was an improvement from previous studies that have used the losing major-party presidential candidate's share of votes in the previous election (Lassen & Brown, 2011) or scores from a single index (Evans et al., 2014).

Control variables

Previous studies found age, gender, party affiliation and chamber (Lassen & Brown, 2011; Hemphill, Otterbacher, & Shapiro, 2013) to help explain Twitter use by Members of Congress. Additionally, while Lassen and Brown (2011) found no significant effect of members' tenure in Congress on probability of using Twitter, their tenure still may matter for the way they use Twitter. Years in office were calculated by subtracting the year a politician assumed office from 2018 and ranged from 3 to 40 (*M*= 10.96, *SD*= 8.33). The variable exhibited significant skew (1.36), which is why we transformed it to its natural logarithm (*min*= 1.10, *max*= 3.69, *M*= 2.14, *SD*= .71, *skew*= .24). Age was calculated by subtracting year of birth from 2018 and ranged from 34 to 87 (*M*= 61.04, *SD*= 10.48). There were 58 women and 265 men in the sample, and the variable gender was coded with 1 = Female and 0 = Male. There were 53 Senators and 270 members of the House of Representatives in the sample, which we coded as 1 = House of Representatives, 0 = Senate. There were 128 Democrats and 195 Republicans in the dataset, coded as 1 for Democrats and 0 for Republicans.

Members of the House of Representatives are elected every 2 years. Senators, however, serve terms of 6 years. Senators' seats are divided up into three different classes, so that approximately one-third of the Senate is up for election every 2 years. In 2016, all Class 3 Senators were up for election. In our dataset, there were 287 campaigning (members of the House of Representatives and Class 3 Senators) and 36 non-campaigning (Class 1 and 2 Senators) politicians. The non-campaigning politicians might of course still actively support their party in campaigning, but do not campaign for themselves. Since they do not have to gain the trust of voters to the same extent as the ones up for election, we included a binary control variable coded 1 for Class 1 and 2 Senators and 0 for members of the House of Representatives and Class 3 Senators.

Analytical strategy

Two dummy variables were used to distinguish between the periods: one to indicate whether the

period was a campaign period (1 = yes, 0 = no), and one to indicate whether it was a lame-duck period (1 = yes, 0 = no), which leaves the routine period as baseline. To test the hypotheses, regression models were estimated. Some dependent variables showed significantly non-normal, over-dispersed distributions. In those cases, with all variables being interval variables, linear regressions were run on their natural logarithm.

Results

Before we test our hypotheses, we give an overview of our dataset. Figure 1 displays the average number of tweets per day for all politicians during the entire period (campaign period in solid, lame duck period in dashes and routine period in solid). The most striking feature is that weekdays have a visibly higher average of tweets (Monday: 1.38, Tuesday: 2.01, Wednesday: 2.24, Thursday: 2.08, Friday: 1.63) than weekends (Saturday: .61, Sunday: .40). There are also spikes around specific dates. Furthermore, the level of tweeting is visibly higher in the period after the 115th congress convened for the first time on January 3, 2017 than during the campaign.

H1: hard versus soft news

A linear regression was estimated to predict hard news mentions over number of tweets based on period and control variables (Model 1, Table 1).

In the campaign period, politicians' ratio of hard news mentions over number of tweets was .34 lower than in the routine period ($p < .01$). This is the opposite effect of what was predicted, rejecting Hypothesis 1. Being a Democrat decreased the ratio of hard mentions over number of tweets by .04

($p = .033$). In the lame duck period, politicians' ratio of hard mentions over number of tweets was .35 lower than in the routine period ($p < .01$). Class 1 or Class 2 Senators (not campaigning) had a .08 lower ratio of hard mentions over number of tweets ($p = .035$). However, including interactions between being a Class 1 or Class 2 Senator and the campaign or lame duck period made the variable and the interaction variables nonsignificant.

H2: domestic versus foreign emphasis

To predict the ratio of domestic and foreign mentions based on period and the control variables, a linear regression was estimated (Model 2, Table 2). The model was significant, but had a low R^2 of .04.

In the campaign period, politicians' ratio of domestic over foreign mentions was 81% of that in the routine period ($p < .01$). This is the opposite of what was predicted, rejecting Hypothesis 2. Members of the House of Representatives scored 23% higher on the dependent variable than Senators; yet, the difference misses the conventional 5% threshold of significance ($p = .068$). In the lame duck period, politicians' ratio of domestic over foreign mentions was 75% of that in the routine period ($p < .01$).

H3: domestic versus foreign states emphasis

To predict the ratio of domestic and foreign states mentions based on period and the control variables, a linear regression was estimated (Model 3, Table 2), resulting in a significant regression equation, be it with a rather low R^2 of .09. There was no significant difference between the campaign and routine period for domestic over foreign states mentions, rejecting
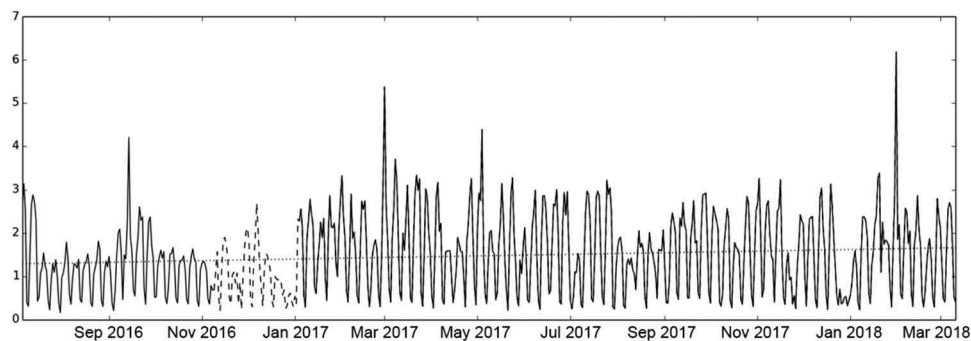

Figure 1. Average number of tweets per day for members of congress.

Table 1. OLS regression analysis predicting hard news mentions over number of tweets (N = 969).

Variable	Model 1		
	B	SE(B)	β
(Constant)	1.006	.057	
Campaign period	−.337	.018	−.569**
Lame duck period	−.351	.018	−.592**
Gender	.017	.020	.024
Age	.001	.001	.045
Years in office	−.006	.013	−.015
House	.023	.034	.030
Democrat	−.035	.016	−.061*
Class 1/2 Senators	.083	.039	.093*
R^2		.34	
F for change in R^2		63.84**	

Note: Years in office had its logarithm taken due to skew.
† = $p < .10$. * = $p < .05$. ** = $p < .01$

Hypothesis 3. Members of the House of Representatives scored 60% lower on the dependent variable than Senators ($p < .01$), and women had a 16% higher ratio of domestic over foreign states mentions than men, although the difference misses the conventional 5% threshold of significance ($p = .076$). Democrats' score on the dependent variable was 86% of what Republicans scored ($p = .027$). A 1% increase in years in office resulted in a .11% increase in the ratio of domestic over foreign states mentions ($p = .043$). In the lame duck period, politicians' ratio of domestic over foreign states mentions was 71% of that in the routine period ($p < .01$).

H4 & H5: sentiment

To predict the differences in sentiment between the campaign and routine periods based on period and control variables, two linear regressions were estimated (Model 4 and 5, Table 3).

Politicians had a .04 higher value of positive sentiment during the campaign period than the routine period, although the difference is slightly above the 5% significance threshold ($p = .066$), giving some support to Hypothesis 4. Members of the House of Representatives exhibited a .09 higher value of positive sentiment than Senators ($p = .021$), and Democrats had a .15 lower value of positive sentiment than Republicans ($p < .01$). Women had a .04 higher score of positive sentiment than men, but the coefficient misses the significance threshold of 5%; $p = .098$). Having spent 2.71 times more years in office resulted in a .03 decrease in positive sentiment ($p = .022$). In the lame duck period, politicians exhibited a .11 higher value of positive sentiment than in the routine period ($p < .01$).

Politicians exhibited a .09 lower value of negative sentiment during the campaign than routine period ($p < .01$), rejecting hypothesis 5. Women had a .08 higher negative sentiment value than men ($p < .01$), and Democrats had a .16 higher value of negative sentiment than Republicans ($p < .01$). In the lame duck period, politicians had a .13 lower value of negative sentiment than during the routine period ($p < .01$).

We additionally estimated a linear regression model for the average sentiment (Model 6, Table 3). The results suggested that the level of average sentiment had a .13 higher value during the campaign than routine periods ($p < .01$).

Table 2. OLS regression analyses predicting domestic over foreign mentions (Model 2, N = 969) and domestic over foreign states mentions (Model 3, N = 969).

Variable	Model 2			Model 3		
	B	SE (B)	β	B	SE(B)	β
(Constant)	.102	.194		1.341	.242	
Campaign period	−.213	.060	−.129**	−.091	.075	−.043
Lame duck period	−.292	.060	−.177**	−.343	.075	−.162**
Gender	.038	.067	.019	.149	.084	.057†
Age	.001	.003	.019	−.005	.004	−.056
Years in office	−.001	.044	−.001	.110	.054	.079*
House	.208	.114	.099†	−.515	.142	−.191**
Democrat	.027	.055	.017	−.152	.068	−.074*
Class 1/2 Senators	.016	.133	.006	.200	.166	.063
R^2		.04			.09	
F for change in R^2		4.40**			11.56**	

Note: Years in office had its logarithm taken due to skew.
† = $p < .10$. * = $p < .05$. ** = $p < .01$.

Table 3. OLS regression analyses predicting positive (Model 4, N = 969), negative (Model 5, N = 969) and average (Model 6, N = 969) sentiment.

	Model 4			Model 5			Model 6		
Variable	B	$SE\ B$	β	B	$SE\ B$	β	B	$SE\ B$	β
(Constant)	1.821	.067		1.449	.052		.372	.093	
Campaign period	.038	.021	.065†	−.090	.016	−.183**	.129	.029	.147**
Lame duck period	.108	.021	.182**	−.131	.016	−.264**	.238	.029	.272**
Gender	.038	.023	.053†	.084	.018	.138**	−.045	.032	−.042
Age	.001	.001	.035	.001	.001	.047	.000	.001	−.003
Years in office	−.034	.015	−.088*	.012	.012	.036	−.046	.021	−.080*
House	.091	.039	.121*	.021	.031	.033	.070	.055	.063
Democrat	−.149	.019	−.262**	.155	.015	.326**	−.304	.026	−.361**
Class 1/2 Senators	.004	.046	.005	−.015	.036	−.020	.019	.064	.015
R^2		.10			.23			.21	
F for change in R^2		14.00**			35.05**			31.84**	

Note: Years in office had its logarithm taken due to skew.
† = $p <$ .10. * = $p <$ .05. ** = $p <$ .01.

Democrats had a .30 lower average sentiment value than Republicans ($p <$ .01), and having spent 2.71 times more years in office resulted in a .05 decrease in average sentiment ($p =$ .027). In the lame duck period, politicians had a .24 higher value of average sentiment than during the routine period ($p <$ .01).

Figure 2 displays the average level of negative sentiment per day for all politicians, making evident a clear upwards trend throughout the period under study.

H6: tweet frequency

To predict the tweets per day based on period and the control variables, a linear regression was estimated (Model 7, Table 4).

In the campaign period, the number of tweets per politician per day were 73% of that in the routine period ($p <$ .01). This is the opposite effect as suggested, rejecting Hypothesis 6. Women published 33% more tweets per day than men ($p <$ .01).

Members of the House of Representatives published 53% of the number of tweets per day that Senators published ($p <$ .01). Having spent 2.71 times more years in office resulted in a .17 decrease in tweets per day ($p <$ .01). Class 1 and 2 Senators (not campaigning) published 79% of the number of tweets per day that members of the House of Representatives and Class 3 Senators (campaigning) published ($p =$ .027). However, including interactions between being a campaigning politician (not a Class 1 or Class 2 Senator) and the Campaign or Lame duck period into the model resulted in nonsignificant coefficients for the interaction variables. In the lame duck period, the number of tweets per politician per day were 60% of that in the routine period ($p <$ .01).

H7: competitive districts

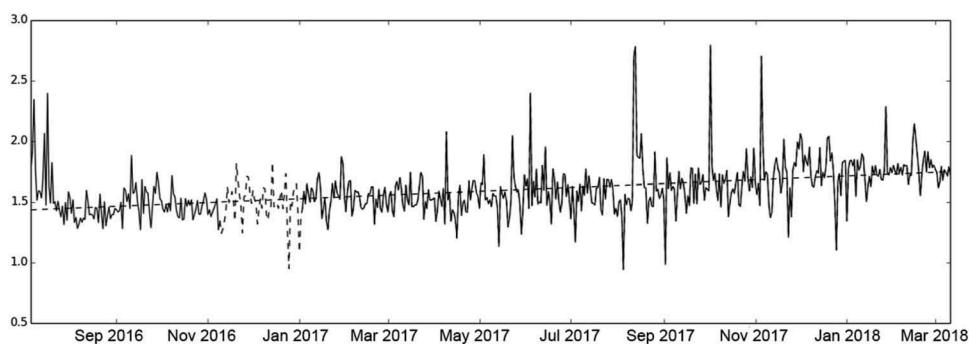To predict the differences in negative sentiment between the campaign and routine periods based

Figure 2. Average level of negative sentiment per day for members of congress.

explanation could be that they simply talk more about themselves – which would be in line with Ceccobelli's (2018) observation that on Facebook, during campaigns, politicians talk less about policy issues but more about their own *persona*. In line with this, candidates may even employ "amateurism […] as a calculated strategy" (Enli, 2017, p. 58) to increase their authenticity. These findings can be related to the idea of tabloidization (see, e.g., Esser, 1999; Sparks, 2000), pushing aside hard news topics in favor of a more popularized and personalized style. By communicating in such a manner, especially with the potential to through social networking sites like Twitter bypass traditional media and directly reach voters, politicians may hope to garner more support than by talking about, for example, hard news in an objective manner. As Skovsgaard (2014) argues, such a focus may not just be a threat to but also carry benefits for democracy, in that it could increase citizens' attention to politics. Our observation that politicians' ratio between domestic and foreign mentions were lower in the campaign period, and that no difference was found in politicians' ratio of domestic and foreign states mentions are harder to explain, as it would be expected that politicians mainly focus their attention on areas where their potential voters reside.

We furthermore hypothesized an increase of positive (H4) and negative (H5) sentiment during campaign time. The positive sentiment expressed in politicians' tweets tended to be higher during the campaign period than routine period, although the difference slightly misses the conventional 5% threshold of significance. Complementing this observation, negative sentiment in tweets was lower in the campaign period than routine period. Looking at negative sentiment levels over time (Figure 2), there is a clear tendency towards higher levels of negative sentiment throughout the entire period under study. It could be that politicians do indeed communicate in a less negative manner on Twitter during the campaign than routine periods to avoid stirring negative emotions in voters. However, it is also possible that we are seeing a trend of increasing negative sentiment among politicians on Twitter in general. While more research is needed to draw definitive conclusions, there is some preliminary evidence that political

online discourse, in general, has become more negative and polarized during the Trump campaign and Trump presidency (e.g., Nithyanand, Schaffner, & Gill, 2017).

In contrast to other studies (e.g., Ahmed & Skoric, 2014; Bruns & Highfield, 2013; Ceccobelli, 2018; Graham, Jackson, & Broersma, 2016), and contradicting our hypothesis H6, we did not find that tweeting frequency increased leading up to election day. This may be one of the few pointers that we find that actually are in line with the permanent campaign hypothesis. On the other hand, Lassen and Brown (2011) found a similar result to ours in that the percentage of Members of Congress with Twitter accounts substantially increased shortly *after* the 2008 elections, but concluded that the future may present spikes in Twitter usage during campaign periods. It seems as though that either is this scenario not quite reached yet, or there are other forces at work. Campaigning resources may be directed towards other activities than Twitter messaging. We may also simply be observing a longitudinal trend of increased Twitter usage. The election of Donald Trump – famous for using Twitter to communicate with the electorate – could have contributed to an increase in Twitter usage after election day 2016. Future studies spanning a longer period of time and including multiple campaign periods will be helpful to deeper understand the trends.

Another possibility is that Members of Congress mainly used their campaign accounts during the campaign, after which they switched to their official or another type of account. Since this study included no campaign accounts, these differences would not be considered. Future research should investigate differences between types of politicians' Twitter accounts. However, these studies are difficult to undertake, since type of account is not included in many Twitter profile descriptions. Should politicians further professionalize their activities on social networking sites would such research be made possible. Looking at the past, professionalization seems possible: In January 2010, only 35% of Members of Congress had an account (Lassen & Brown, 2011), while at the time of this study, all Members of Congress relevant for this study had Twitter accounts, and only one had no published tweets. Another

possible explanation for the surprising results maybe that individual events or the congressional schedule skew the data. In focusing on differences between campaign and routine periods, attention to events is beyond the scope on this study, but the results on domestic versus foreign emphasis and tweet frequency invite future Twitter research to focus on individual events for a more detailed picture. As a side note, politicians tweeted notably more on weekdays than weekends, something that is easily explained by the five-day workweek. Also this seems to go against ideas of permanent campaigning.

We furthermore hypothesized (H7) an influence of competitiveness on negative tweeting, but did not find such an effect. This contrasts Evans et al. (2014), who found that competitiveness influenced the amount of "Attack" tweets. On the other hand, as we have discussed above, we also, in general, do not find that campaigning periods were characterized by more negativity, which may explain the observation that competitiveness did not increase it.

Lastly, we put a research question (RQ1) to investigate the specific characteristics of the lame duck period. Our study is, to the best of our knowledge, the first to examine politicians' differing behavior on social networking sites in not only campaign and routine periods, but also a lame duck period. This period is rarely studied, but its inclusion adds necessary nuance to the often-used dichotomy between campaign periods and routine periods. In the lame duck period, politicians tweeted less about hard news, emphasized less their own country and state as opposed to foreign countries and states, displayed a higher level of positive sentiment, lower level of negative sentiment, and overall more positive level of average sentiment than in the routine period. The more positive tone in the lame duck period as opposed to the routine period could reflect more positive sentiment in general among politicians right after an election. However, by the nature of the data included in the study – politicians sitting in congress both during and after the election – only the winners have been analyzed. The results could reflect winning politicians expressing positivity over their election success. Future research should compare them with the "losers". In particular, it

should be tested whether the trajectories of winners and losers change in different ways after election day. In the lame duck period, politicians also tweeted much less frequently than in the routine period. This could be an effect of politicians and their teams taking a break from social networking before Congress meets again, pointing towards a professionalization of politicians' digital presence. At the same time, it might also be possible that this break allows them to focus on topics that may be less in demand by their voters – at least, the politicians strong focus on foreign topics compared to domestic issues may be interpreted like this. Future research would need to test this hypothesis.

Most interestingly, though, the coefficients in most of our models suggest that the lame duck period in many aspects looks *more* like the campaign period than like the routine period. This raises interesting questions regarding approaches that lump the lame duck period and the routine period together. A possible explanation – which would need further research to test – may be that there is, in contrast to what we expected, some kind of spillover effect in which politicians are still operating in "campaign mode" on social media, even though they won the election, and that it may take some time before this campaign mode wears off. In any event, our findings clearly point towards important differences between the lame duck and routine periods, and should serve as a guidance for future research to distinguish not between two but instead three periods: campaign, routine and lame duck.

Some effects of control variables are worth mentioning. First, while there were several differences in Twitter behavior between the campaign and routine periods, statistically significant differences between campaigning and non-campaigning politicians were only found in the case of hard news and tweet frequency. Moreover, there were no differences among campaigning and non-campaigning politicians in terms of their behavior between the three periods, which leads us to conclude that any differences between periods in politicians' tweeting behavior were not dependent on whether the politician was campaigning or not. This suggests that election campaigns have broader effects on politicians' tweeting behavior

beyond merely the campaigning politicians. While the results do not point to a state of permanent campaigning, they do seem to point to a state of pervasive campaigning. Non-campaigning politicians may find it equally valuable as campaigning politicians to allocate resources to digital communications, simply because a campaign period is not only an opportunity to get elected but also to gain long-term visibility. This points to a higher level of strategic use of social networking sites, and indeed, a professionalization of politicians' use of digital media. It is important to regard the context of this study, a US Senate and House of Representatives election that also coincided with a presidential election. Undoubtedly, this will have a ripple effect on the behavior of many people. Future studies incorporating a broader set of actors such as journalists, citizens, and politicians from other countries, as well as studies on other countries, will shed light on the extent to which campaigns affect people's Twitter behavior. Second, contrary to Hemphill et al. (2013), but in line with Evans et al. (2014), this study found that women tweeted more than men. Evans et al. researched the period 2 months before the 2012 US elections, Hemphill et al.'s study included observations about a year before the 2012 US elections, and our study researched the period 126 days before and 433 days after the 2016 elections. The fact that three studies with different time frames find inconclusive results may suggest that behavioral differences between groups (such as females and males) may fluctuate over longer parts of the election cycle, and invites future research to increase the period under study. Third, women expressed more positive and negative sentiment and had a larger focus on domestic than other states, lending support to the notion presented by Evans et al. (2014) that on Twitter men and women seem to employ different campaign strategies. Fourth, this study echoes previous research in finding that Senators were more active tweeters than members of the House of Representatives (e.g., Lassen & Brown, 2011), but also found other differences: House members showed a higher level of domestic versus foreign emphasis and expressed more positive sentiment than Senators. Fifth, Republicans expressed more positive sentiment, had a more positive average level of sentiment, tweeted more about hard news, and had a higher ratio of domestic versus foreign states than Democrats, while the latter displayed a higher level of negative sentiment. Sixth, Members of Congress who had spent a longer time in office posted fewer tweets, had a lower level of positive sentiment, more negative average level of sentiment, and tweeted more about their own state and less about other states.

There are some limitations to the design of this study. First, as mentioned, it is not always evident what type of account a politician holds or who is publishing the tweets. Some descriptions feature indicators of type of account or whether it is the politician themselves or staff tweeting. Other descriptions state that some tweets are signed to distinguish between staff and politician. Many accounts, however, do not contain any information on type of account or who publishes the content. Having access to this type of information would enable a more profound analysis. Second, as always with automated content analysis, there are nuances that will not be picked up by algorithms. The operationalization of hard news in this study is no absolute indicator of the type of content in tweets, but an approximation – as is the sentiment analysis package we used. For instance, more fine-grained methods are needed to establish how good a proxy negativity is for so-called 'attack' tweets (see Evans et al., 2014). Future research could use an improved method to identify hard news by manually annotating a training dataset of tweets as either hard or soft news, and then using a supervised machine learning algorithm to code the remaining tweets. As technology progresses, future research will more intricately investigate such questions. Furthermore, some of the online communication is done not in text but in images (sometimes with embedded text), videos or emoticons. The analyses in this study do not consider the meaning of such content. This might be a problem if political communication is more and more shaped by graphical content, such as for instance, memes, or if it becomes increasingly popular to circumvent character limits by posting screenshots of texts. Future research needs to assess the extent of such phenomena. Third, the competitiveness index is based on reports released between a day and approximately a week before election day. If competitiveness has any influence on politicians' activities on social networking sites, it would be ideal to incorporate such measures from

earlier on in the campaign. Fourth, there may exist cross-country differences impeding generalizations to politicians in general. Electoral system and level of technological adaption are two likely influential factors. Future research on other countries will strengthen our understanding of the subject. Limitations notwithstanding, this study contributed to extant research by investigating the previously unstudied differences in politicians' behavior between campaign, lame duck and routine periods on Twitter. Finding significant differences in the tweeting behavior of Members of Congress between the periods, the theory of a 'permanent campaign' receives little support. We conclude that also on social networking sites, it makes sense to distinguish between campaign periods, lame duck periods, and routine periods, and hope that future research can answer the question of *why* politicians adapt their behavior on social networking sites in these periods in the way they seem to do.

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Appendix Hard news words

Table A1. One hundred and eighty hard news words and counts in complete dataset.

Word	Count	Word	Count	Word	Count
bill	31704	political	3095	society	1395
congress	26716	development	3038	fiscal	1296
tax	20271	fund	2960	investments	1263
jobs	19716	financial	2895	poverty	1257
office	18077	judge	2870	terrorists	1257
senate	17463	innovation	2840	products	1233
service	16572	democracy	2830	constituent	1221
community	16507	progress	2825	authority	1212
discuss	16157	resolution	2782	constitutional	1208
law	14641	constitution	2774	planning	1190
bipartisan	12239	laws	2739	resource	1190
school	12173	project	2713	bank	1188
federal	11846	companies	2693	commission	1185
security	11595	manufacturing	2654	banks	1182
economy	11517	regulations	2638	privacy	1166
legislation	11406	accountable	2504	environmental	1162
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