# REPRESENTATION ON TWITTER: MEMBERS OF CONGRESS' PRESENTATIONS OF SELF IN THE DIGITAL AGE

By

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# Chapter 1

## Presentation of Self and Representation

> House members themselves invariable rank what they do at home as more important to their electoral success than "the issues" or than "my votes" [. . .] More important than "the issues" is the presentation at home – *Richard Fenno, Home Style, 1978*

To begin on a more personal note, the inspiration for this dissertation came from my observation that there was a disconnect between the institutional literature on representation and the political behavior literature on how Americans' connect and think about politics. There is a rich tradition in political science studying the policy representation provided by members of Congress for their constituents that by and large finds poor representation. There is an equally large body of research finding unstable policy preferences, but stable and enduring partisan attachments among Americans. How can incumbent re-election rates be so high while policy representation continues to be so low? How are representatives supposed to provide policy representation for constituents that don't hold these views to begin with? Moreover, if the core representational product is policy, why is much of modern politics not truly about policy at all? I often thought about my home state Senators: John Cornyn and Ted Cruz. Both Republicans with conservative roll call records, yet I found myself generally liking and approving of Senator Cornyn but did not feel the same about Senator Cruz. Over and over I heard from friends and family that nearly everyone had a strong preference for one Senator over the other. Why would I, by Converse's (1964) standard an ideologue with consistent and constrained issue opinions, approve of one Senator and disapprove of another who voted together in the $116^{\text{th}}$ Congress 95% of the time? I believe the answer to this puzzle lies in Fenno's (1978) *Home Style*, and in particular presentation of self. If members of Congress represent their constituents through their presentations of self and constituents largely evaluate their representatives by how they appear to them and not how they vote, then members can still represent their constituents while casting misaligned roll call votes. This is not to say that policy representation does not matter, but representation is more complex than as a discipline we have given proper consideration. This dissertation is a comprehensive study on how members of Congress present themselves to their constituents that evaluates which institutional, personal, and district factors determine and shape the presentations they adopt.

### 1.1 Introduction

In late September 2019 Representative Elissa Slotkin (MI-D) held town-hall meetings across her district to address the mounting impeachment case against President Donald Trump. Her district,

Michigan's 8th congressional district, covers three counties in southeast Michigan. Ingham and Oakland counties, covering parts of Lansing and Detroit, are predominately urban and Democratic; the third county, Livingston county, is sandwiched in-between and is more rural and Republican. Donald Trump won the district in 2016 by 7 points. On September 23, 2019, Slotkin and six other freshman Democrats with military and intelligence backgrounds published an op-ed in the *Washington Post* arguing that the President's actions in Ukraine constituted an impeachable offense and urged the House of Representatives to formally begin impeachment hearings. During the Livingston County town-hall, which was recorded by the *New York Times*, Rep. Slotkin explained her position by highlighting that President Trump reached out to a foreigner and "asked him to dig up *dirt* [emphasis added] on an American, a political rival." The crowd immediately erupted with protest and individuals shouted "not true" and "fake news." Others chastised her, yelling, "do your job" and "he's your President." Another woman began by saying how she had liked Rep. Slotkin considering her a "blue dog Democrat" after seeing her speak on Fox News, but withdrew her support when she "joined the coup against our President." The woman continued, "The word 'dirt' wasn't in there," referring to the July 25th, 2019 call between President Trump and Ukrainian President Volodymr Zelensky, "and I don't like when you guys do that [. . .] he was checking on corruption." It is clear from the recording that Slotkin's use of the word "dirt" signaled something to the largely Republican audience.

When asked why she believed this particular word upset these constituents, Rep. Slotkin responded: "language can be very political. It's like a dog whistle. You know? And I made a point during my campaign to sort of clarify my language as much as possible and keep it out of political dog-whistle words."[1] Rep. Slotkin's exchange with her constituents stands out as characteristic of politics more broadly. How representatives talk about politics – how they present themselves – can strongly affect how their constituents view them. Language can communicate more than just the literal interpretation of the words, but can signal to voters what "type" of representative someone is, what their priorities are, and what style of politics they prescribe to.

How members of Congress present themselves to their constituents has long been recognized as a core representational task. Fenno (1978) argued that members intentionally present themselves in such a way as to elicit electoral support from voters. He describes several archetypes of representatives' presentations of self and found that presentations contain personal, policy, and constituency service elements. And how a member chooses to present themselves is not just a function of who they are as individuals, but is purposefully crafted to effectively represent their constituents. In short, representatives strategically communicate a presentation of self that reflects their unique

[1]The full interview can be accessed here: `https://www.nytimes.com/2019/10/09/podcasts/the-daily/house-democrats-elissa-slotkin.html`

political persona. Rep. Slotkin was acutely aware that how she presented herself affected how her constituents evaluated her job as a member of Congress. Members have to determine, "what they want to be known for, crafting communications that prioritize legislation, constituent service, and party politics in ways that meet the interests of their constituencies and foster promising electoral returns" (Russell and Wen 2021, 1). Presentation of self broadens our understanding of representation by removing the institutional constraints and allowing members to represent their districts in a myriad of ways beyond the votes they cast.

Politics has changed since Richard Fenno first wrote about presentation of self in the late 1970s. In the 21$^{st}$ century, political parties are more ideologically polarized (Poole and Rosenthal 1984), organize the legislative agenda to create partisan conflict (Lee 2009), and regularly engage in partisan warfare (Theriault 2013). Americans have ideologically sorted into the two major parties (Levendusky 2009), adopted more extreme and ideologically polarized policy positions (Abramowitz and Saunders 2008), demonstrated higher levels of affect towards the opposite party (Iyengar, Sood and Lelkes 2012), and decreased their rate of split-ticket voting (Jacobson and Carson 2019). Moreover, new technology has emerged giving representatives unconstrained ability to present themselves to their constituents. In turn, Americans have unprecedented access to view these presentations on a daily basis. The myriad of ways politics and technology have changed requires us to reexamine how members of Congress present themselves in the digital age. With access to millions of tweets sent by members of Congress over a twelve-year period, this dissertation offers a comprehensive analysis of how members of Congress present themselves, their party, and their legislative agenda on Twitter and how individual and institutional forces help shape their choices.

This chapter begins with reviewing the canonical work of Fenno (1978) and argues that members of Congress are providing representational benefits through their presentations of self. Second, I review the existing literature on "home style" and its limitations in understanding presentation of self. Third, I present my primary argument of why members use social media to present themselves and represent their constituents. In doing so, I show how members of Congress, the general public, and journalists all use Twitter to engage with politics. Fourth, I describe how three representatives use Twitter to communicate their unique presentations of self to their followers. Finally, this chapter concludes with an outline for the remainder of this dissertation.

## 1.2 Fenno's *Home Style*

Fenno (1978)'s *Home Style: House Members in Their Districts* is one of the most widely read and cited works in political science. Since its publication, the book has been cited on Google Scholar over 5,000 times (Google Scholar, accessed 7/5/2022). Any undergraduate or graduate student

in American politics is likely to encounter the book in the first weeks of any course on Congress (Lipinski 2009). His research is the first examination of the relationship between members and their constituents *in the district* – what they talked about and how they interacted with their constituents – rather than members' behavior while in Washington. To accomplish this, Richard Fenno embedded himself among 18 representatives while they travelled their district in the 1970s and observed how members conceptualized and interacted with their constituents. The book's core contribution is that each representative develops a unique home style that builds a relationship with their constituents, and that this effort is foundational to securing reelection. This dissertation is largely built on the concepts originally presented in his book, and therefore these ideas are worth restating.

The fundamental connection between constituents and their representatives is elections (Mayhew 1974). Representatives are seeking to be reelected by their constituents, and constituents observe the behavior of the representative and decide whether to vote for said representative. Representatives need to anticipate how constituents will respond to these behaviors, and in order to do so they conceptualize their constituency as a nest of concentric circles. The most encompassing view of the constituency, the *geographic constituency*, includes every person legally bound within the district. It includes the geographic location of the district and the distribution of characteristics that make up the entirety of the district. For example, a mostly white suburban district outside of Nashville or an ideologically diverse working-class district in Philadelphia. While members of Congress formally represent all individuals residing in their district, their overriding concern is reelection. The representative identifies the group of people she thinks will vote for her as the *reelection constituency*. Representatives segment their district into the people they think will for them and those that will not, and this distinction articulates their fundamental political perception: to whom do I need to present myself too in order to win reelection? Members further distinguish their *primary constituency*, consisting of their strongest supporters who will turn out and vote for them in a primary election, from their reelection constituency. Most members face two election challenges: a primary election and a general election. Losing either election ends their career. Members have to maintain the electoral support among both groups, but depending on which election the member perceives as more precarious, they will target their communications towards said group. For districts composed primarily of copartisans or with homogeneous interests, the member is likely to target the primary constituency, as their party label alone will be sufficient to win the support of the reelection constituency. In other districts with diverse political views, the representative will need to carefully maintain the support of the reelection constituency, perhaps needing to appeal to voters from both parties, to keep their seat in a general election. Finally, members have a *personal constituency* consisting of their close personal advisors, friends, and family that support the member.

The need to attract the trust and support of each of these concentric constituency groups leads representatives to develop a unique home style: the range of behaviors a member conducts *in their district*. A member's home style is organized around three basic activities: allocation of personal and office resources, the explanation of Washington activity, and their presentation of self. This dissertation focuses primarily on the final and most important aspect of home style, the presentation of self.

The presentation of self is an idea originally developed by sociologist Erving Goffman and is universal to all interpersonal interactions. All individuals, when in the presence of others, "make a presentation of themselves to others," and express themselves in a way that seeks to elicit the desired response in others (Goffman 1959). In the case of representatives, they present themselves in a way that secures political support from others. To build political support, representatives seek to build trust. Fenno (1978) observed that "most of the communication I have heard and seen is not overtly political at all. It is, rather, part of a ceaseless effort to reinforce the underpinnings of trust in the congressman or the congresswoman as a person" (56). Through their presentations of self, representatives also seek to demonstrate their qualifications for the job. We might see members do this explicitly through advertising messages, or indirectly through credit-claiming or discussing policy to signal they understand and can achieve success in their job. Members also present themselves in order to convey empathy with their constituents. They do this by articulating how a policy will help the lives of their constituents, identifying policy problems, or expressing that they know and care about people like them. Finally, members seek to express a sense of identification with their district. This includes referencing places around the district, mentioning the local sports team or favorite restaurant, or by indicating their support of key industries or policies important to the local economy. Members purposefully craft presentations of self to convey these qualities, but members use different types of appeals to achieve the desired image depending on the nature of their district and their own personal qualities.

While each presentation of self is unique to the representative, there are general archetypes and patterns in how they present themselves. One type of presentation of self Fenno (1978) characterizes is the *Person-to-Person* representative. In this presentation, members emphasize a deep sense of identification with the district – that she is the district – and their personal relationships and ties to the community they represent. Generally, members from politically homogeneous districts are best situated to develop a person-to-person presentation. Members with this presentation generally avoid policy issues since there is a pre-existing agreement on policy within the district. Their focus is on the primary constituency, as their general election is mostly secure, and maintaining political support among the most politically involved is crucial for keeping their seat.

Other members develop the *Popular Local Boy* presentation of self. In this presentation, members are more policy oriented, but their appeals are highly reliant on their personality. These presentations can be successful in more politically diverse districts by finding a common policy or interest that binds the district together. In his example, "Congressman B's" district is not dominated by a single party identification, industry, or way of life, but he views his district as largely conservative. As such, he focuses primarily on defense policy to build political support among the reelection constituency. The policy itself is less important. The goal is to remain popular among a diverse group of voters, and policy messages are simply the vessel to do so. Moreover, this presentation is a distinctly local style. The Popular Local Boy presents themselves as a local and insists that outsiders cannot be trusted to understand the district's needs.

Another presentation is the *Political Leader*. This presentation is best suited in politically homogeneous districts where the chief concern is the primary constituency. With this style, there is a strong sense of identification with the district situated alongside the language of leadership. Beyond simply representing their interests, the representative is fighting for the district. Rather than a strong focus on policy, there is a greater emphasis on symbolic actions and national politics. And unlike the previous two presentations discussed, there is little emphasis on interpersonal relationships. There is some "social and psychological distance" between the representative and the people (Fenno 1978, 121). Members adopting this presentation tend to be heavily involved in political organizations and are key players in local partisan politics.

Among the more policy-focused presentations, there are the *Issue Independence* and *Articulating the Issues* presentations. These members see their districts as issue oriented and lacking the strong local identity that would enable more personal presentations. With these styles, the primary focus is on the reelection constituency, but the distribution of party identification is such that the member only needs support from one party and independents to be reelected. This translates into a need to campaign on the issues to win support. Policy can also be used to achieve several goals. Members can use policy to build a sense of identification with the district, highlighting the areas in which there is agreement, as is the case with the "issue independence" presentation. Or, as seen in the "articulating the issues" presentation, members can use policy to convey their skill and show that they are hardworking. Perhaps ironically, Fenno (1978) found that in more politically diverse districts, the member needs to be more policy oriented. These heterogeneous districts lack a strong geographic identity, such that political identities and policy are the only remaining way to build support among the reelection constituency.

Finally, other members chose to adopt a *Serving the District* presentation. This presentation suits highly competitive and diverse districts where an emphasis on policy would risk alienating

desperately needed voters among the reelection constituency. Without a dominant local identity to appeal to, a more personality-based presentation would not generate enough support to be re-elected. These members instead emphasis casework, securing federal spending, and service to the district. In addition, they have little taste for national politics and prefer to keep politics local. Fenno (1978) emphasizes that these representatives tend to think of themselves as non-politicians as "Congressman E" describes, "I'm not a politician. I came to the job without any experience in politics [. . .] I'm probably the most nonpolitical congressman around" (103).

All presentations contain some level of personal, policy, party, and district elements, but members vary in the extent they build a presentation of self around each of these elements. Each congressperson's presentation is unique to them, but these example presentations highlighted here represent the common types of presentations members of Congress adopt. How members present themselves in not simply symbolic or a form of "cheap talk," but is central to representation. If presentation of self is how members of Congress achieve reelection, then it is the primary vehicle in which they represent their consistencies.

### 1.2.1 Presentation of Self as Representation

Why is presentation of self a valuable research endeavor, and one deserving of the focus of a dissertation? This section will demonstrate that how members of Congress present themselves to their constituents is central to how they represent their constituents. While political science has recognized the role of home style and presentation of self has in representation, the predominance of empirical work on policy congruence has pushed the centrality of home style to the periphery. By refocusing our understanding of representation around presentation of self, we can perhaps better understand the nature of representation in today's polarized political climate.

The theory of electoral accountability holds that if members of Congress want to be reelected and believe they will be held accountable by voters on election day, then their actions will be responsive to the preferences of their district. The most important decision a reelection-seeking member makes is how to represent their constituents. When arriving in Washington, they must decide how they will vote, what committee assignments to request, what bills to introduce and cosponsor, and how to allocate their staff. Then they must decide how to present themselves to their constituents using speeches, newsletters, town-halls, press releases, and social media. All these activities together comprise how a member of Congress represents their constituents.

Traditionally, representation has been evaluated by the congruence between the policy preferences of constituents and the policy decisions of representatives. Miller and Stokes (1963) empirically assessed the degree of policy congruence of members' roll call behavior, and this approach has

been the primary vehicle for studying representation more broadly in political science over the past 50 years (e.g. Fiorina 1974; Achen 1978; Shapiro, Brady, Brody and Ferejohn 1990; Bartels 1991). This body of work has found that voters hold their elected officials accountable and representatives reflect voters' preferences only when the policy is highly salient (Page and Shapiro 1983; Ansolabehere and Jones 2010; Canes-Wrone, Minozzi and Reveley 2011; Highton 2019). Others have found that representatives' roll call behavior is only responsive to the preferences of their co-partisan constituents (Clinton 2006). Within these studies of representation, there is movement toward comparing voters' preferences with legislators' roll call votes using ideal points. Legislators' ideal points show increasingly extreme and polarized ideological preferences (Poole and Rosenthal 1985, 2000,2017), while Americans continue to self-report moderate policy preferences. Not only are their ideal points more extreme than the median voter's, but when extreme legislators are replaced by voters they tend to be replaced by another extremist such that the median voter tends to be "leapfrogged" (Bafumi and Herron 2010).

One challenge with evaluating representation based on the level of policy congruence is that it requires voters to hold meaningful policy preferences, and in turn, use those preferences at the ballot box. Previous work has found that very few voters hold stable and consistent policy preferences (Converse 1964). Some argue that while voters might not have specific policy positions they do have preferences over policy outcomes (Arnold 1990), but other work has found that voters are unable to discern or hold representatives accountable for outcomes the representative can actually control (Achen and Bartels 2016). Instead, voters primarily hold political views, adopt issue positions, and evaluate their elected officials on the basis of their party affiliation. Partisan identification is an enduring psychological attachment (Campbell, Converse, Miller and Donald 1960), and there is strong, enduring evidence demonstrating that partisanship affects everything from vote choice (Campbell et al. 1960), incumbent evaluations (Clinton, Sances and Sullivan 2023), policy positions (Markus and Converse 1979; Bartels 2002; Bartels 2008; Barber and Pope 2019), and interpretations of factual information (Zaller 1992; Taber and Lodge 2006).

However, this does not necessarily imply that representation is achieved by sharing a party label nor that representation is unachievable without "real" policy preferences. Partisanship is considered by some to be a social identity, where partisans share a sense of belonging and identification with their party (Green, Palmquist and Schickler 2002; Huddy, Mason and Aarøe 2015; Iyengar and Westwood 2015). Cramer (2012) argues that "People make sense of the world by categorizing, and in politics, this is often an 'us'/'them' process using social group identities" (519). Voters see politicians as either people like them, people they can trust and identify with, or as people they can't. Better said by Achen and Bartels (2016), "Issue congruence is not the heart and soul of democratic representation. Rather, voters primarily look for politicians who match their identity"

(313). Representatives can demonstrate their shared identity, earning the trust and electoral support of their constituents, through their presentations of self.

The successful representation of a constituency is more than just substantive representation as it also involves presenting one's self in a manner that matches the social and political identifies of the individuals being represented. Presentation of self is important in influencing constituents' judgements about whom the representative is "as a person" (Fenno 1978, 55), and thus "citizens' perceptions of representation rely in part on how the representative makes them *feel*" (Costa 2021, 343). In *Home Style*, representatives, under the guise of anonymity, explicitly remarked on the inconsequential nature of policy issues to their reelection. One Congressman remarked, "Did you ever see a campaign won on the issues?" and another Congressman declared, "Issues don't have one dang thing to do with it." (Fenno 1978, 132). Members of Congress today have echoed a similar sentiment. Representative Marcia Fudge (D-OH) shared after Democrats lost the Presidency and seats in Congress in 2016 saying, "I think we have to look deeper. Because if we only talk about an economic message, we're not going to win the next election. We have to figure out how to get to the hearts of these people."[2] Representative Dan Crenshaw (R-TX) articulated how he represents his constituents remarking, "Your job as a representative is to lead on political fronts, on legislative fronts, on culture fronts, all of those."[3] If elections are won not on the basis of roll call votes or policy positions but on the presentation of the member to their constituents, and if the electoral connection is the mechanism by which representation is achieved – then presentation of self is in and of itself a representation product.

The presentation a member adopts is a function of the constituents they represent, and the presentation they project affects how their constituents view them (Grimmer 2013*b*). Understanding a member's presentation of self as the means by which they represent and elicit the electoral support of their constituents can resolve the underlying tension between voters with unstable policy preferences who view politics through their own social identities and their representatives' incongruous roll call records. Given the central importance of presentation of self to representation, presentation of self is a worthwhile research agenda. With that, the following section will review previous work relating to home style and presentation of self.

### 1.2.2 Scholarly Perspective on Home Style

Members of Congress are strategic actors that take actions to "control the images that constituents have of them" (Cain, Ferejohn and Fiorina 2013, 47). Both in the district and in Congress, members

[2] https://www.politico.com/story/2017/02/democrat-retreat-tensions-234866

[3] https://www.dallasnews.com/news/politics/2020/05/28/houston-rep-dan-crenshaws-bestselling-new-book-got-boost-from-purchases-by-house-gop-campaign-arm/

engage in "patterns or 'packages' of activity that correspond to a particular constellation of goals" (Bernhard, Sewell and Sulkin 2017, 478). And members want "their constituents to see pattern in their home style activities that reinforce the images they are constantly 'polishing' and promulgating" (Parker 1986, 35). But despite this recognition that members of Congress strategically craft presentations of self, limited academic work has empirically studied home style and presentation of self. Historically, studying these home style activities was limited by the availability of data and computational power required to complete such a task. However, with advancements in the digitization of members' communication and natural language processing, researchers are now able to conduct such empirical research.

Among the more recent and notable work on presentation of self, Grimmer (2013*a*, 2013*b*) identified the policy areas of senators' press releases and finds that their representational styles can be explained by the emphasis they put on position-taking versus credit-claiming and the emphasis they put on national versus local issues. Senators' presentations of self range from issue-oriented (position-takers) to appropriators (credit-claimers) depending on the emphasis they place on certain policy topic areas. Grimmer finds that marginal senators focus on the former while aligned senators focus on the latter, creating artificial polarization in the stated party positions.

There are several limitations to this approach. First, inferring the goal of a message from the policy area assumes position-taking or credit-claiming only occurs for specific policy areas and not others. Members can claim credit and take positions on any policy area – in fact, a member can do both regarding the very same bill. Second, previous work, not limited to Grimmer (2013*a*), has assumed that members are either district focused credit-claimers or policy focused position-takers and fails to explicitly take into account the district or policy focus of their presentations (also see Parker and Goodman 2009; Butler, Karpowitz and Pope 2012). Credit-claiming, by definition, is about policy, and can be district or nationally focused. Likewise, members can take positions on non-policy political issues and can be district or nationally focused. The geographic focus of position-taking and credit-claiming can create very different images of the representative (Yiannakis 1982). Moreover, a member's presentation of self is likely more complex and varied than simply credit-claiming or position-taking. For example, Russell (2021*b*) examines what she calls the rhetorical agenda of senators and incorporates how often members use partisan rhetoric, in addition to policy and constituent-service messages, in their online messages.[4] She finds that senators adopt either constituent servant, policy wonk, or partisan warrior reputations through their messaging.

This dissertation is designed to build upon previous work and address both limitations. In

[4]Different scholars have used various terms to effectively capture Fenno's (1978) presentation of self including "home style" (Grimmer 2013*a*), "representational style" (Schiller 2000; Grimmer 2013*b*), or "rhetorical agenda" (Russell 2021*b*).

chapter 3, I analyze when members use position-taking, credit-claiming, advertising, policy, district, or partisan statements in their communications using natural language processing. This has the benefit, first, of explicitly identifying these types of messages rather than making assumptions about how a message type is correlated with a policy area. Second, by distinguishing each type of message, we avoid potentially faulty assumptions about the district or policy focus on members' presentations. Third, it incorporates a greater range of messages, like partisan rhetoric and advertising messages, that members use to uniquely craft their presentations of self. In chapter 4, I incorporate the emphasis members place on these six messages types to define their presentations of self, creating a more complete understanding of members' presentations.

While comparatively little work has examined how members balance a range of messages to craft a desired reputation, previous work has examined the extent representatives are district-focused. This body of work primarily focuses on the extent members emphasize credit-claiming or invest office resources in the district. This work has found that ideologically moderate members or those representing districts composed largely of opposing partisans are more likely to credit-claim (Fiorina 1977; Wichowsky 2012; Grimmer 2013*a*) and invest resources towards constituency-service (Adler, Gent and Overmeyer 1998; Lee 2003; Bernhard, Sewell and Sulkin 2017). Focusing on constituency service can cultivate electoral support among ideologically opposed partisans and allow members to avoid partisan politics (Cain, Ferejohn and Fiorina 2013). As a result, legislators have been found to be more responsive to constituent-service requests than policy (Butler, Karpowitz and Pope 2012). Resource deprived districts are more likely to demand legislative resources, and thus members from these districts are more likely to focus on district-related legislative behavior and to capitalize on credit-claiming opportunities (Wessel Tromborg and Schwindt-Bayer 2019). And members who invest greater resources towards casework are more likely to be positively evaluated and viewed as constituent servants by constituents (Parker and Goodman 2009; Parker and Goodman 2013; Tucker 2019; Grimmer, Messing and Westwood 2012).

Members of Congress can also decide how their staff is allocated and how much time they spend in the district. Previous work has found that members dedicate greater office resources and time towards areas with a greater number of swing voters (Schiller, Box-Steffensmeier Oppenheimer, Ian and Canon 2002), higher populations, and a greater number of campaign donors (Kaslovsky 2021). Members have been found to spend more time in their districts leading up to elections (Parker 1980) and women travel to the district more than their male counterparts (Lazarus and Steigerwalt 2018). The effect of office and member resources on cultivating general good will from constituents might be limiting, as Kaslovsky (2021) finds that senators travel to the district actually decreases approval among ideologically opposed constituents.

Recall that home style comprises three components, presentation of self, allocation of resources, and finally explanation of Washington activity. Legislators anticipate how constituents will react to their legislative actions (Fiorina 1977; Arnold 1990). And thus, legislators anticipate how they will have to explain their actions to their constituents (Fenno 1978; Arnold 1990). Rather than hide misaligned roll call votes, representatives instead "explain away" misaligned votes and emphasize aligned votes (Grose, Malhotra and Parks Van Houweling 2015). Members from districts composed largely of copartisans emphasize roll call votes that are more ideologically extreme than their overall roll call record suggests (Cormack 2016). Related to this aspect of home style, Fenno (1978) argues that members run for Congress by running against it, and members are best served by positioning themselves as fighting for the district in opposition to the institution. Work by (Lipinski 2009) found that majority party members are more likely to positively reference Congress, while minority party members run against Congress. Chapter 5 contributes to this discussion by examining how the legislation members of Congress reference in their communications differs according to their presentations of self.

Despite the importance of home style, there has been insufficient research on the presentations of self members of Congress adopt and why. The lack of empirical work on home style is partly a result of the methodological challenges in studying the concept. Fenno's (1978) research design is difficult to recreate, and collecting and analyzing congressional communication data has historically been incredibly time-consuming, costly, and challenging. As a result, political science has largely avoided further research into home style. Work up to this point has either examined a member's presentation of self among senators only (Schiller 2000; Grimmer 2013*b*; Russell 2021*b*), the extent a member's presentation is district-oriented or policy-oriented (Parker and Goodman 2009; Butler, Karpowitz and Pope 2012; Grimmer 2013*a*), or focused on other smaller dimensions of home style (Lipinski 2009; Grose, Malhotra and Parks Van Houweling 2015; Kaslovsky 2021). This dissertation takes advantage of modern communication tools and natural language processing to capture the presentations of self of House members beyond the perceived trade-off between district or policy focused presentations.

### 1.3 Twitter: A Digital Public Square

Members of Congress have always used communication tools to present themselves to their constituents. In modern politics they do this through Twitter (Russell 2021*b*). While Fenno (1978) viewed home style and the presentation of self as a task carried out within the district and through personal interactions, modern technology has changed this. Members today can use modern media tools to communicate and present themselves to their constituents from virtually anywhere, anytime using social media. Social media allows members of Congress to always be "in the district".

Presentation of self, as conceptualized here, is altered to account for the ways modern technology has changed allowing representatives to present themselves to their constituents and includes how legislators can create a public image using impersonal means, not just the personal encounters with constituents emphasized by Fenno (1978). This section will support the use of members' statements on the social media platform Twitter as a reliable source in studying a member's presentation of self. Fundamental to this discussion, we will first discuss what Twitter is and why the social media site has emerged as a proverbial digital public square for the discussion of politics.

Social media is distinguished from traditional media by two features: low barriers of entry and reliance on user-generated content (Zhuravskaya, Petrova and Enikolopov 2020). Together, these features give unprecedented access and speed of two-way communication between political elites and citizens. No social media platform has been as important to politics as Twitter. Twitter is a popular social media service where users can post 240-character tweets to their followers and connect their postings to a global conversation through hashtags. Founded in 2006, Twitter has since amassed over 126 million daily active users.[5] Users can express their own opinions and commentary, post website links or images, and reply, like, or retweet other users' tweets. In contrast to other social media platforms, such as Instagram, Facebook, or Tik-Tok, Twitter's unique features facilitate a platform geared towards politics and breaking news through social networks that extends outside a user's real-life social circles. Twitter users can use hashtags (#) to connect their tweets to a larger global conversation about a particular topic and view all posted tweets within the same hashtag. Users can also post tweets mentioning any other Twitter user without following them using the @ function. The features of hashtags and mentions facilitate the creation of large public conversations without the need for group creation (Colleoni, Rozza and Arvidsson 2014).

Figure 1.1 displays an example of how these features interact to produce trending topics that are then displayed to users when they first launch the site. In addition, follows are one-directional: an individual can follow another user's Twitter page without the followed user returning the favor and, in most cases, without their permission. Not only do these user functions promote large public discussions, but Twitter has also enabled features that incentivize politically oriented content. Users can live stream video content and post links to news articles. News organizations can alert their followers of breaking news through smartphone push notifications that prompts individuals to open Twitter to read more. Twitter's algorithm, unlike Facebook and Instagram's, prioritizes recent content and amplifies political content.[6] During important national events like the State

[5] https://www.washingtonpost.com/technology/2019/02/07/twitter-reveals-its-daily-active-user-numbers-first-time/

[6] https://blog.twitter.com/engineering/en_us/topics/insights/2017/using-deep-learning-at-scale-in-twitters-timelines
https://blog.twitter.com/en_us/topics/company/2021/rml-politicalcontent

of the Union or election night returns, individuals and journalists regularly "live tweet" the event for their followers, with the tweets appearing on users' timelines in accordance with the actual event.

Figure 1.1: Twitter Trending Topics

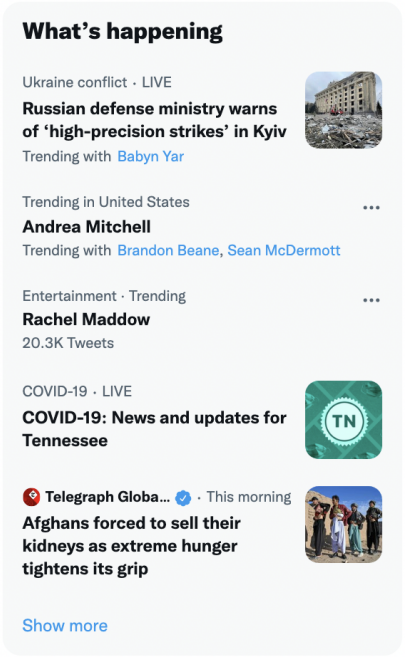



Figure 1.1: Displays Twitter trending topics from March 1, 2022.

As a result of these features, Twitter is perhaps *the* place for breaking news today. *New York Times* journalist's Ben Smith remarked, "Twitter is where the central conversation is taking place. It's not just that Twitter is where you're discussing the news. So much of it is actually happening on Twitter" (Hamby 2013, 24). Not only does breaking news often appear on Twitter before being picked up by major media outlets, but Twitter creates an online public square for political dialogue between millions of Americans. Twitter is at its core a social media platform; users can communicate with other users and post content about themselves and their interests, but the design of Twitter has made the site a central place for politicians, citizens and journalists to post and communicate about politics. In short, Twitter is both "social" and "newsy" (Kwak, Lee, Park and Moon 2010). As a result of this, Twitter has become the preferred platform for both political elites and individuals to discuss politics and present their political views to their followers. As compared to other social media platforms, Twitter usage is prolific among members of Congress, journalists, candidates, politically active citizens, and political organizations.

### 1.3.1 Twitter as a Source for Presentation of Self

Twitter has undeniably become an important medium in modern politics for citizens, journalists, and members of Congress. But why are members' tweets the best place to understand how members present themselves? Previous work has used a variety of sources to study members' communications, including but not limited to congressional floor speeches (Quinn, Monroe, Colaresi, Crespin and Radev 2010; Maltzman and Sigelman 1996; Morris 2001), newsletters (Lipinski 2009), press releases (Grimmer 2013*a*; Grimmer, Westwood and Messing 2014), statements reported in newspapers (Curry and Lee 2020), and campaign advertisements (Neiheisel and Niebler 2013). Compared to these other sources, there are three primary reasons why Twitter constitutes a particularly useful medium for studying how members present themselves.

First, Twitter provides a low-cost and equal opportunity for all members to communicate with the public. Whereas traditional media often favor high-profile legislators or those with institutional power, such as party leaders, all members can and do use Twitter to spread their desired messages (Russell 2020). Twitter is also free. The cost, ease, and short-form nature of Twitter requires little additional office resources for members to maintain active Twitter accounts – all they need is a smartphone and a few seconds. This means members tweet far more often than they engage in more time-intensive communications such as press releases or floor speeches. Twitter is not necessarily an equal sounding board, as some legislators have millions of followers while others have only a few thousands. But all members are able to post messages and content that best advertises their political image. Moreover, because of the character restrictions and tracking of trending topics through hashtags, Twitter encourages real-time reactions to current events, with most members today tweeting at least daily. In contrast, other communication is constrained by the congressional schedule and political cycle: floor speeches can only be done while the House is in session and there are limitations on who and for how long members can speak, constraining the number of members who can participate and the amount of time they can do so. Similarly, campaign advertisements occur almost entirely in the few months leading up to a biennial election. Not to mention, only members in competitive races or with ample campaign resources have the incentives and resources to use television or digital advertising. Twitter captures members statements while in Washington, in the district, or on the campaign trail all year long as often as the member desires. This gives us high-frequency text data for nearly all members of Congress.

Second, Twitter provides a unique opportunity for members to completely control their message (Gainous and Wagner 2013). One way members can communicate their policy positions and priorities is through the legislative process. Members can submit any legislation they wish, but

committees control the fate and content of bills under their jurisdiction, and party leaders decide which legislation ultimately gets a floor vote. Furthermore, because the majority party controls each of these institutional positions, the minority party rarely sees its policy priorities reflected in the legislative agenda and roll call votes (Cox and McCubbins 2005). All this to say, there are many gatekeepers within Congress that have outsized influence over policymaking in the House. Tweets, however, are not formally constrained by the congressional agenda. On Twitter, members can message about any policy they think is valuable. They do not need to wait for a roll call vote to take a position on an issue, making tweets particularly useful for examining the messaging of minority party legislators. But presentations of self are far more vast than simply articulating policy views, but contain elements of advertising, district activities, and partisan rhetoric. Members can tweet about *anything* they want – Senator Chuck Grassley (R-IA) once comically tweeted about finding a dead pigeon on his front lawn.[7] This is in contrast to more formal communications, such as press releases, which are largely reflective of the member's legislative actions. The primary value of Twitter is its aggregation of various messages into an accessible, public space – offering links to news articles, speeches, media appearances, press releases, and podcasts (Russell 2021*b*). Members can post about legislative priorities, updates on the local high school football team's season, committee hearings, and target constituency concerns, all with relative ease and using one platform. Analyzing the content of public communications via Twitter allows for topics, beyond the formal legislative agenda and policies, to be incorporated into our understanding of members' presentations of self.

Third, because tweets are a highly visible, easy, and concise (only 280 characters) format, they best approximate how legislators actually speak about themselves, politics, and their districts. Tweets are communicating in real-time the messages members want to directly communicate to the public. Roughly 40% of representatives' tweets were sent from Twitter's mobile phone application and 38% were sent from a web browser via Twitter.com. Only 13% of tweets were sent from a professional management platform such as TweetDeck that allows staff to manage and schedule tweets in advance. This suggests that the majority of tweets are sent from the member or in the member's presence in real-time, rather than scheduled in advance by a communications staffer. Senator Chuck Grassley (R-IA), who perhaps has the most entertaining Twitter feed of any member of Congress, told *CQ Roll Call*, "Just in case you wonder if I do it myself or not, obviously I don't have staff with me at the basketball games at University of Northern Iowa."[8] A congressional communication director echos the same sentiment, "People ask, who's the voice behind Sen. Hatch's Twitter? Well, it's Sen. Hatch."[9] Even if members themselves aren't directly typing the tweets, members of Congress are closely involved in their social media messaging. Another congressional communication director explained, "@RoyBlunt is the Senator's official handle, and he drives the content for

[7] https://twitter.com/ChuckGrassley/status/1307421592411156482
[8] https://rollcall.com/2015/01/27/chuck-grassley-talks-twitter-secrets-2/
[9] https://rollcall.com/2018/02/16/how-orrin-hatch-found-his-twitter-groove/

that account personally."[10] Rep. Jared Polis (D-CO) agrees that all tweets under a member's name should be "taken as if it's from the member" and that the "most successful members on Twitter have a more personal voice on Twitter."[11] Due to the "social" aspect of Twitter, members need to match the tone of other users in the space to appear authentic and humanize themselves to voters. Tweets tend to be written in more conversational prose and best approximate how a member of Congress would actually speak to their constituents. More formal communication mediums, like newsletters and press releases, will be drafted and edited by a communications team in professional prose. This provides a unique opportunity to observe the actual language and rhetoric members use when presenting themselves to their constituents.

In short, Twitter removes the institutional constraints on congressional communication, giving lawmakers a "messaging platform where individual discretion is high, the relative costs are low, and someone is always watching" (Russell 2021*b*, 12). Without following members of Congress around their district like Fenno (1978), members' tweets are the best available resource for studying how they present themselves to their constituents. Their statements made on Twitter are part of a strategic public communication plan that researchers can easily observe. Previous work has studied congressional communication on a small sample of legislators (Schiller 2000; Sulkin 2005; Sellers 2009), from a single year or congress (Lipinski 2009; Morris 2001), or for a particular policy issue (Sellers 2009). Because Twitter is used almost daily by members of Congress and, best of all, its data is free and easily accessible, Twitter provides an opportunity to analyze members' communication for a greater number of legislators and over a longer period of time than other potential sources. For these reasons, political scientists have increasingly used Twitter to study the communication of members of Congress.

### 1.3.2 Members of Congress On Twitter

When Twitter first emerged as a social media platform, politicians were quick to adopt and incorporate the platform into their communication efforts. Previous scholars have examined how party, gender, and institutional positions affect which members adopt Twitter (Lassen and Brown 2011; Chi and Yang 2011; Peterson 2012). Members have taken advantage of Twitter's outreach capabilities, and were quick adopters of the platform (Golbeck, Grimes and Rogers 2010). It is easy to see why. Social media has the ability to "enhance the ability of Members of Congress to fulfill their representational duties by providing greater opportunities for communication between the member and individual constituents" (Glassman, Straus and Shogan 2010, 1). In a 2014 handbook produced by Twitter for members of Congress, Twitter argues that, "The best way to earn a voter's support is

[10] `https://thehill.com/blogs/twitter-room/other-news/241479-whos-tweeting-lawmakers-dont-say`
[11] ibid

no different today than it was a century ago: a simple handshake and a look in the eye... Twitter helps fill the void, enabling a virtual 'handshake" (Twitter 2014, 9).

Members' Twitter activity can be best described as outreach, "The practice of promoting and disseminating information and ideas to a specific or general audience" (Golbeck, Grimes and Rogers 2010, 1620). Interviews with members of Congress and their staff indicate that a social media presence is necessary in modern politics and is a cost-effective way to conduct regular office and campaign activity. One congressional staffer remarked, "I have found the power of social media to be increasing with each election season, and it has come to a point where it is an essential part of any campaign" (Gulati and Williams 2015, p.45). Political parties and members see the value in excelling on Twitter as valuable for their electoral and institutional goals. For example, at the start of the 116$^{\text{th}}$ Congress Representatives Alexandria Ocasio-Cortez (D-NY) and Jim Himes (D-CT) along with a Twitter employee hosted a presentation for the Democratic Caucus on how to effectively use Twitter.[12] Members increasingly invest office resources towards social media communication. In the 113$^{\text{th}}$ Congress, 16% of senators had staff with "social media" in their title, and by the 115$^{\text{th}}$ that numbered had doubled to 32% (Congressional Research Service 2018). But what are members tweeting about? Early work on members of Congress behavior on Twitter suggests that members primarily used the platform to announce policy positions and direct users to websites calling attention to other media activities of the member, like newspaper or TV interviews (Golbeck, Grimes and Rogers 2010; Hemphill, Otterbacher and Shapiro 2013).

More recent studies have shown Twitter can also be a platform for partisan rhetoric, expressing partisan loyalty, and hurling partisan attacks. In particular, this work has found that Republicans, ideologically extreme members, and members with less political power or possessing "outsider" status, such as those in the minority party or in the opposite party of the president, are more likely to use partisan rhetoric and attack the opposite party on Twitter (Evans, Cordova and Sipole 2014; Evans, Smith, Gonzales and Strouse 2017; Russell 2020; Ballard, DeTamble, Dorsey, Heseltine and Johnson 2022). Work by Gelman and Wilson (2021), for example, found that members that are more partisan on Twitter also have higher party unity scores, cosponsor fewer bills with the opposite party, and are more likely to support their co-party President. While members of Congress tweet at members of the opposite party more than they vote or cosponsor legislation with opposing party members (Cook 2016), the work does not examine the tone or nature of these interactions. Barberá (2015) finds that Twitter networks of members of Congress, including the media, politicians, and general users that they follow or follow them, closely resemble their ideological location. In short, members partisanship and ideology in Congress is mirrored in their Twitter behavior.

[12]https://www.politico.com/story/2019/01/17/alexandria-ocasio-cortez-twitter-democrats-1108045

Partisan rhetoric on social media can also be a strategic tool. Among congressional candidates, studies found that candidates in less competitive races, trailing candidates, and female candidates are more likely to post negative messages and partisan attacks (Gainous and Wagner 2013; Auter and Fine 2016; Evans and Clark 2016). Fowler, Franz, Martin, Peskowitz and Ridout (2021) find that because digital advertisements can be targeted to specific users, they tend to be more negative, partisan, and less issue-focused than television advertisements. However, in 2019 Twitter banned paid political advertisements by any candidates, political parties, or elected or appointed government officials.[13] Twitter is not simply a platform for partisan mudslinging as research on House candidates' behavior in the 2014 election found that fewer than 5% of candidates' tweets directly attacked their opponent (Evans et al. 2017).

In fact, members mostly use Twitter to discuss contemporary policy (Hemphill, Russell and Schöpke-Gonzalez 2020; Russell 2021*a*) and engage in position-taking (Russell 2018*a*). Female lawmakers, committee chairs, and Democrats have been shown to be more policy focused on Twitter (Russell 2018*a*; Hemphill, Russell and Schöpke-Gonzalez 2020). Work by Russell (2018*a*, 2020) argues that there are trade-offs between messaging about policy and other messages on the platform. Members that discuss policy more on Twitter engage in less constituency outreach, credit-claiming, and advertising. Research has shown that the policy topics members discuss in tweets are an accurate representation of lawmakers' policy priorities. The policy areas in their tweets are highly correlated with their press releases (Casas and Morar 2015) and the bills they cosponsor (Russell and Wen 2021). These policy-focused tweets have been found to be reflective of their policy priorities and needs of their constituencies (Kim, Nakka, Gopal, Desmarais, Mancinelli, Harden, Ko and Boehmke 2021; Gervais and Wilson 2017; Graham, Avery and Park 2015). Work by Barber and Pope (2019) found that while members are in fact responsive to the expressed policy priorities of Twitter users, they are more responsive to co-partisan users. In short, the extent members of Congress are responsive to the policy needs of the public on Twitter is consistent with their policy responsiveness in Congress (Shapiro et al. 1990; Clinton 2006).

Congressional Twitter activity is not merely babble: Members balance various types of messages and activities – partisanship, policy, constituency outreach, advertising, news articles, media appearances, and campaigning – on their Twitter timelines. Members of Congress use Twitter to "strategically communicate a political image that reflects their unique political persona. They have to decide what they want to be known for, crafting communications [...] that meet the interests of their constituencies and foster promising electoral returns" (Russell 2021*b*, 12). If members are using Twitter to connect their strategically crafted public image with constituents and potential voters, then constituents have to be actively using Twitter and seeing their representatives' mes-

[13] `https://about.twitter.com/en/our-priorities/civic-integrity`

sages on the site. In the following section, we will establish who among the general public actively uses Twitter and the extent they use the platform to communicate with elected officials.

### 1.3.3 Reaching Voters on Twitter

As of 2020, 22% of Americans are on Twitter. While the individuals that use Twitter are not representative of the general population, they are a politically relevant group. Twitter users are whiter, wealthier, younger, more urban, and higher-educated than the general population (Mislove, Lehmann, Ahn, Onnela and Rosenquist 2011; Wojcik and Hughes 2019). They also are more likely to care about politics (Bekafigo and McBride 2013). 42% of Twitter users report using the platform to talk about politics and over 70% report using Twitter to get news, the most of any social media platform (Wojcik and Hughes 2019). During the 2012 election, Twitter was the eighth most-visited website in the United States (Hendricks and Schill 2015), and during the 2020 election 59% of Twitter users reported regularly using Twitter to follow the election (compared to 54% of Facebook users and 28% of Instagram users (Shearer and Mitchell 2021)). Social media use among the mass public has been found to increase voter turnout (Bond, Fariss, Jones, Kramer, Marlow, Settle and Fowler 2012; Jones, Bond, Bakshy, Eckles and Fowler 2017), affect trust in government (Klein and Robison 2020), and increase political and civic participation (Zhang, Johnson, Seltzer and Bichard 2010).

Twitter is potentially a rich data source for gauging public opinion, and social scientists have examined if the frequency of tweets about a party or candidate is predictive of their vote share (DiGrazia, McKelvey, Bollen and Rojas 2013; Beauchamp 2017). But given the unrepresentativeness of Twitter's users, using Twitter to predict elections is akin to another "Literary Digest Poll" (Barberá and Rivero 2015, 713). Even so, journalists have commented on the potential importance of winning the "Twitter vote," and the overall sentiment of U.S. Twitter users tweets was found to be correlated with President Obama's approval rating and the consumer confidence index (O'Connor, Balasubramanyan, Routledge and Smith 2010).

Beyond just using Twitter for discussing politics and finding political information, Twitter users can also connect directly with politicians. Political leaders are among the most widely followed accounts on the platform. The most followed person on Twitter as of August 2022 is President Barack Obama, with over 131 million followers globally. This is over 26% of U.S. Twitter users. As of 2022, President Joe Biden has 32.8 million followers and the official White House account @POTUS has 19 million followers.[14] When he had a Twitter account, President Trump's account @RealDon-

[14] `https://twitter.com/JoeBiden`
`https://twitter.com/POTUS`

aldTrump was followed by over 19% of American Twitter users. Politicians' popularity on Twitter is not confined to occupants of the White House, and 21% of Twitter users follow at least one member of Congress, with some members amassing millions of followers (Wojcik and Hughes 2019). Eady, Nagler, Guess, Zilinsky and Tucker (2019) found that 60% of randomly sampled Twitter users follow at least one news media account and 47% follow at least one politician account. But even if users are not following political accounts, they are still likely to come across political content on the site (Fletcher and Nielsen 2018). In 2020, representatives' tweets were liked, on average, 766 times and retweeted 589 times, creating a ripple effect where users who don't necessarily follow a member of Congress can still be exposed to their tweets.

Twitter users also frequently engage with political accounts, even if they aren't following these accounts. Among all Twitter users, politicians and news organizations are the most frequently mentioned Twitter accounts. Nine of the ten most mentioned accounts by users are either elected officials or news organizations, including @RealDonaldTrump, @SpeakerPelosi, @CNN, and @nytimes (Pew Research Center 2020). Previous work pre-dating Twitter, found that legislators were more likely to represent the interests of constituents who contacted them (Miler 2007). We see representational benefits as Twitter allows constituents to more efficiently communicate with their representatives, even if such communication is only one way. Previous work has found that when constituents tweet at their representatives, it increases interactions between constituents and representatives (Tromble 2018*b*). Examining House members for only two weeks in 2013, Tromble (2018*a*) found 47.4% of representatives tweeted with a constituent. Work by Hemphill and Roback (2014) found that rather than "shout" their opinion at members of Congress, Twitter users employ sophisticated tactics to influence members' political positions. A Pew Research Center study of Twitter users' behavior following the January 6$^{\text{th}}$, 2021 attack on the U.S. Capitol found that users were more likely to engage (like and retweet) with Democratic lawmakers and tweet angry messages and unfollow Republican lawmakers (Van Kessel and Shah 2021). A Congressional Management Foundation survey of congressional staff in 2014 found that 80% of staff indicated that 30 or fewer social media posts were sufficient to get the member's attention, and over 70% agreed that social media enables members to have more meaningful interactions with and be held more accountable by constituents (Congressional Management Foundation 2015). There is empirical evidence corroborating that members of Congress read and respond to at least some of these Twitter messages (Barberá, Casas, Nagler, Egan, Bonneau, Jost and Tucker 2019). This all suggests that Twitter users rely on the site not only for staying up to date with current events and politics, but that they also directly engage with their elected representatives.

Because social media enables users to selectively follow other users, media organizations, and politicians, scholars have studied the extent social media users primarily receive content that rein-

forces their existing beliefs via ideological "echo chambers". Existing work has largely found that the Twitter community of users is highly polarized – i.e. conservatives largely follow and interact with other conservative accounts and vice versa. Users who use Twitter to talk about politics are more likely to hold ideologically extreme preferences (Barberá and Rivero 2015). Twitter users are highly polarized with respect to the Twitter accounts they follow (Barberá 2015; Colleoni, Rozza and Arvidsson 2014), and as a result users are more likely to retweet tweets from ideologically congruent users (Conover, Ratkiewicz, Francisco, Gonçalves, Menczer and Flammini 2011). Himelboim, McCreery and Smith (2013) mapped the Twitter network and messages of 10 controversial political topics and found that users were unlikely to be exposed to cross-ideological content. However, Eady et al. (2019) found that while users are more likely to follow media and politician accounts that align with their ideology, there is still substantial overlap in the ideological distribution of followed accounts between users on opposite ends of the political spectrum.[15] To the extent users are engaging with users with opposing views, work by Conover et al. (2011) suggests these might not be depolarizing interactions. Their work found that while Twitter users who tweet about politics regularly mention users of the opposite party, they use political hashtags (GOP or Dems) to bait politically opposed users to then respond in order to "inject partisan content into information streams" (Conover et al. 2011, 1). The consensus seems to be that Twitter does facilitate ideological echo chambers – users tend to follow other users that share their own political beliefs – but Twitter features like retweeting and hashtags moderates users' ability to do so, creating a more ideologically diverse feed than their following would otherwise suggest.

A common critique of using Twitter data in political science, particularly for research studying individual behavior, is that Twitter is not representative of the general public (Barberá and Rivero 2015). This is undoubtedly true. Even though a representative's Twitter following does not reflect the demographics of their district, this does not mean the audience receiving these messages is not consequential for a members' reelection and legislative goals. Americans on Twitter are more likely to care about politics and use the site to engage with politics and their representatives, and members can directly reach and communicate with these individuals through the platform. Because the politically interested are more likely to vote and participate in politics generally (Brady, Verba and Schlozman 1995), Twitter users themselves are an important sub-constituency group for members to reach. Moreover, members can still reach non-Twitter users through traditional media, so long as journalists view and publish members' tweets.

[15] A large part of the discrepancy between Barberá (2015) and Eady et al. (2019) is the former only examines the politicians Twitter users follow and the latter also includes the media accounts they follow. Eady et al. (2019) also finds that users are highly polarized with respect to the politicians they follow, but users follow more ideologically diverse media accounts, especially among conservatives.

### 1.3.4 Indirectly Reaching Voters on Twitter

Since President Trump announced his bid for the presidency in June 2015, it is hard to underestimate the extent to which politicians' tweets shape media coverage. Even if the majority of Americans are *not* on Twitter, non-Twitter users are still likely to observe politicians messages via Twitter because of news coverage. News organizations and journalists are among Twitter's most active users and they rely on information from other users, and political elites in particular, to find and shape their stories. After interviewing 70 journalists and political strategists from the 2012 presidential campaigns, Hamby (2013) argued that for political journalists today, "Twitter was usually the first iPhone app they opened bleary-eyed in the morning, and the last one they peeked at before falling asleep at night" (24). In short, Twitter has become the central news source for the Washington-based press core. *New York Times* reporter Jonathan Martin said of Twitter's influence on political journalism, "It's the gathering spot, it's the filing center, it's the hotel bar, it's the press conference itself all in one. It's the central gathering place now for the political class during campaigns, but even after campaigns. It's even more than that. It's become the real-time political wire. That's where you see a lot of breaking news. That's where a lot of judgments are made about political events, good, bad or otherwise" (Hamby 2013, 24).

Journalists have long relied on politicians to generate news (Soley 1992), and today politicians provide messages they want broadcast on Twitter. During a one-year period from 2010-2011, Twitter made up over half (57.1%) of the primary sources among major newspaper and TV outlets – and the Twitter accounts of members of Congress were the most cited, more so than the President (Moon and Hadley 2014). In 2020, 34.20% of all *New York Times* articles that mention "Congress" also mention "Twitter". [16] Trump himself has noted as much, "It's social media. I put it out, and then it goes onto your platform. It goes onto ABC. It goes onto the networks. It goes onto all over cable. It's an incredible way of communicating."[17]

It appears President Trump is correct. Politicians are increasingly skilled at influencing media coverage through strategically releasing statements on their social media pages (Chadwick 2017). Previous work has found that the topics of tweets from political elites and the topics of news articles are highly correlated (Conway, Kenski and Wang 2015; Eshbaugh-Soha 2015; Shapiro and Hemphill 2017; Gilardi, Gessler, Kubli and Müller 2022). Rather than change what members are saying, Twitter enhances opportunities for members of Congress to share information they want to publicize to journalists (Shapiro and Hemphill 2017). Without traditional media norms, Twitter connects journalists to a greater number of lawmakers rather than just those with institutional

[16] I searched for mentions of "Twitter" and "Congress" in all *New York Times* Articles, excluding text prompting readers to follow the NYT on Twitter using Nexis Uni.

[17] `https://abcnews.go.com/Politics/transcript-abc-news-george-stephanopoulos-exclusive-interview-president/story?id=63749144`

power, such as party leaders and committee chairs (Russell 2020). If journalists are more than willing to publish information gathered through Twitter, members can use the social media platform to push the messages they want journalists to cover.

This section established that members of Congress' tweets represent the best source for understanding how members of Congress present themselves to the public: Twitter has become an important communication tool for members of Congress, offering them a low-cost and unconstrained opportunity to present themselves to their constituents. While Twitter's user base might not be representative of the American public and not all Twitter users follow their elected officials or intentionally use the site for political information, constituents are still likely to consume *some* Twitter content through traditional media sources. Twitter enables members of Congress to deliver their messages and overall presentation of self to their constituents. Members of Congress can directly reach their most politically involved constituents on the platform, and indirectly reach voters through traditional media networks. As such, they tweet messages that are designed to reflect their unique presentations of self. In the following section, we will explore how three representatives use Twitter to express their presentation of self to their constituents and how these presentations reflect both their personal skills and the districts they represent.

### 1.4 Three Presentations of Self on Twitter

While Twitter is most often associated with "Twitter famous" members such as Rep. Alexandria Ocasio-Cortez (D-NY), who has an astounding 12 million Twitter followers, all legislators are empowered to use the platform to direct messages and content that best advertises their political image. Members can use Twitter to highlight their policy views, express concern about their constituents, post videos of committee hearings, notify constituents about district events, go on partisan rants, celebrate their favorite sports teams, and more. Members have to decide which messages to post in order to reflect the desired image they want voters to have of them. To better illustrate this point, I will discuss how three representatives with very different presentations of self – Representatives John Dingell, Elissa Slotkin, and Jim Jordan – all use Twitter to present themselves.

Representative John Dingell (D-MI) was the longest serving member of Congress, representing his district outside of Detroit for 59 years. Michigan's $12^{\text{th}}$ congressional district has consistently voted for the Democratic Party, and he consistently defeated his opponents by double-digits margins. From 1981 to 2015, he was the highest ranking Democrat on the Energy and Commerce Committee, using his position to fiercely protect his district's interests in the automotive industry. We can see the emphasis Rep. Dingell placed on his district in Figure 1.2: his tweets regularly referred to Michigan, University of Michigan sports, Detroit, and the phrase "back home." In a

Figure 1.2: Word Cloud of Rep. Dingell's Tweets from 113$^{th}$ Congress


Figure 1.2: Displays a word cloud of the most common features (words) from Rep. John Dingell's tweets from the 113$^{th}$ Congress.

typical tweet from Rep. Dingell, as seen in Figure 1.3, he regularly promotes the automotive industry in his district. Rep. Dingell saw this commitment as a primary part of the representation he provides for his constituents, saying, "I represent half a million people whose lives are controlled by the good fortune or bad fortune of the auto industry. I was sent down here to look after the welfare of that district and the people I serve."[18] He also cared deeply about healthcare. He was an early advocate of Medicaid and helped pass the law in the 1960s, and was crucial in the passage of the Affordable Care Act. His tweets regularly discuss healthcare policy, reflecting this policy interest.

Rep. Dingell also had a reputation as a funny and well-liked individual, and was respected on both sides of the asle. His personality showed through his tweets. Figure 1.3 displays a tweet where Dingell lightheartedly recalls a joke from Stephen Colbert making fun of his age (Rep. Dingell was first elected to Congress during the Eisenhower administration). His tweets rarely mention partisan politics, and he frequently communicates with political figures from both sides of the asle, such as Republican Governor Roy Cooper and Republican consultants Matthew Dowd and Mike Murphy. After his death, Representative Steny Hoyer (D-MD) commemorated Rep. Dingell's life on the House floor remarking, "John Dingell, both before and after his retirement, gathered a large fol-

[18] `https://www.nytimes.com/2019/02/07/us/politics/john-dingell-dead-longest-congressman.html`

lowing on Twitter, where he demonstrated his wit, wisdom, and clever commentary on the nation's politics, while promoting greater civility, patriotism, tolerance, justice, and inclusion."[19] Even after his passing, his account still has over 230,000 Twitter followers. Rep. John Dingell's Twitter account reflected his presentation of self: someone deeply connected to his district, a legislative workhorse with particular interests in the automotive industry and health care, and someone who worked across the aisle with a sense of humor.

Figure 1.3: Example Tweets from Representative John Dingell


Representative Elissa Slotkin, another Democratic representative from Michigan, was first elected to the 8th congressional district in 2018. Prior to serving in Congress, Rep. Slotkin worked for the Central Intelligence Agency, National Security Agency, Defense Department, and State Department. During this time, she served three tours in Iraq and provided expertise on the Iraq War for the Bush and Obama Administrations' National Security Councils. As a congresswoman, she serves on the Armed Services, Homeland Security, and Veterans' Affairs Committees. To say she has foreign policy chops is an understatement. She has spearheaded legislation to adopt a trauma-informed response to sexual assault in the military, address veterans' health after burn pit exposure, and connect veterans with service dogs, which was signed into law by President Biden in 2021.[20] Her tweets reflect these priorities where she frequently mentions, as seen in Figure 1.4, the military, veterans, Iraq, and trauma-informed response (a direct reference to her bill). Rep. Slotkin builds her presentation of self around her expertise and experience in foreign policy, and her leadership in this domain is not all talk. In early 2020, the House passed a resolution sponsored by Slotkin to direct President Trump to halt further military strikes in Iran, and the President quickly indicated he would veto the measure.[21] After the Senate version of the bill failed to garner enough votes to override a veto, Slotkin tweeted, as seen in Figure 1.5, about her continued commitment to reinstate Congress's authority over war powers.

[19] The Congressional Record on February 11, 2019

[20] https://slotkin.house.gov/media/press-releases/slotkin-joins-president-biden-signing-paws-veterans-therapy-act-law

[21] https://www.npr.org/2020/01/09/794999691/house-passes-war-powers-resolution-in-effort-to-restrict-trumps-actions-against

Figure 1.4: Word Cloud of Rep. Slotkin's Tweets from 116$^{th}$ Congress

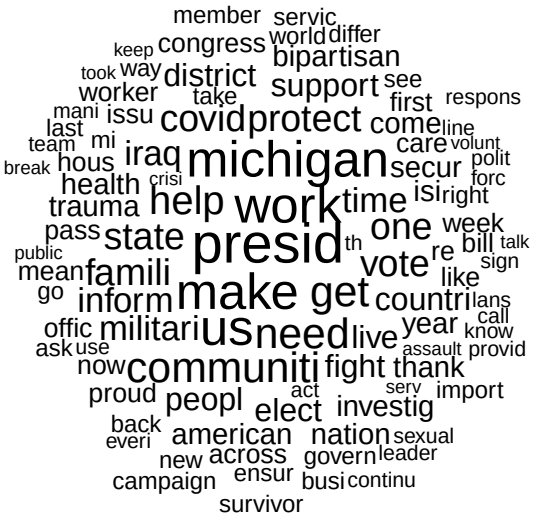



Figure 1.4: Displays a word cloud of the most common features (words) from Rep. Elissa Slotkin's tweets from the 116$^{th}$ Congress.

Besides crafting an image as a foreign policy expert, Slotkin also presents her self as an independent, bipartisan representative. This is, at least in part, strategic. Michigan's 8$^{th}$ congressional district is highly competitive. Donald Trump carried her district in both 2016 and 2020, and she was the first Democrat to represent the district since 2001 after narrowly defeating Republican incumbent Representative Mike Bishop with 50.6% of the vote. Slotkin describes how her district affects how she represents her constituents, "I'm an independently minded person from an independently minded district. And I'm from the state of Michigan, which is inherently a swing state. We are still a split-ticket state, where people vote the person over the party. And when you represent a place like that, and you come from a place like that, you carry that same approach."[22] As a member of the Problem Solvers Caucus – a bipartisan caucus of legislators that focuses on working across the aisle – she rarely tweets about partisan politics. Instead, she tends to emphasize her bipartisan approach to lawmaking and good governance.

Elissa Slotkin's presentation of self is a function of both her personal experience and her district. Her emphasis on foreign policy works well with her need to remain non-partisan in order to appeal

[22] https://www.pbs.org/wnet/firing-line/video/elissa-slotkin-r0wugz/

Figure 1.5: Example Tweet from Representative Elissa Slotkin


to voters of the opposite party, and draws on her personal experiences prior to arriving in Congress. Reps. Slotkin and Dingell represent neighboring congressional districts and both come from the Democratic Party, but both craft presentations of self unique to themselves and their districts. And like Rep. Dingell, Rep. Slotkin's presentation of self is evident in her tweets, making clear who she is and how she represents her constituents.

Figure 1.6: Word Cloud of Rep. Jordan's Tweets from 116$^{\text{th}}$ Congress

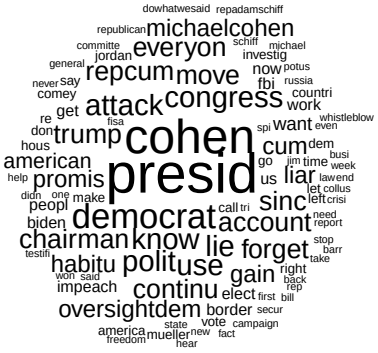



Figure 1.6: Displays a word cloud of the most common features (words) from Rep. Jim Jordan's tweets from the 116$^{\text{th}}$ Congress.

If Reps. Dingell and Slotkin purposefully avoid partisanship in their presentations of self, Representative Jim Jordan (R-OH) more than embraces it. On Twitter, Rep. Jordan posts frequently about Trump and whirls attacks at the Democratic Party. He was a founding member and the first chair of the conservative House Freedom Caucus. The House Freedom Caucus was formed out of frustration over the Republican Party compromising with Democrats during the Obama administration, and was designed to push the party to the ideological right and resist compromise. More recently, Rep. Jordan has risen to political fame as the unofficial lead defender of President Trump during both of his impeachment trials. The word cloud of his tweets from the 116$^{\text{th}}$ Congress, as seen in Figure 1.6, demonstrates this: Jordan frequently uses the words Trump, impeachment, Adam Schiff, liar, Michael Cohen, Russia, and Michael Barr – all key players and details in Trump's first impeachment regarding claims he improperly solicited and received electoral support from the Russian government. Rep. Jordan views politics as a partisan battle. In an interview with PBS before the 2020 election, he promised to "keep fighting for the things I told the American people I was going to fight for. And the competition, the game, the election, whatever term you want to use, is not over."[23] Jordan clearly sees himself not as a legislator or someone sent to Washington to represent the policy interests of his constituents, but as someone fighting for the Republican Party.

The type of district Jordan represents enables him to adopt such a partisan presentation of self. Ohio's 4$^{\text{th}}$ congressional district has voted for Republican presidents and representatives in every election since 1968, and Jordan regularly wins over 60% of the vote. His tweet in Figure 1.7 shows how he connects these partisan attacks to his view of representing Republicans in particular. It is safe to assume that Jordan's perception of his district is one that is politically and culturally conservative. By explicitly connecting himself to the Republican Party and framing politics as a partisan conflict, he can reinforce his constituents' partisan identity and draw on the copartisans in his district as a base for political support. Jordan's reputation as a partisan firebrand is likely a result of the underlying partisanship of his district, as well his own personal views of politics. His view of politics as a partisan war zone and his desired presentation of self is clearly seen in Jordan's tweets.

Reps. Dingell, Slotkin, and Jordan's presentations of self on Twitter reflect their general reputations as representatives, and as such we can use a member's tweets as the basis for studying their presentations of self. The work presented throughout this dissertation rests on the premise that members of Congress use Twitter as a part of their larger communication strategy. Margolis and Resnick's (2000) "normalization thesis" argues that the internet, rather than revolutionize our everyday lives, has served as a new medium through which established patterns in social, economic, and political interactions persist. Just as members balance their messaging on the House floor or in

[23] `https://www.pbs.org/wgbh/frontline/interview/jim-jordan/`

Figure 1.7: Example Tweet from Representative Jim Jordan


campaign speeches to reflect their priorities, they do the same on Twitter. Like all communication tools before it, members of Congress primarily use Twitter to present themselves to their districts. Twitter has modernized political communications, allowing members to control their image and communicate directly with their constituents.

## 1.5 Plan of the Dissertation

In this dissertation, I argue that members of Congress use Twitter to present themselves to their constituents, and these presentations are intentionally crafted to represent their constituents and further their electoral ambitions. In doing so, I make several important contributions to our existing knowledge about members' presentation of self. First, using recent developments in topic modeling, I am able to incorporate a greater diversity in the types of messages members us to craft their presentations of self. Second, I offer the most complete and detailed analysis of how members of Congress present themselves. I examine members' digital presentations of self over twelve years, a longer time period than previous work. The collection of over three million representatives' tweets, from the introduction of Twitter to politics in 2009 through the most recently completed Congress as of this writing, represents the largest collection of representatives' tweets to date. This allows

me to better leverage variation in a member's institutional position and electoral environments over time to understand their strategic approach in how to present themselves to their constituents and public. Third, as the digital media landscape has changed and grown in importance over time, we can see how social media sites like Twitter have incentivized members to change their communication strategies to adapt to a digital and increasingly partisan age.

In chapter 2, I show how Twitter is important to how members of Congress present themselves to their constituents. I discuss the data collection process and demonstrate how I collected member's tweets over a twelve-year period. I also present a range of descriptive results regarding when members adopted Twitter, how often they tweet, and how many followers and user interactions their accounts receive. Chapter 2 will establish the increasing importance of Twitter to members of Congress.

If Twitter is used by members of Congress to present themselves, then what messages do members tweet and why? In chapter 3, I define the six types of messages members use on Twitter to create their digital presentations: position-taking, credit-claiming, advertising, policy, partisanship, and district messages. These six message types represent features of members' communication that previous work has identified as important for presentation of self. While previous work has either focused on a single dimension, such as the degree of partisan rhetoric or the trade-off between credit-claiming and position-taking, this chapter uses natural language processing tools to identify these six types of messages in members' tweets and analyze the emphasis that members place on each of these messages. I demonstrate that the messages members tweet are correlated with their institutional behavior and districts in ways we would expect given previous literature.

In chapter 4, I address how members utilize these six message types to create a digital presentation of self. Using clustering and multidimensional scaling analysis I identify four types of presentations of self – the party loyalist, policy wonk, district hero, and personal advertiser. Members' presentations of self are defined by the relative balance of each message type, which best captures the varied and unique ways members present themselves and paint a complete picture of members' online presentations of self. In addition, I explore how the political environment, their district, and their institutional positions shape the presentations members adopt.

Chapter 5 examines how presentation of self and majority status affect how members of Congress present their legislative work on Twitter and how tweets relate to the legislative process. I do this by identifying when members tweet about specific legislation and the partisan support and success of the legislation they tweet about. In this chapter, I explore how the electoral incentives to promote partisan conflict distorts the public's perception of the lawmaking process as being more partisan

and dysfunctional than it really is.

Finally, in chapter 6 I review the analysis presented throughout this dissertation and outline the larger implications of presentation of self. To conclude, I then briefly offer several suggestions for areas of future research.

# Chapter 2

## Members of Congress And Twitter

In the previous chapter, I argued that Twitter is the optimal place to study how members of Congress present themselves to the public and their constituents. Twitter provides daily, conversational, public-facing communication from representatives that are easily observable by constituents and journalists. Twitter also provides researchers free and accessible access to millions of messages sent in real-time from political elites through their API.[1] If members of Congress have incorporated Twitter into their communication strategies and it has become a key way members present themselves and craft their representational personas, then we should see members of Congress tweeting in high volume and increasing their tweeting frequency over time. This is exactly what we find: members increased tweeting by over 15-fold from the $111^{\text{th}}$ to the $116^{\text{th}}$ Congress (2009 to 2020). Today, Representatives collectively post over 1,500 tweets daily.

The purpose of this chapter is to establish the importance of Twitter to members of Congress and explore trends, both across time and between members, with respect to how frequently they tweet, the followers they collect, and the interactions they receive from other users. Much of the following analysis is descriptive. This dissertation represents one of the largest collections of congresspersons' Twitter behavior, and describing the data I have collected in rich detail is a valuable exercise in and of itself. In this chapter I address differences in tweeting frequency between members, and importantly, between parties. As a final task, this research depends on having amble text data for each Representative in order to accurately and confidently describe their digital presentation of self. From 2011-2020, a large plurality of Representatives post a sufficient number of tweets to show that Twitter is not just used by the few "Twitter famous" members. Twitter has been widely adopted by nearly all members of Congress. To begin, I first describe the data collection process used to collect members' Twitter handles and timelines.

### 2.1 Twitter Data

This section details how I collected the Twitter accounts and timelines for members of Congress who served during the $111^{\text{th}}$ (2009-2010) through the $116^{\text{th}}$ (2019-2020) Congress. First, I review the collection of members of Congress' Twitter handles and account level data. The ability to convincingly use Twitter data relies on having active Twitter accounts for most, if not all, members of Congress. I describe which members and for what period of time I was able to identify an active

[1] `https://developer.twitter.com/en/products/twitter-api/academic-research`

Twitter account. Second, I describe how I collected members' tweets going back to 2009. This data is, to my knowledge, one of the largest collection of Representatives' tweets.

As an aside, in my research I collected the accounts and tweets for every member of Congress – both the House and Senate – totaling over five million tweets over twelve years. This dissertation, however, focuses on the Twitter behavior and resulting digital presentations of self of U.S. House members. Representatives and senators face different institutional and electoral constraints when deciding how to present themselves to their constituents. And a larger body of work by other scholars, in particular Annelise Russell (Russell 2021*b*), examines the Twitter behavior of senators, while representatives have been under studied (in comparison). In presenting the data collection process I reference the collection of data for senators' Twitter accounts and timelines, but the analysis I conduct focuses on the House. That said, a brief discussion and overview of senator's Twitter use can be found in Appendix 7.2.

### 2.1.1 Twitter Accounts

The first task is to identify the Twitter accounts for 1,005 members of Congress, of which 856 members served in the House and 178 served in the Senate between the $111^{\text{th}}$ and $116^{\text{th}}$ Congresses. Ultimately, I was able to identify 1,775 Twitter accounts belonging to members of Congress and collect tweets from 85.05% of representatives and 88.76% of senators. Members of Congress commonly use multiple Twitter accounts, but previous work has focused exclusively on a member's official account or their dominant account (Russell 2021*b*; Golbeck, Grimes and Rogers 2010; Barberá 2015). I expand on previous work by including tweets from all Twitter accounts maintained by members of Congress. After reviewing the different types of Twitter accounts, I justify this decision before describing the data collection process I used.

Most (58.8%) representatives maintain two Twitter accounts, 33.1% have one account, and 10.1% have three or four accounts. When a member maintains multiple accounts, each account is either an official, personal, or campaign account. A common approach is to have a personal account – which is almost always the more frequently used account – and use an official congressional account for official updates. A primary reason for the partitioning of accounts is that House rules specify that members cannot use their official social media accounts for campaigning, personal information, any kind of advertisement for products or services, petitions, or grassroots lobbying. Members cannot ask for campaign donations, post pictures of themselves or their family unrelated to official House business, post a link to a non-government website, or encourage constituents to vote for them. In contrast to what we often associate with politics on Twitter, official social media pages or websites cannot provide information about political parties outside of party affiliations, use

excessive ideological language, lob personal insults, or speculate about other political actors motivations.[2] The House also restricts how members use their office resources to conduct activity on social media platforms. Members can only use their office resources, like staff time and budgets, for their official accounts. To manage limited resources, members will want to delegate tweeting of sanctioned messages to their official account via their office staff and tweet other messages using their personal account. These guidelines, while certainly appropriate for communication endorsed by the House, limiting how members present themselves to their constituents using only an official account.

Figure 2.1: Twitter Accounts of Representative Darrell Issa


Members' official Twitter accounts are identified in their Twitter bios by including some variation of the phrase "official account" along with the member's name and title. Figure 2.1 displays the homepage of Rep. Darrell Issa's (R-CA) official and unofficial Twitter accounts. His official congressional account, @repdarrellissa, clearly identifies the account as his official account and links to his congressional website. His profile image is his official House portrait and the banner image clearly identifies him as the Congressman for the 50$^{th}$ congressional district. His personal account @DarrellIssa has a more personal photo as his profile image, a campaign advertisement as the banner image, and links to his campaign website. Given the restrictions for member's official Twitter accounts, Issa uses his personal account far more frequently. He has tweeted from @DarrellIssa over 20,000 times and has over 270,000 followers, while his official account has only 327 tweets and a little over 17,000 followers.[3]

[2] `https://cha.house.gov/communications-guidelines`

[3] These numbers represent the total tweets posted and follower accounts from March 2021 and the screenshots were pulled at a later date.

The different content that emerges from his two accounts can be seen in the example tweets in Figure 2.2. His official account is mostly links to federal resources, posting of official statements, and, as seen in the example, encouraging people to vote. In contrast, Rep. Issa uses his personal account to advertise his political positions – like his opposition to the Affordable Care Act – campaign for reelection, and post news articles for his followers. While the House Ethics Committee appears to be somewhat lenient and inconsistent when applying these rules to Twitter, for example the tweet from @repdarrellissa in Figure 2.2 would technically be a rules violation by including "#VoteGOP", members do tend to generally adhere to these guidelines. Reelection minded House members will not want to risk the optics of an ethics violation. The Ethics Committee has held representatives accountable for their social media behavior in the past, particularly when the member's actions are particularly egregious. Rep. Marjorie Taylor Green (R-GA) was stripped of her committee assignments after she liked and posted various social media posts articulating conspiracy theories and violently threatening Democratic lawmakers.[4] Rep. Paul Gosar (R-AZ) was formally censured and removed from his committee assignments after posting a video depicting an animated violent attack of Rep. Ocasio-Cortez (D-NY) to his Twitter account.[5] Even if these rules are not strictly enforced or perfectly followed, reelection minded politicians seem willing to self-regulate their speech on their official accounts to avoid the bad press associated with any ethics violation even if they may avoid formal censure or punishment by the Ethics Committee.

Figure 2.2: Example Tweets from Representative Darrell Issa's Twitter Accounts


A possible concern with multiple accounts is that members may use one account to reach different audiences. This is unlikely to be the case. Fenno (1978) observed that members do not vary their presentations in person depending on if the audience generally supports the congressperson. Presentation of self is a core component of a member's reelection and the representation they provide, so creating a consistent and identifiable presentation is important. Interviews with incumbents indicate that they do not target specific groups on social media, only that that their messages are more likely to reach younger or existing supporters (Gulati and Williams 2015). Maintaining incongruent

[4] https://www.npr.org/2021/02/04/963785609/house-to-vote-on-stripping-rep-marjorie-taylor-greene-from-2-key-committees

[5] https://www.govtrack.us/misconduct

agendas or presenting contrasting signals can also be electorally risky (Woon and Pope 2008). Related work has found that members do not try to hide "bad votes" from disapproving constituency groups (Grose, Malhotra and Parks Van Houweling 2015). Moreover, tweets are publicly available and closely watched by journalists. Members have no control over who follows or views their tweets so they are unable to create separate Twitter audiences. So not only is maintaining totally separate personas politically risky, it is unlikely to work. Given the restrictions on how members can use office resources to manage their social media accounts, members with limited resources will want to delegate the management of their official accounts to a staffer in order to have more resources for political messaging taking place elsewhere on Twitter. The use of multiple accounts is, in all likelihood, a case of managing resources and responsibilities rather than an attempt to maintain separate presentations of self using different accounts.

While previous work has focused exclusively on a member's official account or their dominant account (Russell 2021*b*; Golbeck, Grimes and Rogers 2010; Barberá 2015), only including a single account for each member would limit our ability to fully understanding members' presentations of self for several reasons. First, members might selectively use one type of account over another depending on their presentation. For example, a member with a more constituency service oriented home style might rely more on their official account, since the content they prefer to post is sanctioned to appear on these accounts. A member who adopts a highly partisan presentation will have to rely on their personal account to a greater extent to achieve their desired presentation. Including only one of these accounts will limit the ability to fully understand all members and would bias our results towards members that heavily rely on the included account. Second, all tweets for all accounts are approved by or directly sent by the member. Rather than only select the "main" account a member uses, we want a complete picture of all the types of messages members post. Omitting any accounts would bias our overall understanding about the types of messages members communication to their districts.

As such, I collected all Twitter handles associated with all members of Congress serving between the 111$^{\text{th}}$ Congress, when members began adopting Twitter, through the 116$^{\text{th}}$ Congress. Twitter users are identified on the platform through their handle, a unique name denoted by the @ symbol (ex. @SpeakerPelosi). Because users can change their handles, Twitter also assigns a unique and permanent numeric user ID to each Twitter account. Twitter handles and user IDs for members who served from June 21, 2017 through January 2, 2021 were obtained from the congresstweets project via GitHub.[6] For members not included in the congresstweets project data, I manually collected their Twitter handles. Sometimes members delete their Twitter accounts after leaving Congress, a practice that appears to be declining. If a member deleted their account after leaving

[6] `https://github.com/alexlitel/congresstweets`

office, but another user – such as another member of Congress or a constituent – has mentioned them in a tweet, I was still able to identify the now-deleted Twitter handle. While tweets sent from that account are unfortunately lost, it is still valuable to identify the extent to which members used Twitter while in office to demonstrate the importance of the platform for representatives.

In total, I identified 1,775 Twitter accounts belonging to members of Congress.[7] There are 112 members of Congress – 95 representatives and 17 senators – who did not have a Twitter account at any point while in office. A list of these members can be found in Tables 7.1 and 7.4 in Appendix 7.

To access the full Twitter timelines of congresspersons, the Twitter API full-archive search endpoint uses the member's handle as the query parameter, not their fixed user ID.[8] Members do periodically change their Twitter handles, typically after leaving office or as they move in and out of party leadership. While the handles I manually collected are consistent with their current Twitter handle, this might change. To create a complete and up-to-date list of each user ID and associated handle, I first used the Twitter API user endpoint to run the known user IDs and updated the handles associated with the user IDs.[9] Then I used the same user endpoint to run the manually collected handles to find the associated user ID.

With a list of all the Twitter handles for members of Congress, I used the Twitter API user endpoint to collect basic account-level information for each of the 1,775 Twitter accounts. If a Twitter account no longer exists, the account was marked as permanently deleted. If an account is deleted, then there is no way to access that user's Twitter timeline from their time in office. Among accounts that are still active, I collected the date the account was created, the total number of tweets posted, if the account was protected, number of followers, and number of other users the account follows.[10] All account level data reflects what the account looked like at the moment that the data was collected in March 2021.

There are 34 members who used Twitter while they were in office, but who have since erased their Twitter presence after leaving Congress. There are three ways someone can conceal their tweets from being publicly available: delete the account, move the account to protected status, or delete all of their tweets. Among representatives, 24 deleted their Twitter accounts, 4 protected their accounts, and 4 deleted all of their tweets from their time in office (or perhaps never tweeted at all). Table 7.2 in the Appendix 7.1 lists these representatives who had a Twitter account while in

[7] This excludes the Twitter accounts of former members of Congress who joined Twitter *after* leaving Congress.

[8] `https://developer.twitter.com/en/docs/twitter-api/premium/search-api/quick-start/premium-full-archive`

[9] `https://developer.twitter.com/en/docs/twitter-api/users/lookup/introduction`

[10] A Twitter account is protected if the user only allows specific approved followers to view their tweets. Only account level data, but not the timeline from protected accounts, are available to download.

office, but who have since removed their Twitter presence. This number does not include members who have deleted one Twitter account, but still actively use a different account. Only 3 senators have concealed their Twitter activity after leaving the Senate. Kent Conrad (R-ND) and Herb Kohl (D-WI) deleted all of their tweets, and John Ensign (R-NV) protected his account.

In all, I was able to identify and access the Twitter accounts and tweets for 857 of the 1,005 members of Congress. Of the 856 representatives who served in the House from the 111$^{\text{th}}$ through the 116$^{\text{th}}$ Congress, 728 (85.05%) have at least one active Twitter account where I was able to access their Twitter timelines. Among the 178 senators, 158 (88.76%) maintained at least one active Twitter account while in Congress.

While all members actively use Twitter today, they did not necessarily have an active account for their entire tenure in Congress. This is especially the case in the earlier Congresses where, for instance, during the 111$^{\text{th}}$ Congress, 157 representatives (35.83%) and 37 senators (33.64%) had not yet created an account. As Twitter has grown in importance for members' communication, the number of members without Twitter accounts has quickly decreased over time. While some members were early adopters of the social media platform, joining Twitter in the early months of 2007 – then-Senator Joe Biden (D-DE) was the first to join in March 2007, and representative Ileana Ros-Lehtinen (R-FL) followed in April 2007 – the majority of members had joined the site by the end of 2010.[11] As seen in Table 2.1, senators were particularly fast adopters. By the 112$^{\text{th}}$ Congress only six senators did not have a Twitter account and all senators used Twitter by the 114$^{\text{th}}$ Congress. A similar pattern is seen among House members in Table 2.2, where the share of members *not* on Twitter quickly declines after the 111$^{\text{th}}$ Congress. Nearly all representatives were on Twitter by 2013 and by 2017 all representatives maintained at least one active account while in office. Members clearly saw the value Twitter provides as a platform to disseminate messages to constituents and journalists and adopted the platform, and as the following section will show, greatly increased how frequently they used Twitter over time.

[11] Twitter officially launched in March 2006, but was relatively obscure until a showcase at the South by Southwest conference in March 2007.

Table 2.1: Senators With Active Twitter Accounts by Congress, 111$^{\text{th}}$ - 116$^{\text{th}}$ Congress

| $111^{th}$ Congress (2009-2010) 110 Senators | $112^{th}$ Congress (2011-2012) 102 Senators | $113^{th}$ Congress (2013-2014) 105 Senators | $114^{th}$ Congress (2015-2016) 100 Senators | $115^{th}$ Congress (2017-2018) 105 Senators | $116^{th}$ Congress (2019-2020) 100 Senators |
|---|---|---|---|---|---|
| 70 have accounts | 93 have accounts | 104 have accounts | 100 have accounts | 105 have accounts | 100 have accounts |
| 3 deleted accounts | 3 deleted accounts | 0 deleted accounts | 0 deleted accounts | 0 deleted accounts | 0 deleted accounts |
| 37 without accounts | 6 without accounts | 1 without accounts | 0 without accounts | 0 without accounts | 0 without accounts |

Table 2.2: Representatives With Active Twitter Accounts by Congress, 111$^{\text{th}}$ - 116$^{\text{th}}$ Congress

| $111^{th}$ Congress (2009-2010) 445 Representatives | $112^{th}$ Congress (2011-2012) 445 Representatives | $113^{th}$ Congress (2013-2014) 444 Representatives | $114^{th}$ Congress (2015-2016) 441 Representatives | $115^{th}$ Congress (2017-2018) 450 Representatives | $116^{th}$ Congress (2019-2020) 442 Representatives |
|---|---|---|---|---|---|
| 267 have accounts | 369 have accounts | 407 have accounts | 415 have accounts | 432 have accounts | 434 have accounts |
| 21 deleted accounts | 24 deleted accounts | 22 deleted accounts | 23 deleted accounts | 18 deleted accounts | 8 deleted accounts |
| 157 without accounts | 52 without accounts | 15 without accounts | 3 without accounts | 0 without accounts | 0 without accounts |

Like all forms of media before it, politicians have quickly harnessed the power of media to reach Americans. FDR was the first politician to harness the power of the radio, JFK won the presidency with the visuals of TV, and Reagan expertly used television to glamorize politics. In the 21$^{\text{st}}$ century, politicians have widely adopted Twitter as a new medium to accomplish their existing goals. Besides being a useful communication tool, the pressure of institutional norms means that all members of Congress are now effectively required to use Twitter to reach others (Russell 2021*b*). They might not do it well, but the widespread use and adoption of the platform makes Twitter a necessary component of their jobs.

Another reason members have widely adopted Twitter is access. Congresspeople believe that constituents want their representative to be accessible to them (Fenno 1978). In an interview with the *New York Times* Rep. Elisa Slotkin, whose presentation of self on Twitter we detailed earlier, states this point, "at a bare minimum, whether people agree with me or not, my job is to make myself available and to let my constituents hear from me directly."[12] Among other mediums of mass communication, Twitter is uniquely able to make political elites accessible to their constituents. A representative's Twitter profile is accessible from a smartphone and sending them a message takes only seconds. When Pew Research Center asked Americans why they followed politicians or political candidates on Twitter, 36% said that doing so helps them feel more personally connected to these individuals.[13] Experiments by Lee and Shin (2014) found that when individuals were exposed to a politician's Twitter page, they had a higher sense of direct conversation with her compared

[12] `https://www.nytimes.com/2019/10/09/podcasts/the-daily/house-democrats-elissa-slotkin.html`
[13] `https://www.pewresearch.org/internet/2011/01/27/social-media-and-politics-in-2010-campaign/`

to a news article, and were more likely to have a favorable impression and vote for her. Being on Twitter is not only expected and beneficial for appearing accessible to constituents, but can harness political support. Petrova, Sen and Yildirim (2021) found that opening a Twitter account lead to a 1-3% increase in campaign donations, and the impact of joining Twitter is particularly strong for challengers relative to incumbents. In short, members have adopted Twitter because it enables them to do their job and serves their preeminent goal: reelection.

### 2.1.2 Members Twitter Timelines

Thus far, we have established that members of Congress are on Twitter, demonstrating that members themselves believe the platform is useful for presenting themselves to the public. This section begins by explaining how I collected all the tweets posted to their accounts over a twelve-year period – one of the largest collections of representatives' tweets to date. Using my data, I show that members have dramatically increased how frequently they post to Twitter as the platform has grown in importance to politicians and their parties.

With the aforementioned list of Twitter handles, I used the Twitter API full-archive search endpoint to collect all tweets that were published to the user's timeline starting at 12:01 AM Eastern Time on the day that they were sworn-in, until 12:59 PM Eastern Time on their final day in office or until January 2, 2021 at 11:59 PM Eastern Time.[14] The previous Congress ends and the new Congress begins on January 3$^{rd}$ at 12:00 PM Eastern Time in odd numbered years, so I classify all tweets posted on January 3$^{rd}$ as a part of the incoming Congress. This query returns all tweets that were on the user's timeline at the time I put in the request (3/14/2021 - 3/16/2021).[15]

This process collected 5,183,992 tweets. After removing tweets from members who served nonconsecutive terms, removing duplicate tweets, and sorting tweets by chamber we are left with 3,631,518 from representatives and 1,350,737 from senators – a total of 4,982,255 tweets – posted between January 3, 2009 and January 2, 2021, corresponding to the first day of the 111$^{th}$ Congress and the final day of the 116$^{th}$ Congress.[16] Note that previous work has only examined members' tweets from a limited period, ranging from several months (Evans, Cordova and Sipole 2014; Golbeck, Grimes and Rogers 2010), a single year (Hemphill, Russell and Schöpke-Gonzalez 2020), or up to two congresses (Gelman and Wilson 2021; Russell 2021*b*). This is largely a result of Twitter's former API restrictions where academics were only able to access tweets for a limited period of time without purchasing an expensive premium developer account for full access. In early 2021,

[14] `https://developer.twitter.com/en/docs/twitter-api/tweets/search/quick-start/full-archive-search`

[15] To access the Twitter API and download the data into `R`, I used the `academictwitteR` package (Barrie and ting Ho 2021).

[16] 16,634 tweets were dropped from members of Congress that served nonconsecutive terms.

however, Twitter revised its policy and made the entire archive of public tweets available for academic research. Aside from very recently published work by Ballard et al. (2022), this dissertation comprises one of the largest collection of tweets from members of Congress.

One concern is that we might have missing data because of members deleting tweets. Only tweets that are posted to a user's timeline at the time I accessed the API are accessible, meaning any deleted tweets or tweets from protected accounts are missing. As displayed in Table 2.2, 34 representatives have protected or deleted their Twitter accounts after leaving Congress. However, members who maintain active Twitter accounts (i.e. the account is still live and not deleted or protected) rarely delete meaningful tweets. ProPublica's "Politwoops" project tracks tweets deleted by members of Congress.[17] Despite the rare media story of a member being pressured to delete a tweet containing a political gaffe or offensive language, a quick scan of members' deleted tweets shows that the vast majority are deleted because they contain a typo. In most instances, the tweet containing the typo is deleted and re-posted by the member with a corrected tweet. In other words, conditional on a member having an active account, missing data from deleted tweets is not a large concern.

Table 2.3: Types of Tweets Posted by Chamber

| | Total | Originally Authored | Retweet | Reply | Quote |
|---|---|---|---|---|---|
| House | 3,631,518 | 2,222,347 | 863,704 | 286,491 | 258,976 |
| | | (61.19%) | (23.78%) | (7.89%) | (7.13%) |
| Senate | 1,350,737 | 923,068 | 219,124 | 119,619 | 88,926 |
| | | (68.34%) | (16.22%) | (8.86%) | (6.58%) |

What text from tweets should be included as member statements? There are four different types of tweets a user can post: originally authored tweet, retweet, reply tweet, or quote tweet. Table 2.3 displays the total number and percentage of representatives and senators' tweets by tweet type. An originally authored tweet is a stand-alone post, currently capped at 240 characters or fewer.[18] This type of tweet makes up the majority (61%) of all tweets that were sent by representatives. Retweets, when a user re-post another user's tweet to their own timeline, is the next most common tweet (24%). Retweets are the only type of tweet where the user is not creating new content, but is simply re-posting someone else's content. While some previous work has excluded retweets (Barber and Pope 2019; Hemphill, Russell and Schöpke-Gonzalez 2020), I chose to include the text

[17] `https://projects.propublica.org/politwoops/`

[18] While Twitter originally restricted tweet lengths to 140 characters, beginning in November 2017 the platform increased the character limit to 240 characters.

of retweets as if it was said by the member. As *Real Housewife* Meredith Marks said, "retweeting something is as good as saying it."[19] Next, a reply tweet is when a user's tweet directly responds to another user's tweet, reply tweets comprise 8% of representative's activities. In this instance, the original tweet is not re-posted to the user's timeline, but other Twitter users can see the text of the original post as a reference on their own Twitter feed. Only the text of the reply tweet, not the text of the original tweet, is included as the member's tweet. Finally, a quote tweet is a hybrid of a retweet and a reply tweet. In a quote tweet a user retweets another user's tweet and adds a new comment, such that from their timeline both the original tweet and the new text is visible within a single tweet. These tweets are the least common and make up about 7% of activities. Whereas retweets are blind endorsements of whatever content is in the original tweet, members often quote tweets that they disagree with. As such, only the added text by the member is included as member's speech. In short, all messages members posted to Twitter are included as if said by the member and I assume collectively presents an image of the representative.

The work presented in this dissertation crucially rest on the premise that Twitter is a key messaging platform for members of Congress to present themselves to their constituents and the larger public. If members have incorporated Twitter into their communication strategies and it has become a crucial mechanism for reaching and presenting themselves to voters, then we should see members increasingly using Twitter over time. We have already established that members increasingly adopted Twitter from 2009-2020, and members have posted a greater number of tweets with each passing year. Figure 2.3 shows the total number of tweets sent in each Congress, from the 111$^{\text{th}}$ Congress (2009-2010) though the 116$^{\text{th}}$ Congress (2019-2020). representatives collectively posted 70,838 tweets during the 111$^{\text{th}}$ Congress, when Twitter was still a relatively new social media platform and members were first joining the site. In the following two years, representatives more than tripled the number of tweets they posted. And in the 116$^{\text{th}}$ Congress alone, representatives tweeted over *one million times*. The drastic increase in tweeting demonstrates the growing importance of Twitter for representatives to present themselves to constituents, influence media coverage of themselves and Congress, and promote their legislative work.

In addition to an overall increase in tweeting, there is a predictable pattern in how often members of Congress tweet given the electoral cycle. Figure 2.4 displays the total number of tweets sent each month from January 2009 through December 2020. Members are less active on Twitter in November and December and the decline is particularly pronounced during an election year. This period after an election on the first Tuesday in November and before the start of the new Congress on January 3$^{\text{rd}}$ of the new year, is the "lame-duck session" when the new Congress has been elected but has yet to be sworn in. Reelected representatives have fewer incentives to tweet messages at

[19] *Real Housewives of Salt Lake City*, Season 2, Episode 1

potential voters having just won their election, and departing representatives no longer have a need to continue to present themselves to their soon-to-be former constituents. When a new Congress begins, members drastically increase tweeting at the start of the new Congress, beginning in January of odd-numbered years. representatives and parties begin constructing their new legislative agenda for the next two years and they turn to Twitter to post about the policy ideas they hope to pass. The start of the new Congress usually introduces a new president (January 2017) or a new House majority (January 2019 and January 2011), where the change in party power induces significant Twitter activity.

Members' Twitter activity also varies predictably with when the House is in session and during typical working hours, demonstrating that members are using Twitter to communicate their work in Congress to their constituents when they can't be in the district. Figure 2.5 displays the total number of tweets posted by representatives in each week during 2019, the first session of the $116^{\text{th}}$ Congress. Tweeting noticeably declines when the House is not in session, for example during the third weeks of February and March, the last month of May, the first week of July, the first two weeks of October, the final week of November, and the final two weeks of December. Both chambers of Congress have traditionally not met during the month of August, a period deemed the August recess. The practice originally began to avoid the summer heat before air conditioning, and a mandatory summer break was made permanent in the 1970 Legislative Reorganization Act.[20] The August recess is traditionally the time members return to the districts and spend time with their constituency, and consequently they tweet less. In 2019, the August recess started in the final week of July and lasted through the first week of September, during which members collectively posted 2,000 fewer tweets compared to the weeks immediately preceding and following the recess.[21] Twitter serves as a substitute for when representatives can't be in the district, communicating their presentations of self when they are unable to do so in person.

If members are using Twitter to communicate their legislative work and post messages related to their professional responsibilities, most tweeting should occur during the work week and during normal business hours. Figure 2.6 shows the number of tweets members sent during the week of March 11, 2019, during which the House was in session, and Figure 2.7 shows the number of tweets sent throughout the day on Wednesday, March 13, 2019. We see that members are most active on Twitter Monday through Thursday when the House was in session, and usage declines beginning on Friday as members return to their districts for the weekend. Members also post most of their tweets from the hours of 9 AM to 4 PM when they are at work presumably representing their constituencies.

[20] https://www.senate.gov/artandhistory/history/common/generic/News_August_Recess.htm
[21] https://ballotpedia.org/116th_Congress_legislative_calendar

Figure 2.3: Number of Tweets by Congress, $111^{th}$ - $116^{th}$ Congress

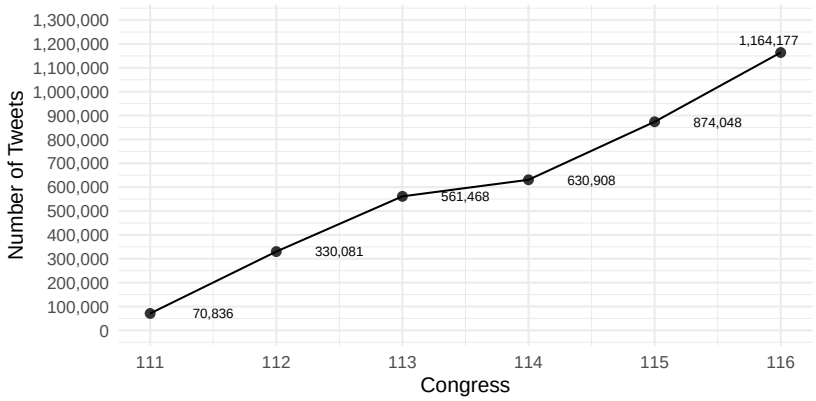



Figure 2.3: Displays the total number of tweets posted by representatives in each congress from the $111^{th}$ through the $116^{th}$ Congress.

Figure 2.4: Number of Monthly Tweets, 2009-2020

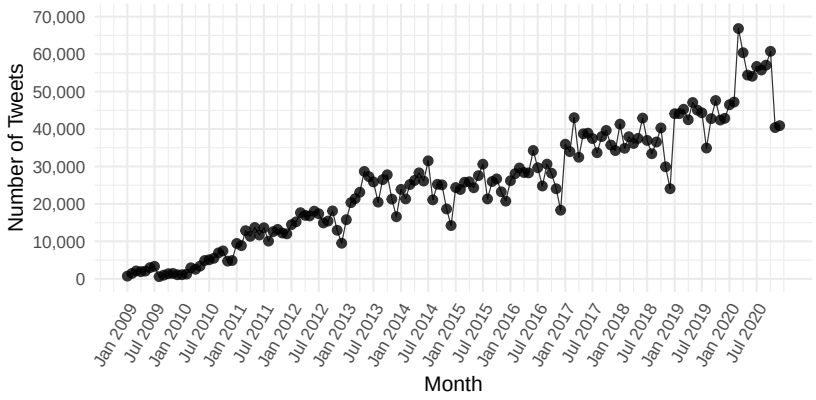



Figure 2.4: Displays the total number of monthly tweets posted by representatives from 2009-2020.

Twitter has become an invaluable resource for members of Congress to fulfill their representational duties and present themselves to their constituents. Representatives' most valuable resource is time. Representatives would not increasingly adopt and post messages to Twitter if they did not believe doing so would enhance their reelection chances by connecting with constituents, communicating their ideas, and conducting regular office and campaign activities. In this section, we established that members of Congress do in fact see the value in tweeting and have drastically increased how often they post to Twitter. Moreover, we established that Twitter acts as a substitute

Figure 2.5: Number of Weekly Tweets, 2019

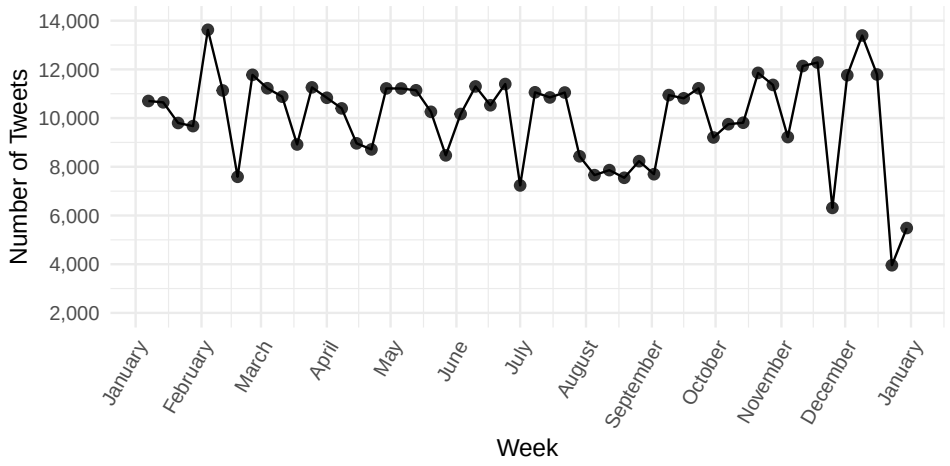



Figure 2.6: Number of Daily Tweets, March 11, 2019 - March 17, 2019

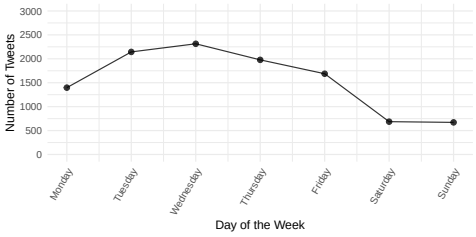
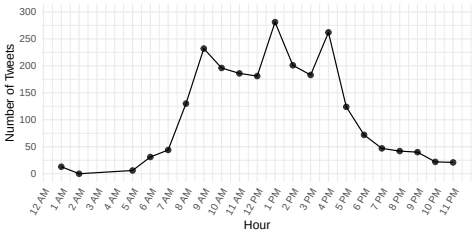



Figure 2.7: Number of Hourly Tweets, Wednesday March 13, 2019




Figures 2.5, 2.6, and 2.7: Displays the total number of weekly (top), daily (bottom left), and hourly (bottom right) tweets posted by representatives at various time intervals in 2019.

for in-the-district activities. Modern members of Congress are able to establish their presentations of self online, and reach a greater number of constituents, in addition to their presentations of self in the district. While representatives are in D.C., members post more tweets, communicating their Washington work and reinforcing their desired presentations for voters back home.

The following section briefly addresses a potential challenge in using Twitter data as the source for studying members' presentations of self: partisan differences in the frequency of tweeting. Subsequent chapters will offer additional theory and analysis to explain why Democrats over time have become more prolific tweeters than Republicans, but it is worth addressing and being transparent about the partisan differences and changes over time at the onset.

### 2.1.3 Party Differences in Tweeting Frequency

In the first eight years of my data, Democrats and Republicans posted roughly equal number of tweets. However, beginning in 2017 Democrats collectively became significantly more active on Twitter compared to their Republican colleagues. This section will briefly describe this trend, and offer two explanations for the drivers of partisan differences in tweeting frequency. First, Democratic Party voters are more likely to be on Twitter, making the platform more efficient for reaching Democratic voters than Republican voters who are more concentrated on social media sites such as Facebook. Second, the Democratic Party pushed its members to increase their online messaging in response to losing the 2016 election, and freshman Democratic lawmakers were leaders in the increase. Further analysis in subsequent chapters confirms these initial hypotheses.

Figure 2.8: Number of Monthly Tweets by Party, 2009-2020

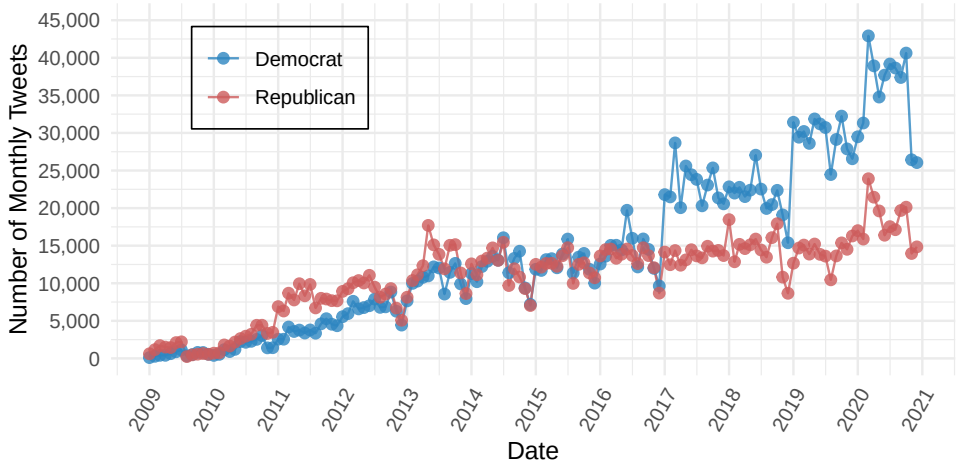



Figure 2.8: Displays the total number of monthly tweets posted by Democratic (blue) and Republican(red) representatives.

Figure 2.8 displays the total number of tweets posted in each month from the start of the 111$^{th}$ Congress to the conclusion of the 116$^{th}$ (2009-2020) for Republican and Democratic lawmakers. While fluctuations in tweeting volume are generally mirrored in the opposite party, the total number of tweets sent by Democrats drastically increased beginning in 2017. Prior to the 114$^{th}$ Congress, Democrats and Republicans collectively posted on Twitter equally. If anything, Republicans were more active on Twitter during the 112$^{th}$ Congress after regaining majority control of the House during President Obama's first term. In 2011, Democrats posted around 5,000 tweets a month, while Republicans collectively tweeted nearly twice that rate. From 2013-2016, members of both parties posted nearly the same total number of tweets, between 7,500 and 15,000, each

month. However, beginning in the 115$^{th}$ Congress, Democrats began tweeting significantly more than Republicans. While Republicans continued tweeting at roughly the same rate, posting on average 10,000 tweets a month, Democrats dramatically increased how frequently they tweeted. At the start of the 115$^{th}$ Congress, in January 2017, Democrats began tweeting on average around 25,000 times a month. And in the 116$^{th}$ Congress they once again increased their Twitter activity, posting as many as 42,500 tweets in a single month.

Figure 2.9: Distribution of Number of Representatives' Tweets by Party, 111$^{th}$ - 116$^{th}$ Congress

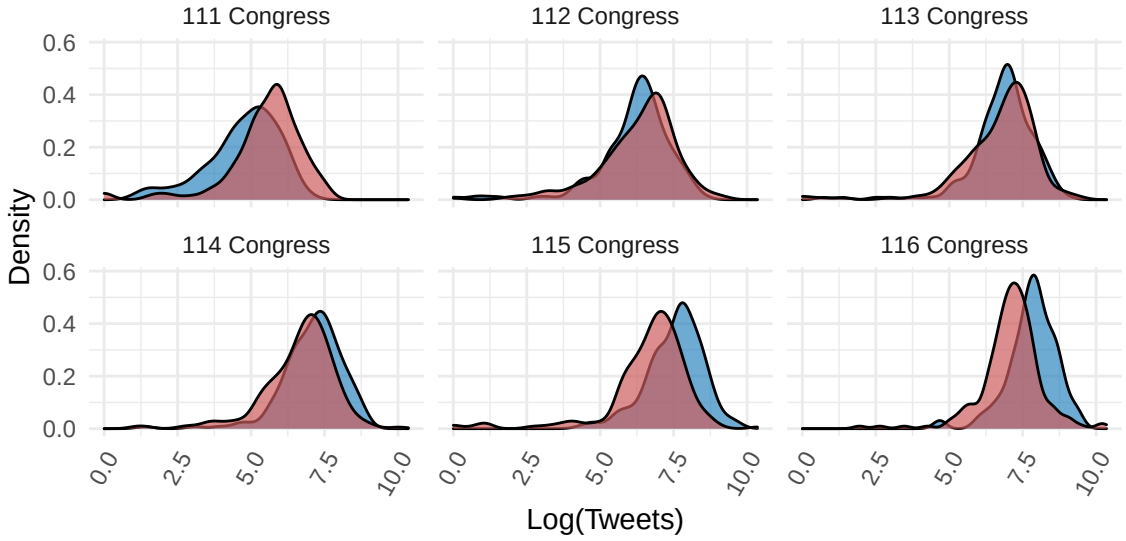



Figure 2.9: Displays the distribution of the logged total tweets posted by Democratic (blue) and Republican (red) in each Congress.

Figure 2.9 depicts the distribution of the logged total number of tweets posted by Republicans and Democrats for each Congress. The distributions of members' tweets by party are closely overlapping from the 111$^{th}$-114$^{th}$ Congress (2009-2016) and the range of Twitter activity for members of both parties is distributed approximately normally. In the 115$^{th}$ Congress (2017-2018) and 116$^{th}$ Congress (2019-2020), the distribution of Democrats' tweeting frequency shifts rightward relative to the distribution of Republicans' tweeting frequency, indicating that a greater share of Democrats are posting more frequently than Republicans. A Tukey's Honest Significant Differences (HSD) test on an Analysis of Variance (ANOVA) of the distribution of tweets sent by members of both parties shows that there was no statistically significant difference between Democrats and Republicans from the 111$^{th}$-114$^{th}$ Congress. But the distribution of tweets between Democrats and Republicans is statistically different from the 115$^{th}$-116$^{th}$ Congress at the 1% confidence level. Is the increase

in Democrats tweeting a function of newly elected Democrats, or did all Democrats change their behavior?

There has been significant news coverage on the younger, diverse, and tech-savvy Democratic Freshman following the 2016 and 2018 elections. Members like Ro Khanna (CA), Pramila Jayapal (WA), and Alexandria Ocasio-Cortez (NY) were praised for their ability to connect with voters and effectively message using Twitter. Despite the outsized news coverage these Democrats receive, Democrats are, on average, older than Republicans in each of the six Congresses. And the average age of freshman Democrats in each Congress is older than the average age of freshman Republicans. Table 2.4 displays OLS regression results for the predicted relationship between the interaction of party and freshman status on the logged tweets sent by each member in each of the six Congresses. Starting in the 114$^{\text{th}}$ Congress, Democrats posted more tweets than Republicans. For example, in the 115$^{\text{th}}$ Congress, Democrats posted 124.12% more tweets than Republicans. Only in the 115$^{\text{th}}$ Congress did freshman post more tweets than non-freshman lawmakers, but freshman Democrats were no more likely to be more active on Twitter than their more senior caucus members. Representatives elected in 2016 posted 77% more tweets than non-freshman, after controlling for party. Members who were first elected in the 2016 election, when Donald Trump effectively ran his presidential campaign from his personal Twitter account, were likely already experienced tweeters using the platform to run their campaigns and then continued to rely on Twitter to conduct office communications.

There are two explanations for the shift. First, Democratic voters are more likely to be on Twitter. Twitter's user base is more liberal and more urban than the general public (Wojcik and Hughes 2019; Barberá and Rivero 2015) – and Democrats represent more liberal and urban constituencies than Republicans. Twitter is a more effective platform for Democrats to reach constituents, and newly elected Democrats are more likely to have initially run for office with a digital messaging strategy that they continue into their role as members of Congress. Second, the Democratic Party has pushed members to frequently use Twitter and moved to coordinate party messages on the platform. Following the 2016 elections, Democrats' tweeting nearly doubled. This was a strategic decision by the party to increase the visibility of their policy agenda and present the party as the governing alternative to the Trump Administration (Democratic Congressional Campaign Committee 2018). Table 2.4 suggests that while freshman were perhaps leading the way to harness the messaging power of Twitter in the 115$^{\text{th}}$ Congress, these members both continued to serve in the 116$^{\text{th}}$ and the Democratic Caucus at large also adopted their strategy. Chapter 3 goes into greater detail about why the Democratic Party increased their Twitter use and the types of messages Democrats decide to post.

Table 2.4: Freshman Influence of Tweeting Frequency by Congress

| | Dependent Variable: | | | | | |
|---|---|---|---|---|---|---|
| | Log(Tweets) | | | | | |
| | $111^{th}$ | $112^{th}$ | $113^{th}$ | $114^{th}$ | $115^{th}$ | $116^{th}$ |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Freshman | 0.317 | 0.074 | 0.291 | 0.205 | 0.571*** | 0.089 |
| | (0.344) | (0.189) | (0.219) | (0.186) | (0.216) | (0.186) |
| Democrat | −0.764*** | −0.105 | 0.134 | 0.446*** | 0.807*** | 0.704*** |
| | (0.180) | (0.163) | (0.142) | (0.119) | (0.118) | (0.095) |
| Freshman*Democrat | −0.087 | 0.316 | −0.150 | 0.493 | −0.008 | 0.281 |
| | (0.449) | (0.454) | (0.296) | (0.360) | (0.332) | (0.277) |
| Constant | 5.446*** | 6.266*** | 6.663*** | 6.637*** | 6.674*** | 7.098*** |
| | (0.131) | (0.121) | (0.095) | (0.082) | (0.081) | (0.071) |
| Observations | 242 | 356 | 398 | 403 | 423 | 428 |
| Adjusted $R^2$ | 0.078 | −0.004 | 0.001 | 0.049 | 0.125 | 0.137 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

How big of a problem does the partisan differences in tweeting frequency pose for understanding the Twitter behavior of representatives? The work presented throughout the dissertation largely focuses on individual level Twitter behavior, so as long as Republican legislators are tweeting enough then the partisan differences are not a large concern. This assumes that Republicans, while maybe tweeting less, are still posting relevant messages to create their desired presentation of self. Examining the distribution of Republicans' tweeting frequency in the $116^{th}$ Congress in Figure 2.9 shows that Republicans also increased their Twitter activity following the 2018 election. From 2019-2020, the distribution of both parties' tweeting frequency is more tightly distributed around the mean and further right: suggesting that as members adapt to Twitter they are both using Twitter more and increasingly tweeting at similar rates. In 2019, Republicans posted between 10,000 and 15,000 tweets per month and in 2020 they posted between 15,000 and 25,000 tweets. While still trailing Democrats tweeting frequency, Republicans are increasing how much they tweet and the Twitter behavior of all members of Congress has yet to decline. The partisan differences observed after 2016 might simply be a short term trend as a result of Democrats' messaging strategy and larger political context (i.e. Trump's presidency). It is possible we see the opposite trend emerge when Democrats regained control of the White House following the 2020 election.

This concludes our discussion of partisan differences in tweeting (for now). In the remainder of this chapter will explore how individual representatives use Twitter. The aim is largely descriptive:

to understand how often and with what success members of Congress use Twitter. I also establish that Twitter is a valuable platform for members, as evidence by the continued increase in tweeting by nearly all members of Congress, and that the value of Twitter lies in the platform's ability for members to reach a larger audience, as evidenced by the high levels of user engagement. To begin, the following section analyzes how often individual members of Congress tweet.

### 2.2 Representatives' Twitter Activity

As discussed in Section 2.1.2, representatives have collectively posted more tweets with each proceeding Congress. Members of Congress possess limited time and resources, and reelection driven members should dedicate their resources towards the activities that best serve their reelection interest. As such, members wouldn't post to Twitter if they didn't believe it served their reelection interest. One concern might be that while the overall rate of tweeting has increased over time, the increase may be driven by a few prolific tweeters. This is not the case. Nearly all members of Congress increase how frequently they tweet year after year. This section further justifies the importance of Twitter to member's reelection by showing both the high volume of tweets and the steady increase in tweeting from individual representatives. On a more technical note, I establish that there are a sufficient number of tweets for each individual representative to measure their digital presentations of self over time. I begin by examining individual variation in tweeting frequency and then explore what individual characteristics are correlated with tweeting frequency.

Representatives post, on average, around 1,600 times per Congress.[22] And the average number of tweets posted in each Congress has steadily increased over time. For example, in the $111^{\text{th}}$ Congress, members on Twitter posted 293 tweets on average, and in the $116^{\text{th}}$ they sent 2,707 tweets on average. Individual members vary considerably in how often they tweet. In a single Congress, members range from tweeting only a few hundred times to posting over 31,000 times in a single Congress – Billy Long (R-MO) is by far the most prolific tweeter among representatives, posting nearly 100,000 tweets from 2011 and 2021. Table 2.5 shows the 10 representatives with the most total tweets posted. Members who served in later Congresses, for a greater length of time, and are Democrats are more likely to be represented in the Table. Many of these lawmakers are among those we most associate with Twitter: "the squad" member Pramila Jayapal (D-WA), Barbara Lee (D-CA), and Joaquin Castro (D-TX), who ran for president in 2020. The most followed Alexandria Ocasio-Cortez (D-NY) posted over 6,000 tweets in her first two years in the House and Twitter famous Matt Geatz (R-FL) posted over 15,000 tweets from 2017-2020. These representatives have built strong reputations on Twitter and appear to prioritize their digital messaging in their role as

[22] I am agnostic about which specific account a tweet is sent and aggregate tweets across accounts for each representative. If a representative moves to the Senate or serves nonconsecutive terms, these tweets are not included.

representatives.

Table 2.5: Ten Most Active Representatives on Twitter

| Representative | Tweets | Congresses on Twitter |
|---|---|---|
| 1.Billy Long (R-MO) | 93,243 | $112^{th}$-$116^{th}$ |
| 2. Ileana Ros-Lehtinen (R-FL) | 34,286 | $111^{th}$-$116^{th}$ |
| 3. Donald S. Beyer (D-VA) | 28,648 | $114^{th}$-$116^{th}$ |
| 4. Joaquin Castro (D-TX) | 28,522 | $113^{th}$-$116^{th}$ |
| 5. Barbara Lee (D-CA) | 28,239 | $111^{th}$-$116^{th}$ |
| 6. Pramila Jayapal (D-WA) | 28,098 | $115^{th}$-$116^{th}$ |
| 7. David N. Cicilline (D-RI) | 27,301 | $112^{th}$-$116^{th}$ |
| 8. Chip Roy (R-TX) | 26,986 | $116^{th}$ |
| 8. W.M. Lacy Clay (D-MO) | 26,267 | $112^{th}$-$116^{th}$ |
| 10. Keith Ellison (D-MN) | 25,745 | $111^{th}$-$116^{th}$ |

However, these high-volume tweeters are, of course, outliers. How active are *most* representatives on Twitter? Across these six Congresses, the median representative sent 1,030 tweets and the average representative sent 1,600 tweets in a Congress. To put this into prospective, the average senator issues fewer than 250 press releases a year (Grimmer 2013*a*), and the average representative introduces fewer than 17 bills and give fewer than 10 one-minute speeches per Congress (Maltzman and Sigelman 1996; Morris 2001). All this tweeting yields an impressive volume of text data. The average text length of members' tweets is 144 characters and the average sentence is between 75-100 characters, so if members post 800 tweets a year, on average, this translates to approximately 1,317 sentences of text per member per year. Given the character restrictions of tweets, members cannot mince words, so the text data collected from these tweets is rich and dense.

Over time, members of Congress have steadily increased how frequently they post to Twitter. Figure 2.10 displays the range of tweets sent by representatives in each Congress. The median number of tweets sent by House members is increasing over time, indicating that the overall increase in tweeting is not driven exclusively by the few high-volume tweeters. The middle 50% of tweeters in the $113^{th}$ Congress, for example, sent between 550 and 1,800 tweets, in the $115^{th}$ Congress they sent between 700 and 2,520 tweets, and by the $116^{th}$ Congress they sent between 1,000 and 3,200 tweets. Of representatives serving multiple terms, 86.7% increased how frequently they posted to Twitter while serving in the House and 67% of the time they posted more tweets than they did in the previous Congress.[23] Members, on average, posted 411.2 more tweets with each successive Congress. If Twitter was not a useful and important tool for members of Congress to present themselves, disseminate messages, and advertise themselves to their constituents, they would not

[23]This excludes representatives who did not serve a full term.

be continuously using and increasing their Twitter activity. Twitter is not simply a platform for the relatively few Twitter famous representatives, but is widely used by nearly all representatives for communication.

Figure 2.10: Boxplot of Number of Tweets by Congress, $111^{th}$ - $116^{th}$ Congress

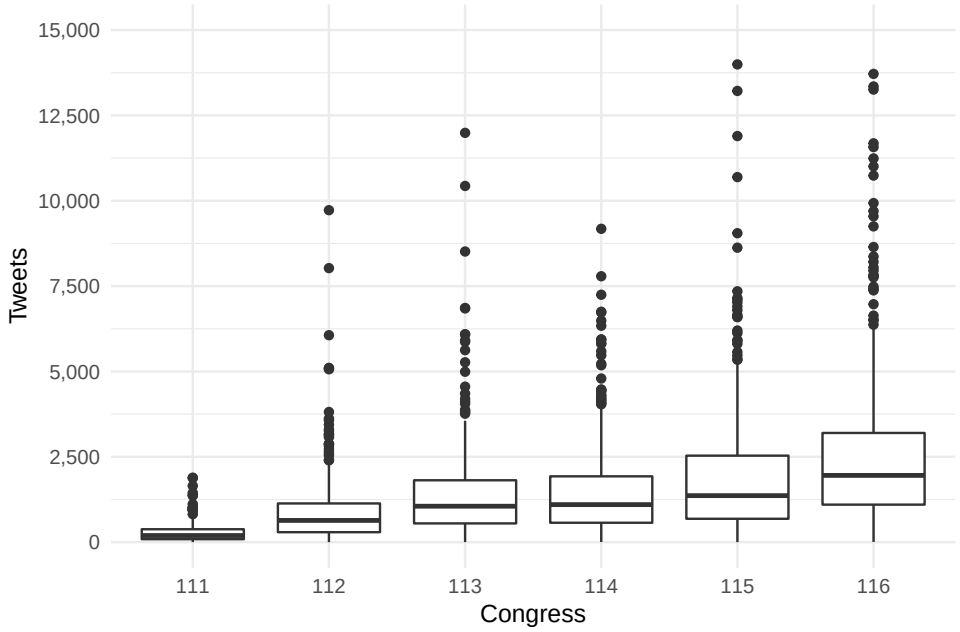



Figure 2.10: Displays the $25^{th}$ percentile, median, $75^{th}$ percentile, and potential outliers of the tweeting frequency of representatives in each congress. Representatives who tweeted more than 15,000 times in a single congress were excluded from the figure to better display the number of tweets posted by the majority of representatives.

One potential problem is that low-volume tweeters might not provide enough text data to provide an accurate depiction of their digital presentations of self. For instance, the bottom 25% of representatives on Twitter post fewer than 430 tweets per Congress. I define a low-volume tweeter as any member where they posted fewer than 100 tweets during a single Congress. Observations where a member post fewer than 100 tweets does not yield sufficient text data to accurately capture their messaging priorities and estimate their presentations of self, and are subsequently excluded from preceding analysis. The purpose of exploring which members are low-volume tweeters and for how long is, first, to clarify how many members are dropped from future analysis and, second, to understand under what circumstances members are not actively using Twitter.

There were 30 members sent less than 100 tweets in every Congress they served in, 21 of which

only served one Congress.[24] There are 116 individuals who sent less than 100 tweets in only one Congress, but otherwise posted a greater number of tweets. Most often, low-Twitter activity is circumstantial. Low-volume tweeters are more common in early Congresses, where members might have opened a Twitter account but had yet to start actively tweeting. In addition, 53 members sent less than 100 tweets only during the 111$^{th}$ Congress (2009-2010) when Twitter was first introduced – 48 of which joined Twitter *after* being sworn in and, on average, were a full year into their term before joining Twitter. For example, Rep. Debbie Wasserman-Schultz (D-FL) joined Twitter in February 2010 and sent only 97 tweets during the remaining ten months of the 111$^{th}$ Congress. But during the 112$^{th}$ Congress she sent 2,540 tweets and continued to tweet above the median member in future Congresses. In other cases, members tweet less than 100 times because they only serve for a short period of time within a single Congress, either because they resigned their seat or were elected midterm to fill a vacated seat. Twenty-two of the low-volume tweeters served less than a full term, serving for 5 months on average. The remaining 41 low-tweeters are members who just don't tweet a ton in general – in most Congresses they send a few hundred tweets and sometimes they only found time to send a couple dozen tweets.

Table 2.6 summarizes the availability and amount of Twitter data for House members by each Congress. The Table reports the number and percentage of representatives in each Congress who either did not have a Twitter account (tweets = 0) or posted too few tweets to say anything with confidence regarding their digital presentations of self (tweets < 100) – which together represent the share of representatives who are excluded from the preceding analysis. Over time, the share of representatives either not using Twitter or not frequently using Twitter quickly declines. The number of representatives not using Twitter drops by half between the 111$^{th}$ and 112$^{th}$ Congress, as members quickly adopted Twitter. All members had opened a Twitter account by the 115$^{th}$ Congress, but 22 members in the 115$^{th}$ and 12 in the 116$^{th}$ have since deleted these accounts or did not post any tweets during the Congress. This is often a result of members leaving Congress early within their term to serve an appointed position in the executive branch, and therefore had stopped tweeting from their congressional Twitter accounts. Similarly, the share of low-volume tweeters quickly declines as Twitter becomes an important political messaging platforms and members incorporated the platform into their regular office activities. In every Congress besides the 111$^{th}$ there are sufficient tweets to accurately measure the digital presentations of self for 72-96% of representatives. For the 172 representatives who were actively using Twitter during the 111$^{th}$ Congress, it is still worth understanding their presentations during this period of time, but with the caveat that it represents a minority of members overall.

We also see from Table 2.6 that a greater share of representatives are posting over a thousand

[24] Table 7.3 in Appendix 7 lists these chronically low-volume tweeters.

Table 2.6: Summary of Representatives' Twitter Activity by Congress

| Congress | Total Members | Tweets = 0 | Tweets < 100 | 100 ≤ Tweets < 1,000 | 1,000 ≥ Tweets |
|---|---|---|---|---|---|
| 111th | 445 | 203 | 70 | 163 | 9 |
| | | (45.62%) | (15.73%) | (36.63%) | (2.02%) |
| 112th | 445 | 88 | 36 | 214 | 107 |
| | | (19.78%) | (8.01%) | (48.09%) | (24.05%) |
| 113th | 444 | 46 | 15 | 170 | 213 |
| | | (10.36%) | (3.38%) | (38.29%) | (47.97%) |
| 114th | 441 | 35 | 17 | 162 | 227 |
| | | (7.94%) | (3.85%) | (36.73%) | (51.47%) |
| 115th | 450 | 22 | 16 | 139 | 273 |
| | | (4.89%) | (3.56%) | (30.89%) | (60.66%) |
| 116th | 442 | 12 | 5 | 91 | 334 |
| | | (2.71%) | (1.13%) | (20.59%) | (75.57%) |

Note: tweets = 0 reports the number of representatives who did not have active Twitter account, have since deleted or protected their account, or did not post any tweets.

tweets per Congress, translating into multiple tweets a day. By the 114th Congress (2015-2016) a majority of members sent over 1,000 tweets and during the 116th (2019-2020) 75% of members sent over 1,000 tweets. Not only do we have sufficient text data to accurately capture representatives digital presentations of self – with the overwhelming majority of members posting over 100 tweets per Congress – but an increasing share of representatives are posting to Twitter multiple times a day. Despite the general distaste for the role Twitter plays in modern politics, members of Congress continue to use the platform and there appears to be no signs of slowing down.[25] Twitter is not just a place for the relatively few Twitter famous members, but is widely used as a communication tool for nearly all U.S. House members today.

Now that we have established there are a sufficient volume of tweets per member per Congress to support examining individual members' presentations of self, the remainder of this section will examine what individual characteristics are correlated with tweeting frequency. Examining which members find it valuable to invest time and resources to tweeting provides insight into what purpose Twitter serves members of Congress. If Twitter is used by members of Congress in similar ways as other more traditional communication mediums, such as press releases or floor speeches, then we should observe similar relationships between individual characteristics and tweeting frequency as we do in congressional communication literature.

The prevailing belief is that Twitter is dominated by the ideologically extreme and generally

[25] https://www.theatlantic.com/letters/archive/2020/02/twitter-is-bad-for-the-news/605782/
https://www.latimes.com/politics/newsletter/2021-03-24/twitter-turns-15-trump-obama-essential-politics
https://www.politico.com/news/2021/12/10/twitter-warped-politics-524059

contributes to a polarized and toxic political climate (Wojcik and Hughes 2019; Pew Research Center 2020). Academic work has generally confirmed this, finding that both ideologically extreme members of Congress (Straus, Williams, Shogan and Glassman 2016; Hong, Choi and Kim 2019) and regular Twitter users (Barberá 2015) are more likely to tweet. Figure 2.11 plots the first dimension DW-Nominate score of representatives of the 116$^{\text{th}}$ Congress and the number of tweets posted. We see a positive bivariate relationship between ideological extremism and tweeting, particularly among Democratic lawmakers.[26]

Figure 2.11: Number of Representatives' Tweets by First Dimension DW-Nominate Score, 116$^{\text{th}}$ Congress

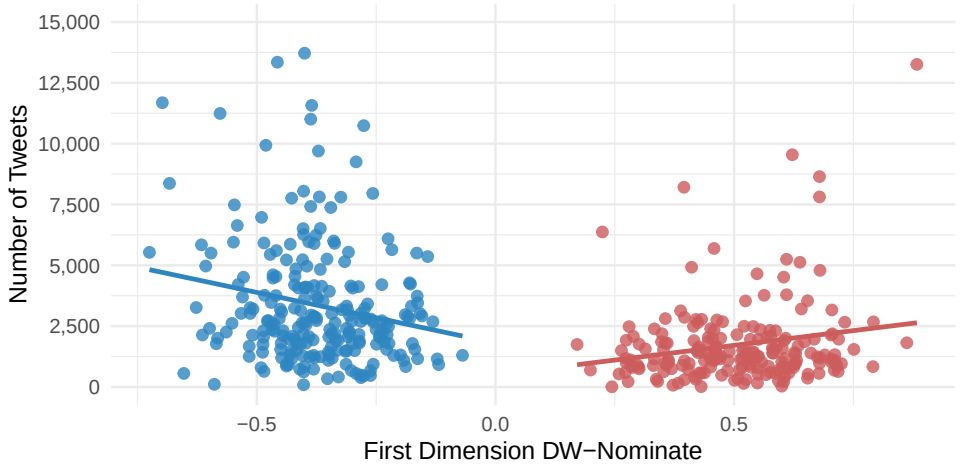



Figure 2.11: Displays the relationship between Democratic (blue) and Republican (red) representatives number of tweets and their first dimension DW-Nominate score. Line displays the estimated bivariate relationship ($y$ $x$).

The following ordinary least square regression, displayed in Table 2.7, regresses the logged total number of tweets a member sent in a Congress, including those without Twitter or with zero tweets, on individual member characteristics.[27] Ideologically extreme members, measured as the absolute distance in first dimension DW-Nominate from their party median, post more to Twitter all else equal. A one-unit change in extremism, equivalent from moving from one of the most moderate to most extreme members of the party, is associated with 280 more tweets, a 76% increase in tweeting. Twitter does appear to be a platform dominated by the ideologically extreme, but that wasn't necessarily always the case. Running the model separately by Congress shows that the

[26] Regressing the log number of tweets on an interaction between party and ideological extremism does not find a statistically significant difference for the effect of ideological extremism between parties.

[27] Because the log of 0 is undefined members with 0 tweets were recoded to have posted 1 tweet ($log(1) = 0$).

coefficient for ideologically extreme members is only significant in the 111$^{th}$, 115$^{th}$, and 116$^{th}$ Congresses.[28] This perhaps signifies that as Twitter has become an important social media platform for politics and political hobbyists, ideological extreme members have greater incentive to participate and shape the political conversation among a user base that already shares their political preferences. Assuming that ideologically extreme members are posting messages that reflect their political preferences, this would have the effect of distorting the public's perception of Congress and politics more generally. To preview future results, ideologically extreme members are more likely to post position-taking messages on Twitter, to adopt highly partisan presentations of self, and to tweet about partisan legislation than more moderate members. If more extreme members are more likely to take positions and emphasis certain policy issues over others on Twitter, then the overall impression of Congress and policymaking will appear more extreme and partisan than reality.

Turning our attention to additional insights from Table 2.7, we should expect that Democrats should tweet more than Republicans, given the discussion in Section 2.1.3. All else equal, Democrats post 38.68% more tweets than Republicans. Running the model separately by Congress shows that Democrats are predicted to tweet from 60.27% fewer tweets than Republicans in the 111$^{th}$ Congress to 281.14% in the 116$^{th}$ Congress. Democrats are predicted to post more tweets than Republicans from the 113$^{th}$ to 114$^{th}$ Congress, although the predicted magnitude of the effect varies. This suggests that the high-level of tweeting among Democrats is both independent of majority status and the president's party, and is a result of the strategic benefit Twitter uniquely provides Democrats and internal strategy of the party.

While traditionally the president is expected to be the primary agenda setter, congressional parties are able to compete with the president in agenda setting and attempt to influence the opinions of the public through party messaging (Sinclair 2006). The minority party, deprived of formal agenda setting power, is especially reliant on what Sinclair (2006) refers to as "PR Politics" to develop a clear message that articulates to voters why they should be elected as the majority party (Lee 2016). Previous work has found that minority party members are more likely to give one-minute floor speeches (Maltzman and Sigelman 1996; Morris 2001) and take positions through cosponsoring legislation (Koger 2003). We might then expect that Twitter is a more frequently used platform for minority party members to distribute party messages in the absence of formal agenda control. Consistent with what we expect, results from Table 2.7 shows that majority party members post 26.65% fewer tweets than their minority party members, even after controlling for party.

[28] Regression results by Congress are presented in Appendix 7.3.

Table 2.7: Correlates of Number of Representatives' Tweets

| | Dependent Variable: |
|---|---|
| | Log(Tweets) |
| Democrat | 0.325*** |
| | (0.093) |
| Majority | −0.278*** |
| | (0.091) |
| Vote Share | 0.287 |
| | (0.362) |
| Party Leader | 0.504*** |
| | (0.189) |
| Committee Chair | 0.270 |
| | (0.202) |
| Legislative Effectiveness | 0.092* |
| | (0.056) |
| Extremism | 1.365*** |
| | (0.324) |
| Female | 0.127 |
| | (0.109) |
| Seniority | −0.041*** |
| | (0.012) |
| Age | −0.018*** |
| | (0.005) |
| Accounts | 1.173*** |
| | (0.072) |
| Congress Fixed Effects | YES |
| Constant | 1.875*** |
| | (0.380) |
| Observations | 2,648 |
| Adjusted $R^2$ | 0.404 |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 |

We also expect that party leaders should be more active tweeters than rank-and-file members. Twitter is a useful platform for party leaders to provide policy cues to copartisan representatives and voters, promote the party's brand, and influence public opinion. Maltzman and Sigelman (1996) found that House party leaders gave longer floor speeches than rank and file. My results indicate that party leaders are also more likely to tweet than rank-and-file, posting 66.03% more tweets all else equal. If Twitter provides an additional communication platform for party leaders to shape the party's image for voters, interested publics, journalists, and the public at large, then party leaders should be more likely to take advantage of the site. Interestingly, the increased tweeting from party leaders is considerably weaker in later Congresses as Twitter became a necessary tool for all members of Congress to conduct regular office and communication activity regardless of leadership status. While party leaders were early to harness the power of tweeting, rank-and-file, perhaps under the pressure of party leaders, were quick to follow and increased tweeting over time.

The ability of members of Congress to amass millions of followers on social media platforms like Twitter begs the question if these Twitter famous politicians are driven more by celebrity status than legislating and representing their constituents. (Payne 1980) distinguished between members who gain publicity but do little legislative work (show horses) and those who enjoy little publicity but do a lot of legislative work (work horses). One possibility is that the members who are active on social media sites like Twitter are doing so at the expense of effective governing. For instance, Alexandria Ocasio-Cortez (D-NY) posted over 6,000 tweets in the 116$^{\text{th}}$ Congress, and while she introduced 21 bills in the House none of them received action in

Committee.[29] If this is in fact the case we might expect that more effective lawmakers and committee chairs, whose institutional role gives them increased control over legislative outcomes, would tweet less. All else equal, the pooled regression model displayed in Table 2.7 shows no statistically significant relationship between a member's Legislative Effectiveness (Volden and Wiseman 2014) or holding a committee chair and how many tweets they post. When estimating the model separately by Congress, we actually find a positive relationship between legislative effectiveness and tweeting frequency in several Congresses. There does not appear to be a trade-off between effective governing and messaging on Twitter. Members with key legislating positions within their committee assignments and members who are more successful at passing legislation are just as likely to devote their office and personal resources to Twitter as those less legislatively-inclined. In short, both work horses and show horses are equally using Twitter.

Social media use is generally associated with younger individuals, and so we might expect that younger members of Congress would be more likely to use Twitter. Younger members of Congress are more likely to be tech-savvy in general and have used Twitter in their initial campaigns for Congress, making Twitter more accessible and already integrated tool in their political careers. Accordingly, we find a statistically significant negative relationship between a member's age and how frequently they post to Twitter. More senior members are also less likely to post to Twitter, suggesting that more established members have less need to present themselves on social media.

In chapter 1 I argued that Twitter is a new communication platform that enables members of Congress to post the messages they would be communicating on the House floor or campaign trail. If this is true, then we should observe similar patterns in individual variation in Twitter use that we would for more traditional communication mediums. Consistent with previous literature, I find that party leaders, minority party members, and ideologically extreme members of Congress are more frequent tweeters. In addition, Twitter use is not dominated by show horses or celebrity-politicians, nor does Twitter use appear to be a distraction from lawmaking. It is not the case that Twitter operates as a distinct phenomenon in modern politics, but rather is simply a new tool for representatives to do what they have always done: communicate and present themselves to their constituents. With that, the following section examines the level of user engagement representatives receive on Twitter and establishes that representatives messages are widely followed and viewed by other Twitter users.

[29] Center for Effective Lawmaking: `https://thelawmakers.org/`

### 2.3 Representatives' Twitter Engagement

Members of Congress are collectively posting thousands of tweets a day, but is anyone actually seeing their tweets? If members of Congress are using Twitter to reach constituents and broadcast their messages to the public, then we should observe high levels of user engagement from other Twitter users, such as followers and retweets. Politicians are among the most followed accounts on Twitter, with presidents, congressional party leaders, and several high-profile representatives amassing millions of followers (Wojcik, Hughes and Remy 2019). The aim of this section is to demonstrate the extent members of Congress, not just the few well known Twitter famous ones, are receiving ample user engagement as a result of their tweeting.

In terms of followers and user engagement, Members vary with the success that they have on Twitter. The average representative Twitter account has 82,624 followers and the average senator account has 533,774 a difference that makes sense given the larger platform and constituencies of senators relative to representatives.[30] Members themselves follow less users: the average account follows about 1,500 users. A few legislators are wildly popular on Twitter amassing millions of followers and at the time the data was collected 25 representatives had over a million followers. Table 2.8 shows the 20 most followed representative accounts on Twitter. From this list of highly-followed lawmakers, we can gleam insight into what makes some members more popular on social media than others.

Congressional leaders are among the most followed members of Congress on Twitter, and, as I established previously, also more active tweeters. Each member who has served as Speaker of the House ranks among the most followed members. Speaker Nancy Pelosi (D-CA) and former Speaker Paul Ryan (R-WI) make the top three, former Speaker John Boehner (R-OH) ranks tenth with over 1.3 million followers, and current Majority Leader and former Speaker Kevin McCarthy (R-CA) just trails him with over 1.2 million followers. Running for President or Vice President also translates into Twitter followers, as evidenced by Representatives Beto O'Rourke (D-TX), Eric Swalwell (D-CA), and Paul Ryan's large followings. Representative Tulsi Gabbard (D-HI), who ran for the Democratic nomination in 2020, also has over a million followers and is the $18^{\text{th}}$ most followed House member. The top followed members of Congress also tend to be from larger states, such as California, Texas, and New York.

Also notable is the impressive audience of several young, liberal, women-of-color Democratic lawmakers, such as Representatives Ilhan Omar (D-MN), Rashida Tlaib (D-MI), and Ayanna Pressley (D-MA). Of this group, Representative Alexandria Ocasio-Cortez (AOC) (D-NY) is by far and away the most-followed member of the House, with almost twice as many followers as the next

[30] Representatives, excluding those from single district states, represent approximately 700,000 constituents.

most followed member, current Speaker Nancy Pelosi. On the conservative side, members who have reputations for their conservatism, social commentary, and firebrand status have outsized Twitter followings. These conservative firebrands include Representatives Jim Jordan (R-OH), Matt Gaetz (R-FL), Devin Nunes (R-CA), and Dan Crenshaw (R-TX). Rep. Gaetz's second Twitter account, @mattgaetz, also has just over a million followers, making him the only member with multiple accounts with over a million Twitter followers. Despite their collective junior status within Congress – excluding Reps. Jordan and Nunes who have greater seniority and have served in party and committee leadership – these young lawmakers have harnessed the power of Twitter to increase their visibility and media coverage, becoming some of the more nationally recognizable House members.

Table 2.8: Twenty Most Followed Representatives' Twitter Accounts

| Representative | Twitter Handle | Follower Count |
|---|---|---|
| 1. Alexandria Ocasio-Cortez (D-NY) | @AOC | 12,686,457 |
| 2. Nancy Pelosi (D-CA) | @SpeakerPelosi | 7,071,634 |
| 3. Paul D. Ryan (R-OH) | @SpeakerRyan | 3,522,493 |
| 4. Ilhan Omar (D-MN) | @IlhanMN | 2,977,347 |
| 5. Adam B. Schiff (D-CA) | @RepAdamSchiff | 2,932,123 |
| 6. Beto O'Rourke (D-TX) | @BetoORourke | 2,003,490 |
| 7. Jim Jordan (R-OH) | @Jim_Jordan | 1,984,927 |
| 8. Maxine Waters (D-CA) | @RepMaxineWaters | 1,657,134 |
| 9. Ted Lieu (D-CA) | @tedlieu | 1,608,142 |
| 10. John A. Boehner (R-OH) | @SpeakerBoehner | 1,339,001 |
| 11. Matt Gaetz (R-FL) | @RepMattGeatz | 1,288,593 |
| 12. Devin Nunes (R-CA) | @DevinNunes | 1,266,786 |
| 13 Ilhan Omar (D-MN) | @Ilhan | 1,245,674 |
| 14. Kevin McCarthy (R-CA) | @GOPLeader | 1,238,375 |
| 15. John Lewis (D-GA) | @repjohnlewis | 1,226,371 |
| 16. Trey Gowdy (R-SC) | @TGowdySC | 1,172,563 |
| 17. Ayanna Pressley (D-MA) | @AyannaPressley | 1,088,181 |
| 18. Tulsi Gabbard (D-HI) | @TulsiGabbar | 1,075,711 |
| 19. Eric Swalwell (D-CA) | @RepSwalwell | 1,060,099 |
| 20. Dan Crenshaw (R-TX) | @DanCrenshawTX | 1,038,317 |

Note: Account followers were collected on 3/14/2021. Representatives who later joined the Senate are excluded from the list.

Of course, most members do not have millions of followers. Only 25% of House members have more than 30,000 followers and the median representative has 12,655 – while far smaller than the members previously discussed, it is still *a lot* of followers. 116$^{th}$ Congress Appropriations Chair, Representative Rosa DeLauro (D-CT), @rosadelauro, has just over 50,000 followers and Republican Policy Committee Chairman Representative Gary Palmer (R-AL), @USRepGaryPalmer, has 21,353. Representative Jim Cooper (D-TN), the least effective Democratic lawmaker of the 116$^{th}$ Congress, has 37,000 followers for his account @repjimcooper.[31] In contrast, Representative Kevin Brady (R-TX), the ranking member of the powerful Ways and Means Committee, has 2,798 Twitter followers for his account @bradyfortexas.

[31] Jim Cooper's 116$^{th}$ Congress Legislative Effectiveness Score:`https://thelawmakers.org/find-representatives`

As discussed previously, most members (67%) have multiple Twitter accounts and members tend to favor one account. As a result, we often see that the member's primary account will have substantially more followers than their seldom used (and sometimes forgotten) account. For example, Representative Kay Granger (R-TX) has 24,840 users following her account @RepKayGranger. She has only tweeted from her second account, @kay_granger, one time and the account has only 10 followers. The distribution of followers for each Twitter account can be misleading for measuring the potential audience each member has on Twitter. If we only examine the number of followers for each member's most followed account, the median member has 22,863 followers. Twitter has also become more popular over time. Members of the 116$^{\text{th}}$ Congress have 92,381 Twitter followers on average, and the median member counts 18,357 users among their followers. Among the 116 representatives on Twitter who only served in the 111$^{\text{th}}$ Congress, when Twitter was still a relatively new social media platform, the median number of followers is significantly lower at 1,975 followers.[32]

If members of Congress are using Twitter with the intent of reaching constituents and voters, then members who post more tweets should have more followers. Because we do not have historical data on the number of followers members of Congress have on Twitter – we only know how many followers at the exact date and time the data was pulled in March 2021 – we can only examine members of the 116$^{\text{th}}$ Congress whose recorded following in the data best approximates their following during that Congress. Figure 2.12 shows the bivariate relationship between the logged total number of tweets posted to each representative's Twitter account and the logged number of account followers. We see there is a clear positive relationship between Twitter activity and Twitter followings: those members who invest greater resources on Twitter by tweeting frequently are more likely to be rewarded for this behavior with a larger number of followers. Table 2.9 displays the results of an OLS regression of the logged account followers on the logged tweets posted from that account and several variables capturing member characteristics such as party leadership and ideological extremism. For every 1% increase in tweeting, members are expected to increase their follower count by .89% all else equal. Twitter users are more interested in politics than the general population (Bekafigo and McBride 2013), and they are more likely to follow the content of members of Congress who are active on the platform providing their take on current events.

Because Democrats tweet more than Republicans on average, we should expect that Democrats should have more Twitter followers than Republicans. Figure 2.13 shows a box and whisker plot highlighting the follower count for the middle 50% of representatives by party.[33] The median Demo-

[32]Because account followers reflect their following in March 2021, it is possible that these members had more followers while serving in Congress and have since lost followers.

[33]The y-axis for the plot is cut off at 150,000 Followers, excluding the highly-followed outliers in order to better display the majority of lawmakers Twitter followings.

Figure 2.12: Number of Twitter Account Follower by the Number of Tweets, 116$^{\text{th}}$ Congress

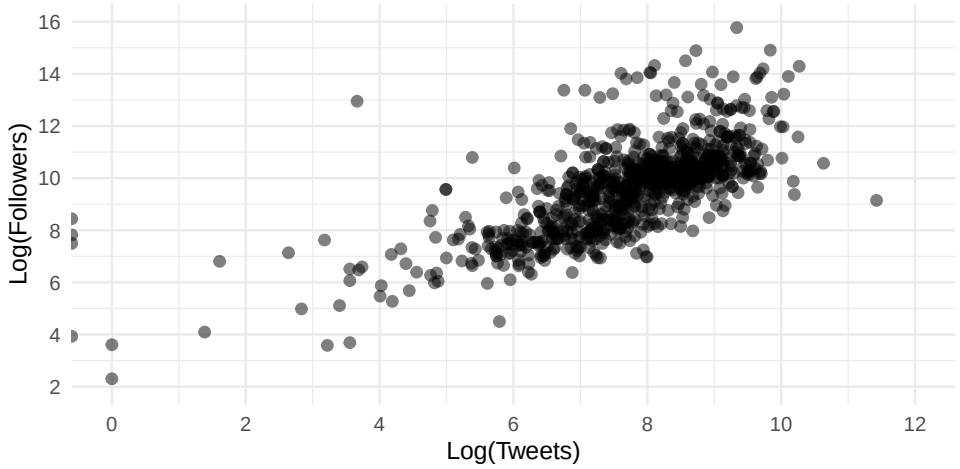



Figure 2.12: Displays the relationship between a representative's logged account followers and logged tweets posted to that account.

crat's account has over 17,000 followers, while the median Republican's has just over 9,000. The middle 50% of Democrats have between 4,000 and 40,000 followers and the middle 50% of Republicans have between 2,500 and 24,000 followers. However, after controlling for Twitter activity, there is not a follower bump for Democratic lawmakers – suggesting that Democrats, on average, have more followers because they are more active on Twitter not simply because they are Democrats. Democrats are more popular on Twitter not because Twitter's user base leans Democratic, but because they are more active on Twitter.

In Table 2.8 we saw members who serve as Speaker of the House are among the most followed representatives, so we expect that party leaders should all else equal have more Twitter followers than rank-and-file lawmakers. Traditional media favors members with institutional positions (Russell 2020) and if politically engaged Twitter users are using the platform to stay informed about political events, then members with the greatest control over the congressional agenda will be more informative accounts to follow. Results from Table 2.9 show that party leaders are estimated to have 144.49% more followers on Twitter after controlling for their Twitter activity. However, committee chairs, who exert greater control over the legislation within their jurisdiction, do not have more followers all else equal. For the general public, knowledge regarding committee chairs is likely very low, so while political journalists might frequent these members for valuable information, the mass public does not. Similarly, we do not find any relationship between seniority and the number of

Figure 2.13: Boxplot of Twitter Followers by Party

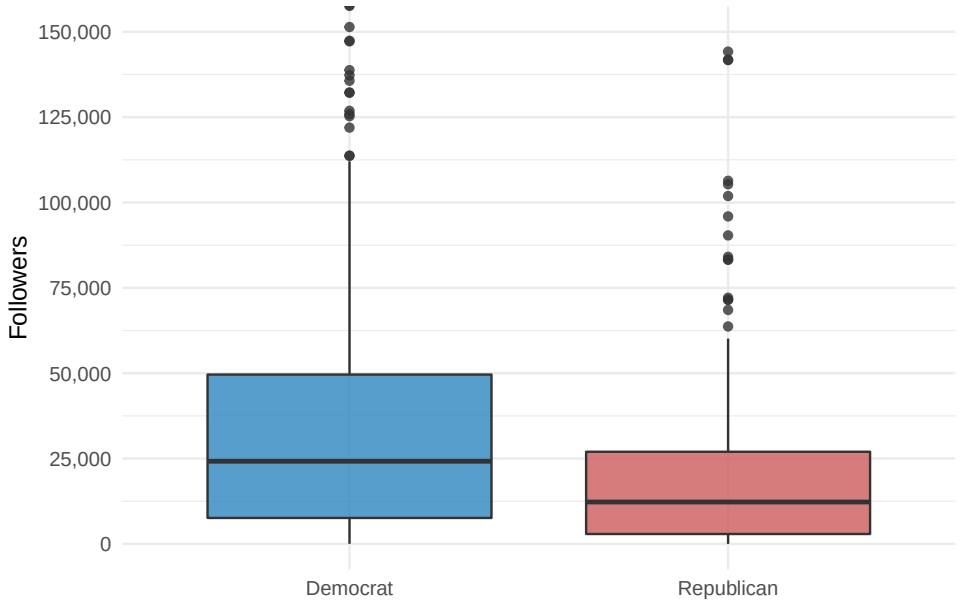



Figure 2.13: Displays the 25$^{th}$ percentile, median, 75$^{th}$ percentile, and potential outliers of the number of Twitter followers for the accounts of Democratic and Republican representatives (where the observation is the account). Accounts with more than 150,000 followers were excluded from the figure to better display the followers by the majority of representatives.

Twitter followers. Any social media popularity bump as a result of holding institutional positions of power or prestige are confined to only the most visible party leaders and does not extend to committee chairs or highly senior members. While these members may be more well known within the Washington D.C. beltway, they are not more followed on Twitter.

To the extent politics is local and users want to keep up with politicians from their area, we might expect that representatives from larger states to have more Twitter followers. OLS Regression results show that members from larger states are predicted to have slightly more Twitter followers: for each additional congressional seat apportioned to a state, their follower count is expected to increase by .8%, a modest but statistically significant amount.

Interestingly, ideologically extreme members do not have more followers than ideologically moderate ones. Despite the large followings of several ideologically extreme lawmakers in Table 2.8, this does not appear to apply to ideologically extreme members generally. However, prior work and

evidence from Table 2.7 indicates that more ideologically extreme members do tweet more than ideological moderates (Straus et al. 2016; Hong, Choi and Kim 2019). Like Democrats, ideological extremists have more followers because they are more active on Twitter, not because of their ideological leanings.

Table 2.9: Correlates of Twitter Account Followers

| | Dependent Variable: |
|---|---|
| | Log(Followers) |
| Log(Tweets) | 0.884*** |
| | (0.030) |
| Delegation Size | 0.009*** |
| | (0.003) |
| Democrat | 0.024 |
| | (0.089) |
| Party Leader | 0.896*** |
| | (0.211) |
| Committee Chair | 0.236 |
| | (0.200) |
| Legislative Effectiveness | 0.065 |
| | (0.053) |
| Extremism | 0.295 |
| | (0.315) |
| Female | 0.396*** |
| | (0.098) |
| Seniority | 0.018 |
| | (0.012) |
| Age | −0.030*** |
| | (0.004) |
| Constant | 4.073*** |
| | (0.333) |
| Observations | 869 |
| Adjusted $R^2$ | 0.567 |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 |

The large Twitter followings of young ideologically extreme members like Reps. Ocasio-Cortez and Gaetz is perhaps not because of their ideological positions, but because of the way they use Twitter. Younger representatives, who we might expect to be more Twitter savvy and more likely to have initially campaigned using Twitter, might just be better at tweeting. Posting more interesting and attention grabbing tweets as result of their familiarity with social media in general. As members get older, they are predicted to have 3.05% fewer followers for each additional year in age. If we assume that younger representatives are "better" at Twitter, then the negative coefficient for age is perhaps capturing the relationship between the quality of tweets posted and followers. While representatives who rarely tweet are unlikely to gain a lot of followers, to join the million followers club members need to not only tweet a lot, but gain some sort of political clout by becoming party leaders, running for president, or by simply being better at Twitter.

The large Twitter followings of members of Congress translate into high levels of user engagement. During the 116$^{th}$ Congress, the average representative tweet was liked by nearly 885 Twitter users, Retweeted roughly 209 times, and replied to 97 times. [34] And members with more followers have more interactions. An average Adam Schiff tweet, the 5$^{th}$ most followed House member, was

[34]Only includes original tweets and excludes retweets, quote tweets, and replies

retweeted about 7,000 times and liked by nearly 25,000 other users. The number of account followers is highly correlated with the average number of likes (r = .85, p = 0), retweets (r = .75, p = 0), and replies (r = .70, p = 0) for that accounts' tweets.

While public-facing Twitter users, like politicians, want their followers to regularly interact with their content, the goal is often to create viral moments: tweets that become widely retweeted by non-followers leading to exponentially more views of the tweet and generating earned media coverage. Rep. Geatz (R-FL), one of the most followed representatives in Table 2.8, argues exactly this point: "I don't think about a television clip and think about how it is going to play on TV, I think about a clip that's on Twitter or YouTube and how do you create an exciting or viral moment that people are eager to share and might offer some now insight" (*The Swamp*, 2020) . Previous work has found that polarizing tweets garner more interactions from other Twitter users (Ballard et al. 2022) and Twitter's user base is more ideologically extreme than the public (Barberá and Rivero 2015). If representatives are after Twitter fame, either for the popularity in and of itself or as an avenue for increased influence, Twitter users are most likely to engage with polarizing content. There are incentives for members of Congress to use partisan or polarizing rhetoric on Twitter to increase their popularity.

Table 2.10 displays the five most retweeted tweets from both Democrats and Republican legislators. It is worth noting, because Twitter's user base and the platform's importance to political messaging has increased over time, all these tweets come from the 116$^{\text{th}}$ Congress. We see a couple of trends emerge: viral tweets, with tens of thousands of retweets, often relate to presidential politics. Three of the five most retweeted Democrats' tweets relate to President Trump. Representative Seth Moulton's (D-MA) tweet is a humorous response to a now deleted tweet from @RealDonaldTrump declaring the House investigation into his campaign's relationship with Russia during the 2016 election "The Greatest Witch Hunt in American History." Now-former Republican Representative Justin Amash's (MI) tweet on his position regarding impeaching President Trump was Retweeted over 75,000 times.[35] As one of the few Republicans who voted to impeach the President, it is no surprise the tweet was widely shared among, presumably Democratic leaning, users. Representative Katie Porter's (D-CA) tweet is one of the few policy-focused viral tweets concerning coronavirus testing, but, consistent with this discussion, is also pressuring the Trump administration to enact a policy. Rep. Crenshaw (R-TX) highlights his party's efforts to pay federal workers during the 2018-2019 government shutdown and blames Democrats for only working to oppose the President.

Tweets mentioning highly partisan policy issues are also among the most retweeted tweets from

[35]Rep. Amash was still a Republican when he tweeted this in May 2019. Tweets posted after July 4, 2019, when he left the party, were excluded from the table.

members of Congress. Representatives Karen Bass (D-CA) and Kevin McCarthy's (R-CA) tweets are both about the ongoing debate about policing and demonstrates the partisan divide between Black Lives Matter and Blue Lives Matter. Rep. Jordan's (R-OH) tweet masterfully hits on two deeply partisan issues: The nationwide Black Lives Matter protests and the debate over voting accessibility in the 2020 election. It is no surprise his tweet was retweeted over 30,000 times. Representative Steve Scalise's (R-LA) viral tweet relates to Republican's distaste with technology companies, ironically including the platform he is using to spread his message, to censor offensive or false content. In short, members who want to increase user interactions and views on Twitter by going viral should tweet about presidential and partisan politics.

If members of Congress are using Twitter to present themselves to their constituents and the public at large and they are in fact successful at reaching this audience, then we should observe members of Congress accumulating large Twitter followings and high levels of user engagement. The median representative has over 22,000 Twitter followers, and members that invest more resources into messaging on Twitter are more likely to have more followers and receive greater user engagement. Representatives are not tweeting into the void, but have a large audience on Twitter to present themselves too. Members with greater success on Twitter often hold positions in party leadership or run for the Presidency, making them household names and Twitter famous overnight. In addition, if members want to increase the likelihood their tweets are seen and retweeted, gaining followers, earned media attention, and political influence they are incentivized by other Twitter users to tweet partisan and polarizing tweets. Chapter 4 will discuss the members of Congress who adopt highly partisan digital presentations of self.

## 2.4 Discussion

Members of Congress rely on modern communication tools like Twitter to present themselves and build their political image in order to achieve their desired goals while in office. This chapter began by detailing the data collection process of over 1,800 Twitter accounts and five million tweets across a twelve-year time period, representing an incredibly rich data source for examining members' communication strategies as Twitter developed into a political social media platform and members institutional positions change. Twitter is a useful and increasingly used source for congressional communication. And relative to other data sources, Twitter's unique features have meant members use the site primarily to present themselves as representatives to their districts. The utility Twitter provides for member's presentation of self is evidenced by the fast adoption of Twitter by members of Congress, as discussed in Section 2.1.1, and the increasing frequency in which members use Twitter, as discussed in Section 2.1.2.

And crucially, Twitter is not a platform for the few Twitter famous representatives. Nearly all members of Congress are tweeting daily and as a result have the ability to reach thousands of Americans directly from their smartphones. The widespread and high frequency use of Twitter for a large majority of representatives makes the tweets posted by members an ideal data source for studying members' communication and digital presentations of self. Section 2.2 establishes that I have sufficient tweets to accurately measure the digital presentations of self for a large majority of members of Congress.

When and how often representatives tweet reveals some additional insights about the utility of Twitter for members of Congress. Twitter acts a substitute for in-district activities, with members tweeting more while they are in session and away from their districts. Party leaders, ideologically extreme, and minority party legislators are more likely to take advantage of Twitter's messaging opportunities. Consistent with previous literature on congressional communication, representatives responsible for the party brand and those with less formal agenda setting power are more likely to engage in messaging activities both on and off Twitter. During the Trump Presidency, Democrats began tweeting far more than their Republican colleagues, as discussed in Section 2.1.3. The extent this trend is permanent given Twitter's liberal leaning user base (Wojcik and Hughes 2019) or simply a strategic decision by the Democratic Party during the Trump Administration or both will be proven over time. Throughout this dissertation, I will further explore this trend and take various measures to ensure accurate estimation of members' presentations for both parties.

This chapter also provides some early evidence that representatives with ideologically extreme preferences and who post polarizing content find greater success on Twitter. Ideologically extreme users are more likely to tweet, and the most popular tweets from representatives all contained polarizing language or policy issues, as discussed in Section 2.3. Twitter's users are more ideologically extreme than the general population (Barberá 2015), which potentially creates incentives for members of Congress, seeking to craft messages that will garner social media attention in order to further personal or party goals, to adopt more partisan and polarizing presentations of self on Twitter. In the following chapter I more deeply explore which members are most likely to tweet partisan messages, and, in chapter 4, I define the party loyalist digital presentation style and identify why members adopt this particular digital presentation of self.

Members of Congress care about what they post on Twitter and have dedicated office resources for tweeting. Increasingly, they are choosing to tweet messages that are broadly reflective of what they want their constituents to see and the reputation and image they want to cultivate. Twitter is a widely used and important communication tool for members of Congress to present themselves to their constituents. The following chapter classifies each tweet sent from representatives as con-

taining six possible features: position-taking, credit-claiming, advertising, partisan rhetoric, policy content, and district focus.

Table 2.10: Five Most Retweeted Tweets By Party

| Representative | Handle | Tweet | Retweeted |
|---|---|---|---|
| 1. John Yarmuth (D-KY) | @RepJohnYarmuth | The President just declared war on millions of Americans and the 1st Amendment. He is the greatest threat to the American way of life in our history. | 178,754 |
| 2. Alexandria Ocasio-Cortez (D-NY) | @AOC | This President needs to be impeached. | 141,232 |
| 3. Katie Porter (D-CA) | @RepKatiePorter | I did the math: a full battery of coronavirus testing costs at minimum $1,331. I also did the legal research: the Administration has the authority to make testing free for every American TODAY. I secured a commitment from a high-level Trump official that they'd actually do it. | 140,381 |
| 4. Seth Moulton (D-MA) | @sethmoulton | As the Representative of Salem, MA, I can confirm that this is false. | 140,111 |
| 5. Karen Bass (D-CA) | @RepKarenBass | It's been 93 days since Breonna Taylor was murdered and the only arrest made in relation to her death was the arrest of her partner, who was charged for defending himself against the intruders invading their home. | 125,444 |
| 1. Justin Amash (R-MI) | @justinamash | Here are my principal conclusions: 1. Attorney General Barr has deliberately misrepresented Mueller's report. 2. President Trump has engaged in impeachable conduct. 3. Partisanship has eroded our system of checks and balances. 4. Few members of Congress have read the report. | 77,998 |
| 2. Steve Scalise (R-LA) | @SteveScalise | RT if you agree → Congress must hold an emergency hearing on Big Tech's election interference and censorship of news. | 35,237 |
| 3. Dan Crenshaw (R-TX) | @RepDanCrenshaw | Big deal that never got reported: Last week, House GOP voted to pay federal employees their 1st paycheck of 2019, despite shutdown. Only 6 Dems voted with us. It failed. Dem priority is not paying workers or opening gov't. It is opposing Trump. | 34,359 |
| 4. Kevin McCarthy (R-CA) | @GOPLeader | RT if you support our police officers who put on their uniforms every day to carry out the oath to protect and serve our communities! | 33,341 |
| 5. Jim Jordan (R-OH) | @Jim_Jordan | If you can protest in person, you can vote in person. | 30,924 |

## Chapter 3

## Representatives' Messages on Twitter

Using our collection of members' tweets from a twelve-year period, this chapter presents a typology of tweet messages that members use to create their digital presentations of self. I begin by introducing the six types of messages members tweet: position-taking, credit-claiming, advertising, policy, partisan, and district messages. Then, using keyword assisted topic models and string detection, each tweet is coded for each of these messages. I then examine the frequency members and parties collectively place on each message type and document the changes, particularly among Democrats, in how members use Twitter over time. Finally, I examine what institutional, individual, and district characteristics affect how often members tweet each message. Not only is why members use each type of message in and of itself valuable, but the classification of three million messages over six congresses across these six types of messages is, to my knowledge, the most comprehensive examination of members communication to date. The purpose of this chapter is, first, to identify the dominant messages which members of Congress use to present themselves to their constituencies. And second, to understand the personal, district, and institutional factors that influence the use of each of these messages on Twitter.

This chapter argues that member of Congress predominately use Twitter to message about policy, and that over time members, particularly Democrats, have increasingly relied on position-taking and partisan messages in their presentations. I find that ideologically extreme representatives and those from aligned districts are more likely to tweet partisan and position-taking messages, while ideologically moderate representatives and those from misaligned districts emphasis advertising and district messages on Twitter. Moreover, I find that when a member's party is the minority party or does not control the White House they are more likely to prioritize position-taking and partisan messages, and those with majority status are more likely to credit-claim. Finally, my results suggest that minority lawmakers and those from minority districts are less likely to adopt policy focused messaging and chose instead to focus on district and advertising message.

### 3.1 Typology of Tweet Messages

A member's presentation of self encompasses all the verbal and nonverbal communication between a member and their constituents (Fenno 1978). To systematically understand how members in modern politics create presentations, we have to identify measurable components of these presentations that allow us to both classify individual's presentations and compare across members and

over time. To do this, I began by reviewing existing literature on the types of messages members of Congress frequently use in their communications. I focus on the six types of messages members use to create their digital presentations of self: position-taking, credit-claiming, advertising, policy, partisanship, and district tweets.

Mayhew (1974) recognizes three primary types of messages members of Congress use to gain or maintain the support of voters: advertising, position-taking, and credit-claiming. Each of these types of activities can be used to create a specific image of a member who engages in it. Credit-claiming can create an image of a member who is an effective legislator and is primarily concerned with her district; members can use advertising to build up their popularity in the district and emphasis their personal connection to their constituents; position-taking can build an image of a member with policy ideas and demonstrate policy leadership. Each tweet is identified as containing either a credit-claiming, advertising, or position-taking message.

### *Position-Taking Messages*

Of all the types of message utilized, position-taking is considered a core feature of representation and prospective voting: representatives take positions, through roll call votes, on the campaign trial, and on Twitter, and voters observe these positions and decide whether to reelect their representative. In addition, Mayhew (1974) noted that Congress is designed in part to express public opinion, and this is predominately achieved through position-taking. Given this importance, position-taking has occupied a dominant place in Political Science.

I define position-taking as any public message of a judgment statement on anything to be of interest to political actors. When taking positions, "the congressperson is a speaker rather than a doer; the position itself becomes the commodity" (Mayhew 1974, p.63). Typically, we think of position-taking as statements where a member clearly takes some position on a bill, policy proposal, or idea that communicates to their constituents where they stand. For example, Figure 3.1 displays a tweet from Majority Leader Kevin McCarthy (R-CA) where he advocates for a new federal law defining consumers' rights and privacy to their digital data collected by tech companies. He is clearly taking a position for a new federal law while positioning against the current law in place in his own state. Position-taking can also occur on political, but non-policy related, topics such as impeachment of a president or if it is appropriate for President Obama to wear a tan suit. Representative Val Demings (D-FL) takes a non-policy related position in her tweet in Figure 3.1. She clearly articulates her disapproval of President Trump's comments after a series of mass shootings in August 2019 and of his rhetoric more generally. While this position-taking message lacks clear policy content, Rep. Demings is communicating her position on a political matter to her constituents. These two example tweets demonstrates the different types of positions members of Congress can

take on Twitter, with more freedom to take positions on any policy proposal regardless if it receives a roll call vote or on non-policy issues all together.

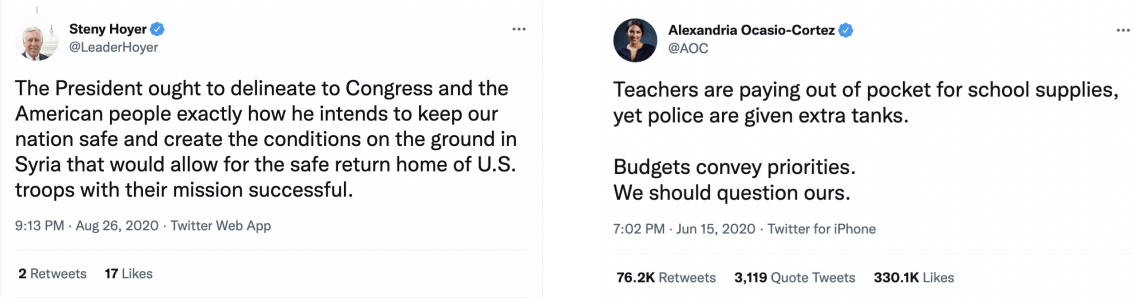
Figure 3.1: Examples of Position-Taking Messages in Representatives' Tweets


### *Policy Messages*

While Mayhew saw position-taking as something arising primarily from a concern about "the issues," not all position-taking messages are policy related, as we saw in Rep. Demings's position-taking tweet in Figure 3.1. As such, we also need to clarify what tweets have explicit policy content. Members vary in the extent they care about policy (Hall and Taylor 1996) and use policy based appeals in their presentations of self (Fenno 1978), and existing work has examined what policy areas members focus on in the public communication (Grimmer 2013*a*) and on Twitter (Russell 2021*a*; Hemphill, Russell and Schöpke-Gonzalez 2020). As a legislative institution, Congress's primary function is setting public policy, but the extent members use Twitter to discuss actual public policy is of normative interest.

I define a policy message as any message that has any sort of policy content – regardless of the feasibility or symbolic nature of the policy. This captures any tweet that has any sort of policy information: taking a position on an issue, announcing the passage of a bill, broadcasting constituency casework benefits, links to news articles, or commenting on current events. Figure 3.2 shows an example of a typical policy tweet from Representative Steny Hoyer (D-MD) where he discusses foreign policy with respect to US operations in Syria. While Rep. Hoyer's policy message concerns a concrete policy position, policy tweets can also be symbolic. Representative Alexandria Ocasio-Cortez (D-NY) makes a comparison between government funding of schools and of police departments in her tweet in Figure 3.2. The tweet mentions policy, but the nature of her tweet is more figurative than it is discussing specific policy, like Rep. Hoyer's tweet. Nonetheless, both messages clearly have some policy content, broadly defined.

Figure 3.2: Examples of Policy Messages in Representatives' Tweets




### *Credit-Claiming Messages*

While many policy messages are also position-taking messages, as seen in the example tweets in Figure 3.2, other policy messages are used to credit-claim. In addition to articulating public opinion, members of Congress work on and pass legislation that advocates for their district or national interests. Members need to communicate their ability to successfully do these tasks and they achieve this through credit-claiming. Credit-claiming messages are those that generate the belief that the congressperson is at least partly responsible for some positive government action. My definition of credit-claiming is broader than the one originally put forth by Mayhew (1974). He argues that, first, the representative must be both uniquely responsible for the action and, second, that the benefits must be directed towards the district and not distributed nationally. I broaden the scope of credit-claiming to account for several modern trends in policymaking. First, Congress passes less individual pieces of legislation and has increasingly relied on large omnibus legislation (Oleszek, Oleszek, Rybicki and Heniff Jr 2015; Sinclair 2016). This reduces the credit-claiming opportunities if we narrowly define credit-claiming to legislative benefits uniquely attributable to the member. Consider, for example, the 2020 CARES Act. It seems unreasonable to discount members announcing and taking credit for federal spending and resources sent to their districts simply because the legislation that delivered the benefits was a large bipartisan bill that achieved a wide range of policy achievements. Second, federal benefits are rarely allocated at the congressional district level. Because the focus here is on representatives, not senators, these members have less opportunity to claim credit for benefits that only target their specific constituents. Third, members were able to independently secure federal spending largely through the practice of earmarks, a provision on an appropriations bill that directs district spending while circumventing the merit-based or formulaic allocation process. The House largely banned the use of earmarks in 2011

and partially revived the legislative tool in March 2021.[1] For ten of the twelve years studied here, the practice that historically provided House members the opportunity to claim-credit for district spending uniquely attributable to them was not in use. Moreover, this conception of credit-claiming captures tweets where the member's claim credit for submitting or passing legislation that does not go on to become law. In this case, there does not need to be actual benefits received in order for members to claim credit for moving bills through the legislative process. Given that the House is unable to pass legislation without the Senate or President (without overriding a veto) we want to allow representatives to claim credit for the actions they have control over and not hold them accountable for the actions of actors in other branches of government.

Figure 3.3: Examples of Credit-Claiming Messages in Representatives' Tweets


Figure 3.3 shows two examples of credit-claiming tweets. Representative John Garamendi (D-CA), for example, announces the passage of the Delta National Heritage Area Act (H.R. 357), a bill he sponsored, that establishes a National Heritage Area to protect and provide funding for the Sacramento–San Joaquin River Delta in his district.[2] Rep. Garamendi's use of credit-claiming here meets Mayhew's (1974) definition: Rep. Garamendi was uniquely responsible for the benefits by sponsoring the legislation and the benefits are targeted to his district. In the second tweet, Rep. Demings claims credit for the passage of the Paycheck Fairness Act to narrow the gender and racial pay gap, which passed the House and later died in the Senate. Nonetheless, she is clearly claiming credit for the passage of a potentially important bill and demonstrating her ability to achieve policy benefits for her constituents, regardless if those policy benefits are realized. Note that this policy cannot be uniquely attributable to Rep. Demings nor are the benefits targeted to

[1] https://www.reuters.com/article/us-usa-congress-earmarks/u-s-house-republicans-end-earmarks-ban-ahead-of-bidens-infrastructure-push-idUSKBN2B91XZ

[2] `https://garamendi.house.gov/media/press-releases/president-signs-garamendi-s-delta-national-heritage-area-act-law`

the district, but is still considered credit-claiming. The function of Rep. Demings's tweet is the same as Garamendi's: to claim credit for legislation and demonstrate their ability to achieve policy benefits for their constituents.

### *District Messages*

Previous work has focused on the extent members engage in credit-claiming (Grimmer 2013*a*) and on the effect credit-claiming messages has on constituents (Grimmer, Messing and Westwood 2012). While it is often argued that members who are heavy credit-claimers are district focused and those who are heavy position-takers are focused on national politics, this is not necessarily the case. A member can easily be credit-claiming for salient partisan legislative accomplishments and position-taking on local issues, as seen in Rep. Demings's tweet in 3.3. Of course, many district tweets are precisely what previous work assumes, for example recall Rep. Garamendi's tweet in Figure 3.3. Moreover, Fenno (1978) characterized member's presentations, in part, by how focused on the district a member is in their presentations. I define district tweets as any message that mentions the member's congressional district or their state.

Figure 3.4 displays two tweets that mention the member's district or state, one of which is done through position-taking and the other through credit-claiming. On the left, Majority Leader Steny Hoyer (D-MD) takes a position and advocates for the passage of the Raise the Wage Act, a top policy priority of the Democratic Party. In doing so, he argues that the policy will help his congressional district. On the right, Minority Whip Steve Scalise (R-LA) thanks President Trump for approving federal funding for Louisiana to prepare for an upcoming hurricane. The tweet is related to his district – which is located in southern Louisiana on the Gulf of Mexico – where the federal role in hurricane preparation and recovery is a serious policy concern. Rep. Scalise is claiming-credit, more on behalf of the President than himself, but nonetheless is promoting the delivery of federal resources to the district. These two examples highlight the different ways members can invoke their district in their messaging. District focused messages are not necessarily distinct from national or partisan politics, and they are not always credit-claiming messages. District tweets are intended to capture the extent members are district focused and frame their other messages in the context of "the district."

### *Advertising Messages*

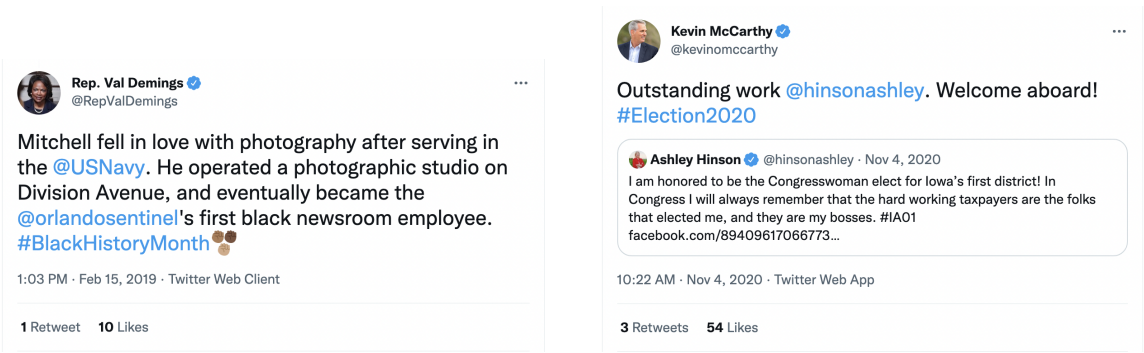
Members also mention the district in the context of advertising, for example, Representative Marcia Fudge (D-OH) tweeted: "Local farmers markets, like @NUFarmersMarket in OH11, improve access to healthy, nutritious, and affordable foods and help to support local farmers."[3] Mayhew (1974) defines advertising as, "any effort to disseminate one's name among constituents in such a

[3] `https://twitter.com/RepMarciaFudge/status/1291091564073308160`

Figure 3.4: Examples of District Messages in Representatives' Tweets


fashion as to create a favorable image but in messages that have little or no issue content" (49). These messages are intended to increase name recognition, generate favorably, and humanize the member. Figure 3.5 displays two examples of advertising tweets from legislators. On the left, Rep. Demings (D-FL) highlights the work of a local citizen in honor of Black History Month. Many advertising tweets are celebrating holidays, spotlighting constituents or historical figures, or congratulating local sports teams. Members also use advertising tweets to announce media and district appearances. Other advertising tweets include messages, like from Rep. McCarthy, congratulating Representative-Elect Ashley Hinson on her victory to the House in the 2020 Election. In this case, while both Hinson's original tweet and Rep. McCarthy's quote tweet have some political content, the intent of these tweets are to build a favorable image rather than indicate their policy or political preferences or demonstrate their legislating abilities.

Figure 3.5: Examples of Advertising Messages in Representatives' Tweets



*Partisan Messages*

Thus far we have focused on five types of messages member's can tweet: policy, position-taking, credit-claiming, district focused, and advertising. As we have seen through many of the example tweets, like Rep. Scalise's tweet in Figure 3.4 and Rep. Demings's tweet in Figure 3.3, Members can frame these messages within the larger partisan environment by invoking partisan cues. A partisan tweet is any tweet that contains partisan cues or language – such as explicitly referencing a political party, the President, or ideological labels. Previous work has examined how frequently members use partisan language in their speech and communication: members of Congress use partisan cues in their campaigns (Neiheisel and Niebler 2013), on the House floor (Morris 2001), and on Twitter (Russell 2021*a*; Gelman and Wilson 2021). Partisanship plays a central role in both Congress and the electorate. Often, partisanship is used to characterize the legislative behavior of members of Congress as either lawmakers that work with the opposite party to craft bipartisan legislation or as proud partisan warriors who combat the opposition, and previous literature has examined how partisan members conduct their legislative behavior (Brady and Althoff 1974; Binder 1997; Fowler 2006; Lawless, Theriault and Guthrie 2018). Here we are interested in the "persona of partisan intensity" that members use to appeal to their constituents (Gelman and Wilson 2021, p.4).

Figure 3.6: Examples of Partisan Messages in Representatives' Tweets

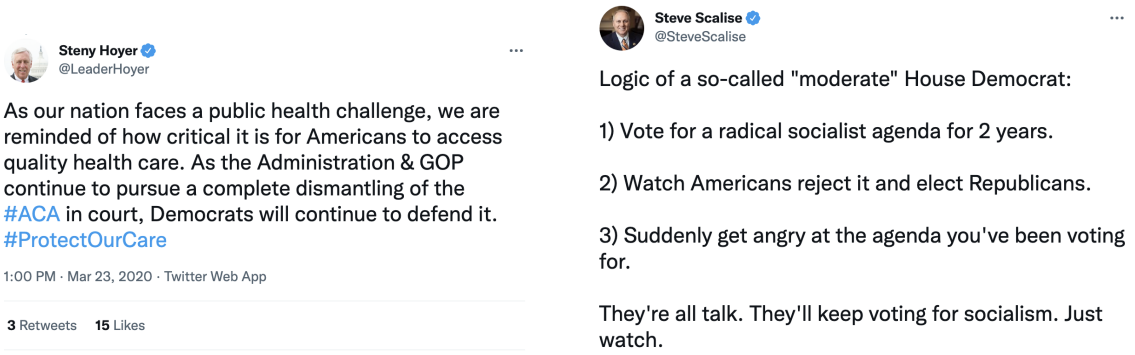



Figure 3.6 shows two example partisan tweets from House members.[4] On the left, Rep. Hoyer (D-MD) uses partisan cues in a tweet about the Affordable Care Act (ACA). In this example, he is both taking a position in continuing support of the ACA and is discussing public policy, but frames the debate over the continuing existence of the ACA in partisan terms. The Republican

[4]The tweet from Steve Scalise has been modified to remove a video of clip of Scalise appearing on Fox News discussing his claims in the tweet. Scalise posted the tweet on November 6, 2020 at 11:20 AM. At the time the tweet was pulled (2/23/2022) it had been Retweeted 136 times, quote tweeted 36 times, and liked 448 times.

Party wants to repeal the law and the Democratic Party does not. Rep. Hoyer is both telling voters where he stands and where the parties stand. On the right, Rep. Scalise (R-LA) tweets prophesies about the House Democrat's true intentions and the subsequent voter reaction to their "socialist agenda". This tweet is obviously partisan, using both party and ideological labels, and lacks clear policy content. He is clearly taking a position against the Democratic Party's agenda just days after Democrats won majority control and the presidency in the 2020 election, but he is not taking a position on any obvious policy issue in the way described by Mayhew (1974). In short, partisan tweeting can be policy oriented or not, or can be highly inflammatory or not.

Political science has primarily focused on these six features – position-taking, credit-claiming, advertising, policy, partisanship, and district focus – to understand congressional communication. The task of this chapter is to first label the over three million tweets collected for these messages, and then examine the prevalence of these messages over time and across members. In the following section I review existing literature and derive several hypotheses related to what district, personal, and institutional factors are correlated with an emphasis on each type of message.

### 3.1.1 Messaging and Members' Goals

The analyses presented in this chapter serves two purposes:first, to identify the extent the variance in the share of members' tweets categorized as each message type is explained by variables arising from existing theories of congressional behavior. In other words, do these measures demonstrate construct validity, the extent to which the measure "behaves" in a way consistent with what we would expect given existing knowledge about members' behavior. If Twitter is simply a new platform for members of Congress to present themselves, then messaging on Twitter should correspond to members' messaging behavior on more traditional platforms. Second, is to explore the extent individual, district, and institutional factors are related to the degree to which a representative tweets about the six component measures. Previous work has examined members communication for a small sample of legislators (Schiller 2000; Sulkin 2005), from a single year (Morris 2001; Lipinski 2009), or for a particular policy issue (Sellers 2009). This analysis of over three million tweets and six messages across a twelve-year period is an exceptional opportunity to examine the messaging priorities of representatives at an unprecedented scale and specificity. As such, much of the analysis is exploratory. But we begin with reviewing what we should expect given previous literature to both ground our exploratory analysis as well provide expectations for members' Twitter behavior.

We begin with the well established premise that members of Congress are single-minded seekers of reelection (Mayhew 1974). To the extent members are motivated by other goals such as passing good public policy, running for higher office, or the fame, money, prestige, and future opportunities

associated with being a congressperson, holding office is a necessary pre-condition. First and foremost, members will tailor their communications to the constituents in their districts they believe they need in order to win reelection. To remain in Congress, members need to win both a primary and a general election, and which election is more precarious is determined by the distribution of partisanship among their constituency. In districts comprised largely of copartisan voters, members need to cultivate support among copartisan voters in order to win the primary election; in districts with a larger concentration of independent or opposite party voters, members need to target both of these groups in order to win the general election.

I expect that members from districts comprised largely of copartisan voters should be more likely to engage in position-taking. Given the importance of position-taking to representation (Mayhew 1974; Miller and Stokes 1963) there is vast literature in political science on the positions members take.[5] Limited work has examined position-taking in members public statements, and among the exceptions, a common approach has been to focus on a single policy area (Highton and Rocca 2005; Milita, Ryan and Simas 2014; Box-Steffensmeier, Arnold and Zorn 1997). Here, we are interested in the propensity of members to engage in position-taking rather than the position itself.

Scholars have recognized the incentives for politicians to remain ambiguous in their political positions (Downs 1957; Page 1976) and the electoral risk in associating themselves with contentious issues that could polarize voters (Stokes 1963). While some work has found that members can be punished by voters for failing to take a position on high salient issues (Milita, Ryan and Simas 2014; Cahill and Stone 2018), or on issues that "represent core beliefs and values" (Simas, Milita and Ryan 2021, 1695). Other work has found that when members remain silent on an issue, same-party voters assume the member shares their own position (Bartels 1986; Tomz and Van Houweling 2009; Broockman and Butler 2017). We should then expect that members from safer districts, districts comprised with a greater share of copartisans, should be more likely to engage in position-taking on Twitter. Milita, Ryan and Simas (2014) found that candidates are more likely to take a position when they know their district already agrees with them. And previous work has identified a positive relationship between district copartisanship and position-taking (Grimmer 2013*a*). For representatives from districts comprised of a greater share of copartisans – whom are more likely to already agree with or adopt the member's stated position – position-taking can enhance the perceived alignment and trust between the district and representative.

Members seeking to build support among largely copartisan constituencies can also rely on

[5]Most empirical analyses of position-taking has narrowly focused on roll-call voting (Highton and Rocca 2005). The literature on the topic is vast. Some work on the topic includes: Miller and Stokes (1963), Shapiro et al. (1990), Clinton (2006), Ansolabehere and Jones (2010).

partisan cues to further their reelection goals. Partisan identity is a strong, enduring attachment among voters and is the primary determinate of vote choice (Campbell et al. 1960; Converse 1964; Bartels 2002; Barber and Pope 2019). Partisan cues can convey a member's policy positions to voters, as well as valence information about the party's values and reputation (Stokes 1963). Voters reward incumbents associated with their party's legislative accomplishments (Lebo, McGlynn and Koger 2007; Woon and Pope 2008) and valence reputation (Butler and Powell 2014). Members can therefore use partisan messages to reinforce the partisan identity of their voters, as well rhetorically attach themselves to the party brand and the associated policies. But this strategy should be more beneficial for members representing districts where the majority of voters share their party label. And previous work has found that members from aligned districts are more likely to invoke party labels in their communication (Neiheisel and Niebler 2013; Ballard et al. 2022).

Choosing to distance themselves from potentially polarizing policies and partisan politics, members from electorally marginal districts, should be more likely to engage in credit-claiming, advertising, district tweeting. Previous work has found that members from electorally marginal districts are more likely to solicit casework (Adler, Gent and Overmeyer 1998) and emphasis credit-claiming and the district in their press releases (Grimmer 2013*a*). These messages "while less exciting, casework and pork barreling are both safe and profitable. For a reelection-oriented congressman the choice is obvious" (Fiorina 1977, 43). Similarly, advertising messages are designed to create a favorable image and increase name recognition with little to no issue content, and therefore are a risk-free message to gain support among all voters. Messages that emphasize the district broadcast policy successes are more likely to be positively received among independent and opposite party voters and can highlight the service the member does for the district while avoiding potentially polarizing policy issues.

*$H_1$: Members from aligned districts are more likely to use Twitter to take positions and use partisan rhetoric; members from marginal districts are more likely to use Twitter to credit-claim, advertise, and mention their congressional district.*

The emphasis that members place on credit-claiming is also a function of district need. Districts that have higher need, or a greater share of lower-income constituents, are more likely to demand legislative resources from their representatives, and their representatives have in turn been found to focus on district-focused legislative behavior to capitalize on credit-claiming opportunities (Wessel Tromborg and Schwindt-Bayer 2019). Members, representing congressional districts with a greater share of low income voters, should be more likely to claim-credit for successful policy and emphasize the benefits to their constituents through district tweeting.

*$H_2$: Members from higher need districts are more likely to use Twitter to credit-claim and mention their congressional district.*

In addition to their own reelection, members are also driven by majority status, giving themselves and their party more power within Congress and therefore greater control over legislation outcomes (Lee 2016). The overall reputation of a member's political party matters both for their own reelection and for winning majority status (Cox and McCubbins 2005), so members have a vested interest in not only crafting a positive party image but in tarnishing the opposition party's image (Lee 2009). And members of Congress use partisan messaging to distinguish the two parties and make the case for majority status for voters, so party messaging is therefore a central part of modern party responsibilities (Sinclair 2016; Lee 2016). Party leaders are tasked with protecting the party's reputation (Cox and McCubbins 2005) and orchestrating its messaging campaigns (Lee 2016). Because party leaders are national political figures and lead their party's policy agenda and messaging strategy, we expect that party leaders should more likely to use partisan cues and policy in their Twitter messaging and less likely to mention their congressional district.

*$H_3$: Party leaders are more likely to use Twitter for partisan and policy messaging, and less likely to tweet about their congressional district.*

I also expect that majority party members should be more likely to credit-claim. The majority party by virtue of controlling key institutional positions have greater control over the legislation agenda (Cox and McCubbins 2005) and voters have been found to hold the majority party responsible for passing policy (Stimson, MacKuen and Erikson 1995; Ansolabehere and Jones 2010; Jones and McDermott 2010). The majority party has both greater credit-claiming opportunity and incentives to show voters they are effectively using majority power to pass legislation. Previous work has found that majority party members are more likely to emphasize credit claiming (Curry and Lee 2020) and are more policy focused than minority party members (Woon 2008). Further, existing theories of minority party behavior argue that the minority party, whom lack procedural control over the legislative agenda, focus on the policies they would pass if given majority control rather than compromise and pass the majority party's bills (Lee 2016). Without procedural control over the legislative agenda, minority party members turn to non-legislative means, like position-taking on Twitter, for agenda-setting (Koger 2003; Morris 2001).

Because Twitter provides an opportunity for minority party members to play the role of policy obstructionist and scrutinize the majority's behavior, we can expect to observe more partisan rhetoric from the minority party. Moreover, legislative initiatives that are associated with either the majority party or the president then become partisan, and thus are unlikely to receive votes

from the opposing party (Lee 2009). Minority party members, therefore, have greater incentive to use partisan rhetoric in order to impede majority party legislative proposals. Minority party members have greater incentives to take more positions on their legislative proposals and be more partisan on Twitter than the majority party, who should be more likely to claim credit for legislation.

*$H_4$: Majority party members are more likely to use Twitter for credit-claiming; minority party members are more likely to use Twitter for position-taking and partisan rhetoric.*

A similar logic applies to members who belong to the president's party. Presidents play an important role in the policymaking process by setting the policy agenda (Beckmann 2010) and pressuring Congress through public statements to pass specific bills (Kernell 2006). If voters hold representatives from the president's party responsible for passing legislation then position-taking and partisan rhetoric, particularly regarding presidential agenda items, risks politicizing and polarizing the policy, reducing the likelihood of receiving roll call support of the opposing party. In short, the cost of position-taking is higher when a member shares a party with the president. Members of the president's party should be more likely to claim-credit and less likely to take positions or use partisan language on Twitter. This is consistent with previous work showing that members of the president's party credit-claim more (Grimmer, Messing and Westwood 2012) and that members not in the president's party give more partisan speeches and are more likely to criticize the president (Green 2015; Morris 2001; Russell and Wen 2021).

*$H_5$: Members from the president's party are more likely to use Twitter for credit-claiming; members of the opposing party of the president are more likely to use Twitter for position-taking and partisan rhetoric.*

The messages members disseminate and the corresponding presentation they adopt is a strategic choice, but it is also constrained by their own personal strengths and qualities. There is a notion that members of congress are either "work horses" or "show horses" (Payne 1980). Some representatives arrive to Congress with policy ambitions and a willingness to invest personal and office resources into their committee assignments and legislative work. Others are driven by gaining publicity and building their own celebrity persona as a representative. Members have limited resources and want to build presentations of self through their digital messaging that are consistent with their work as representatives. I expect that more effective lawmakers, those that devote greater time and resources into passing legislation and thus can be considered "work horses" will post more policy and credit-claim tweets than their less effective peers.

*$H_6$: More effective lawmakers are more likely to use Twitter for policy messages and credit-claiming.*

The defining feature of modern politics has been the well documented polarization of parties, a phenomenon where the policy preferences between the Republican and Democratic parties are increasingly divided and the preferences within each party are increasingly similar (e.g. Poole and Rosenthal 2007). Existing literature finds that ideologically extreme members take more positions (Koger 2003; Yiannakis 1982; Highton and Rocca 2005; Maltzman and Sigelman 1996) and are more partisan (Morris 2001) than their more moderate peers. Ideological extremists are more likely to be unsuccessful at passing legislation that reflects their preferences in the moderate legislative process, where legislating usually requires bipartisan support (Shepsle 1979). These members then must find other ways to influence the legislative process and articulate their policy preferences to voters. We should then expect that more ideologically extreme representatives should be more likely to take positions on Twitter. Moreover, because ideological extremist are almost always party extremist we should see these members using partisan rhetoric more on Twitter than ideological moderates.[6]

*$H_7$: Ideologically extreme members are more likely to use Twitter for position-taking and partisan rhetoric.*

Scholars have documented the asymmetric pattern of party polarization, where Republicans have shifted more towards the ideological extremes than Democrats (Theriault 2013; Grossmann and Hopkins 2016; McCarty, Poole and Rosenthal 2016). Grossmann and Hopkins (2016) argues that Republicans have polarized more as a result of their conservative voting base, incentivizing more partisan positions in order to compete in party primaries. Others have argued that asymmetric polarization is driven by party leaders, who use electoral threats and agenda control to enforce party and ideological loyalty (Hacker and Pierson 2006; Theriault 2013). Given this, we would expect that Republicans should be more likely to use partisan rhetoric on Twitter to satisfy their primary voters or party leaders. And previous work has found that Republican Senators are more partisan on Twitter than Democrats (Russell 2018*b*). As such, we expect that Republicans should be more likely than Democrats to use partisan rhetoric on Twitter.

*$H_8$: Republicans are more likely to use Twitter for partisan rhetoric.*

[6]Because ideological extremism is measured from DW-Nominate scores, which are calculated from the roll call behavior of members of Congress, members with high party extremism scores (more ideologically extreme relative to their party median) vote with members of their own party more than the opposite party. The scaling algorithm for DW-Nominate uses a distance matrix of members binary votes on legislation, so members who vote together more frequently will be ideologically closer than members who vote together on fewer votes. In recent congresses roll call votes are designed to divide the two parties (Lee 2009), rather than produce cross-party coalitions, so differences between members' ideology arises from partisan voting patterns.

Previous scholars have demonstrated that the racial identities of both lawmakers and their constituents influences the types of messages representatives chose to emphasize in their communication, particularly among Black representatives (Canon 2020; Brown and Gershon 2016).[7] For instance, Black lawmakers play a large symbolic role as leaders of the black community (Fenno 1978; Grose 2011). Work by Brown and Gershon (2016) found that Black lawmakers were more likely to frame their messages around issues of race and focus on race specific policy areas compared to Latinx legislators. And minority representatives favor constituency casework more than white representatives, particularly when representing majority-minority constituencies (Lowande, Ritchie and Lauterbach 2018; Grose 2011). However, the policy priorities for Black legislators and the Congressional Black Caucus – such as civil rights and affirmative action – are both more challenging to pass and lack widespread support from Black Americans (Swain 1995). This would suggest that there are less reelection incentives for position-taking and opportunities for credit-claiming for Black legislators who dedicate their resources towards these policy areas. In contrast, Latinx members are more likely to directly target Latino populations in their tweets and more likely to claim credit for policy benefits (Gervais and Wilson 2017). We should then have different expectations between Black and Latinx representatives: Black legislators should be more likely to use advertising messages on Twitter that emphasis their symbolic representation and less likely to claim credit, while Latinx representatives should be more likely to post credit-claiming messages.

*$H_{10}$: Black members are more likely to use Twitter for advertising and less likely to use Twitter for credit-claiming; Latinx members are more likely to use Twitter for credit-claiming.*

Finally, previous work consistently finds gender differences in the ways members of Congress appeal to constituents and campaign for office (Dolan and Kropf 2004; Fridkin and Woodall 2005). While some evidence suggest that female candidates are punished for demonstrating male characteristics (Kahn and Fridkin 1996), other work has found that female politicians are more likely to use attack style rhetoric in their campaigns (Evans and Clark 2016; Brooks 2011). Women politicians often perceive they have to work harder than male counterparts and counter the gender stereotypes when campaigning for office. For example, Fox and Lawless (2004) find that women are less likely than similarly qualified men to believe they are qualified for office. In order to counter stereotypes that women are less policy-oriented or only interested in "women's" issues, women are more likely to take post more positions, policy, and partisan messages on Twitter (Russell 2018*a*; Evans and Clark 2016; Evans et al. 2017; Hemphill, Russell and Schöpke-Gonzalez 2020).

[7]This dissertation admittedly fails to distinguish the behavior of the twenty Asian representatives who served in the House during this time period. This is primarily a result of the biographical data of members of Congress I used, which did not record Asian representatives.

*$H_{11}$: Female members are more likely to use Twitter for policy, position-taking, and partisan rhetoric than male members.*

To be clear, all members of Congress are expected to use each of these six messages – position-taking, credit-claiming, advertising, policy, partisan, and district mentions – on Twitter. But representatives will tailor their appeals to constituents in order to win the electoral support of voters. Besides their own reelection, members of Congress care about influencing legislation outcomes and majority party status, so their online messaging should be constrained by their institutional positions. Further, we expect that women and minority lawmakers face additional considerations with respect to their online messaging as a result of constituent expectations for the behavior and priorities of their elected officials. In short, we expect that members should vary in how much they emphasize each message according to their district partisanship, majority status, party, legislative effectiveness, ideology, race, and gender, for example. Section 3.4 will test these hypotheses and explore the relationship between these variables and the extent a member prioritizes each message type on Twitter.

In this section, we established the six messages members of Congress use to present themselves to their constituents and larger public. Representatives can use position-taking, credit-claiming, or advertising messages and can use policy, partisan, or district appeals on Twitter. In addition, we outlined some expectations for how members' district composition, institutional positions, and personal characteristics might be correlated with a stronger (or weaker) emphasis on a particular message type. The following section details how I transformed the collected text from representatives tweets into usable text data, and then reviews how tweets were classified as each message type.

### 3.2 Identifying Tweet Content With Natural Language Processing

Presentation of self includes both verbal and nonverbal components. Of course measuring the nonverbal communication is beyond the scope of this dissertation, so we will focus on measuring the verbal, or text, communication of representatives. As discussed at length in chapter 1, compared to other forms of text communication widely available for members of Congress, such as newsletters or press releases, the language on Twitter better approximates how members present themselves to the public by examining the topics and word choice of tweets. The data collection and analysis of representatives' tweets in Chapter 2 demonstrates the growing importance of Twitter to member's presentation of self, and politics in general. To reiterate, I collected the Twitter handles of all representatives who served from the $111^{\text{th}}$ through the $116^{\text{th}}$ Congresses (2009-2020). I then collected all the tweets posted while the member was a sworn member of the House, collecting 3,251,776 million tweets. This section will review a two-step methodological approach: first, to uncover the message of each of these tweets we have to first pre-process the text data. Second, I use a series of

natural language processing methods to label each tweet as either position-taking, credit-claiming, or advertising and then identify tweets with policy, partisan, or district related content. In addition to reviewing the natural language processing methods used to classify each tweet, this section will demonstrate the success of this method at identifying the content of the tweets.

### 3.2.1 Text as Data and Pre-Processing Tweets

To measure members of Congress presentations of self using Twitter data requires transforming the text of tweets into quantitative data. The goal is to uncover the type of message the member is tweeting. To do this, we first need to prepare the text to remove extraneous words that would be unhelpful for uncovering these concepts. I start with the conventional protocol for pre-processing (Denny and Spirling 2018; Grimmer and Stewart 2013) by completing the following steps:[8]

1. Make all text lowercase
2. Remove punctuation and symbols (including emojis)
3. Remove numbers*
4. Remove stop words (e.g. the, it, a)
5. Remove extra white space

While numbers are generally considered not useful for text analysis, there are certain instances where numbers may convey important information, for instance bill numbers (HR 1) and district numbers (TX25). To capture this information, I formatted all mentions of bill numbers to be identical, such that "H.R. 1" and "HR 1" are all written as "HR1". This step is particularly important for chapter 5 which explicitly examines bill mentions in congressional tweets. I then removed all numbers *not* attached to either a bill acronym (HR, S, HJRES, SJRES), state acronym (TX, TN), or the abbreviation for congressional district (CD).

Prior to removing stop words, I removed possession and contractions.[9] Removing possession, for example changing "president's" to "president", is important for when we want to stem each word. Without this step words with possession will not be stemmed to its word stem and we risk counting the same word, "president", as two distinct words. Contractions are replaced prior to removing punctuation to ensure we remove all stop words. After completing this step, I removed all stop words (the, am, and, so, etc.) from the text as these words do not contain valuable information for

[8]This was done using the `quanteda` package in `R` (Benoit, Watanabe, Wang, Nulty, Obeng, Müller and Matsuo 2018).

[9]This was done using the `textclean` package in `R` (Rinker 2018).

uncovering the message of a tweet. As is standard text pre-processing protocol, I stemmed each word in the tweet using the standard Martin Porter's stemming algorithm (Porter 1980). For example, we would not want to count "education", "educating", and "educational" as distinct words for the purposes of identifying the underlying topic of the tweet. Instead, we want to stem the words down to their word stem, "educ" for example. This has the added benefit of reducing the size of our document-feature-matrix so that estimation is more efficient.

There are features unique to Twitter that require additional pre-processing. First, when a member tweets a link, image, or video, the URL for that content is included in the downloaded tweet text. URL links are removed from the Text. Second, when a member retweets another user's tweet, Twitter adds "RT" to the start of the text. If a tweet is originally authored or Retweeted is maintained elsewhere in my data, and since this text is added by Twitter and is not useful it is dropped from the text.

After these pre-processing steps have been completed, I removed any remaining single character words. At this point, all remaining single letters are either anomalies from the text itself or a result of prior pre-processing steps. Regardless, a single letter provides no information and is therefore removed. Finally, we want to remove infrequently used terms. I removed all words that do not appear in at least ten tweets. The rationale for doing this is, first, rarely used terms do not contribute much information about document similarity. Second, doing so reduces the size of the vocabulary and thus can dramatically speed up analysis tasks.

Now that the text has been transformed, so it only contains alphabetic letters and potentially useful words, I then established each tweet as a document and each word contained within the tweet as a feature. I then transform this corpus of tweets into a document-feature matrix (DFM). In a DFM, each row represents a document (tweet) and each column is a feature (word), such that there is one column for each unique feature that appears across all documents. Each cell in the DFM indicates how many times, if at all, a feature appears in a particular document. Our resulting DFM after these pre-processing steps has 42,082 features and 3,224,063 documents. About 20,000 tweets were dropped because after pre-processing there was no remaining text, so the total number of documents is less than the total number of tweets collected. In most cases these tweets either contain only an image/video, link, or emojis.

Now with the tweets transformed into usable text data, we proceed to the discussion of how tweets were labelled as position-taking, credit-claiming, or advertising and identified as containing policy, partisan, and district content. I apply a combination of keyword assisted topic models and keyword searches to identify the message content of each of the over three million tweets.

### 3.2.2 Application of Topic Models to Tweet Messages

A member's presentation of self contains many components, many of which are subtle and unique to each member. I focused on several message types that can be broadly used to describe how a representative presents themselves to their constituents and public writ-large using Twitter, and have been used previously in research on representatives' communication. The six types of messages include: position-taking, advertising, credit-claiming, policy, partisanship, and district mentions. For the first three – position-taking, advertising, and credit-claiming – I used a keyword assisted topic model to classify each tweet as one of these three types of messages. These labels are mutually exclusive.[10] This is consistent with Mayhew (1974) original work arguing that all member speech can be classified into one of these three categories. Moreover, given that Twitter restricts tweets to 240 characters or less it would be unlikely for a single tweet to contain, for example, both credit-claiming and advertising. To identify tweets with policy content I use a separate Keyword Assisted topic model. Because we expect policy content to appear in both credit-claiming and position-taking tweets, this model is estimated separately. To identify tweets that engage in partisan rhetoric or mention the member's district I employed a keyword search.

This section begins with a detailed discussion of keyword assisted topic models, why this particular method was selected, and the keywords selected for each desired topic. This is followed by a review of the keyword search method used to identify partisan and district content. Finally, I demonstrate the success of these methods at correctly identifying these six messages in representatives' tweets.

For four of the six components – policy, position-taking, credit-claiming, and advertising – I use a keyword assisted topic model, which combines a Latent Dirichlet Allocation (LDA) model with a list of keywords associated with the desired topics (Eshima, Imai and Sasaki 2020). This model can be characterized as a "bag-of-word" model where we assume that the order of the words does not matter, only the usage of a particular word in a document is used to identify the content of the text. The document-feature matrix (DFM) only tells us how many times a particular feature appears in the document, and not the order of words within the document. The LDA topic model was originally developed by Blei, Ng and Jordan (2003) and has since become a widely adopted method for document classification in political science (e.g. Grimmer 2013*a*; Martin and McCrain 2019). It is worth first briefly reviewing the LDA topic model.

[10] Russell (2018*a*) examines the trade-off between these three messages and allows for a single tweet to contain multiple messages.

LDA is a three-level hierarchical Bayesian model that assumes that each document in a corpus is a mixture of topics and topics are a mixture of words. LDA has become the standard topic model because it simultaneously estimates the probability a document belongs to each topic and the probability a word belongs to each topic. The following notion is from Blei, Ng and Jordan (2003):

- A *word* is equivalent to a single feature from a vocabulary indexed by $\{1, ..., V\}$
- A *document* is a sequence of $N$ words denoted by $\mathbf{w} = (w_1, w_2, ..., w_N)$
- A *corpus* is a collection of $M$ documents denoted by $D = \{\mathbf{w}_1, \mathbf{w}_2, ..., \mathbf{w}_M, \}$

LDA assumes that there are latent topics $z$ that both documents and words can belong to, and there are known and fixed $k$ total topics.[11] In the model $\theta$ is the probability of topic $z$ occurring in document $M$, and $\beta$ is the probability word $w_n$ occurring in topic $z$. LDA assumes that the distribution of topics in documents, $\theta$, is distributed according to a Dirichlet distribution with concentration parameter $\alpha$; and the distribution of words in topics $\beta$ is also distributed according to a Dirichlet distribution with concentration parameter $\delta$. [12] In practical terms, the use of a Dirichlet distribution results in a more precise assignment of words to a topic and of documents to a topic.[13] The algorithm begins by choosing $\theta \sim Dir(\alpha)$, a random sample representing a possible topic distribution for document $M$. Then for each of the $N$ words $w_n$ in document $M$, it selects a topic $z_n$ from $\theta$ and a word $w_n$ from $p(w_n|z_n, \beta)$, the probability of seeing word $w_n$ conditioned on the topic $z_n$. Figure 3.7 graphically displays these steps. This process repeats, using Gibbs Sampling procedure, until we uncover the latent variables $\theta$ and $k$ that maximizes the likelihood of generating our actual data. LDA simultaneously estimates the probability a word $w_n$ belongs to each topic $z$ and the probability a document $M$ belongs to each topic $z$. Because of the use of Dirichlet distribution (with concentration parameter $\alpha > 1$), we are most likely to see a document with a topic distribution: 90% topic A, 5% topic B, and 5% topic C. Rather than see a document with a topic distribution: 33% topic A, 33% topic B, 33% topic C.

When using Blei, Ng and Jordan's (2003) LDA topic model and other fully automated text classification models, the researcher selects the number of topics that exists and the model "discovers" the topics by grouping the documents into each topic based on the presence of certain features. It is then the researcher's job to post-hoc label the discovered topics. This is an appropriate method when one is exploring topics in a corpus without prior knowledge or the underlying topics are extremely clear and distinct. However, since the objective of models like LDA is "to maximize

[11] $k$ is the dimensionality of the Dirichlet distribution and thus the dimensionality of the topic variable $z$

[12] $\alpha$ and $\delta$ are corpus level parameters. When implementing LDA in `R` using the `topicmodels` package the recommended values are set at $alpha = 50/k$ and $\delta = .1$

[13] For detailed discussion of why this is the case see Blei, Ng and Jordan (2003)

Figure 3.7: Graphical Depiction of LDA

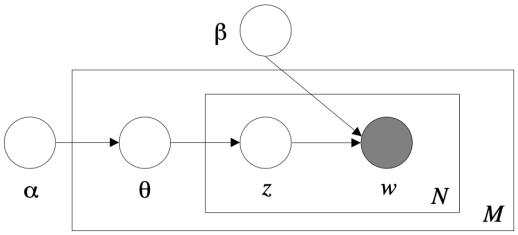



Figure 1: Graphical model representation of LDA. The boxes are "plates" representing replicates. The outer plate represents documents, while the inner plate represents the repeated choice of topics and words within a document.

Figure 3.7: Reprinted from Blei, David M, Andrew Y Ng and Michael I Jordan. 2003. "Latent Dirichlet Allocation." Journal of Machine Learning Research 3:997.

the probability of the observed data, they have a tendency to explain only the most obvious and superficial aspects of a corpus. They effectively sacrifice performance on rare topics to do a better job in modeling frequently occurring words" (Jagarlamudi, Daumé III and Udupa 2012, p.204). As a result, these fully automated models often create multiple topics for a single theme and combine distinct themes into a single topic (Jagarlamudi, Daumé III and Udupa 2012; Eshima, Imai and Sasaki 2020). In this case, the more obvious topic groups that arise from an LDA topic model using representatives' tweets are specific policy topics or current events. Here we are interested in measuring specific known concepts – position-taking, credit-claiming, advertising, and policy – that unsupervised models like LDA are unlikely to uncover. The benefit of a keyword assisted topic model is that the researcher can incorporate substantive knowledge about known topics that exists in the corpus by feeding the model keywords that belong to each topic. So for example, if we are interested in identifying tweets about policy we can tell the model that documents with the words "bill", "health", "educ", and "agricultur" all belong to a single topic. This improves the interpretability and topic classification of LDA models.

I used the keyword assisted topic model developed by Eshima, Imai and Sasaki (2020) using the `keyATM` package in `R`. The key difference from LDA is that we select $K$ total topics, where $\tilde{K}$ is the number of keyword topics, and provides a set of $L_k$ keywords, denoted by $V_k = \{v_{k1}, v_{k2}, ...v_{kL_k}\}$. The same keywords can be used for different topics, and keywords must appear in the vocabulary of $V$ unique words. This model also allows the inclusion of no-keyword topics. To identify policy tweets, I used one no-keyword topic to be interpreted as non-policy tweets, and I did not include

any no-keyword topics for identifying position-taking, credit-claiming, and advertising messages.[14] Like LDA, a topic $z_n$ is drawn from the distribution of topics in a document $\theta$. Then a Bernoulli random variable $s$ is drawn with success probability $\pi_k$, if the variable is equal to 1 then the word $w_n$ is drawn from the set of keywords based on the probability distribution $\tilde{\beta}_k$. If the random variable is equal to 0 then the $w_n$ is drawn from the standard topic-word distribution $\beta$.[15] The influence of keywords is controlled by the value of $\pi_k$, the probability a keyword is selected, using the uniform prior distribution of $\pi_k \sim Beta(\gamma_1, \gamma_2)$ where $\gamma_1 = \gamma_2 = 1$.[16] If the topic selected $z_n$ is a no-keyword topic, then the word is sampled from $\beta$ just as the original LDA topic model. Because the keyword assisted topic model is based on a mixture of distributions – one with probabilities of keywords being selected and one with probabilities of all words – the prior for the frequency of keywords given a topic is greater than those of non-keywords in the same topic. Put simply, the model places greater importance on keywords *a priori*. A graphical representation of the keyword assisted topic model is displayed in Figure 3.8.

Figure 3.8: Graphical Depiction of Keyword Assisted Topic Model

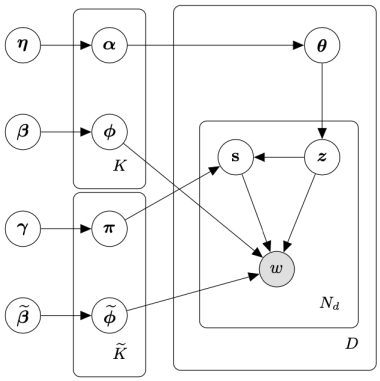



Figure S1: **Graphical model of the base keyATM**: The shaded node ($w$) represents the observed variable while transparent nodes denote latent variables.

Figure 3.8: Reprinted from Eshima, Shusei, Kosuke Imai and Tomoya Sasaki. 2021. "Keyword Assisted Topic Models." p.46.

Before implementing the model, we first have to decide what keywords to feed the model in order to classify individual tweets as either position-taking, credit-claiming, or advertising; and

[14] Including no-keyword topics in this model did not improve topic interpretability.

[15] $\theta$ and $\beta$ are assumed to distributed according to the same Dirichlet distribution with concentration parameters $\alpha$ and $\delta$ as LDA

[16] Individuals can change the values of $\lambda_1$ and $\lambda_2$ in order to change the overall influence of keywords on estimation. The uniform prior distribution is recommended by Eshima, Imai and Sasaki (2020)

then to classify tweets as either policy or non-policy. I started with a sample of over 72,000 tweets hand-coded from June 2017 to October 2020 by Vanderbilt University undergraduates for these four labels.[17] Initially, I used these tweets to train a naive Bayes classifier with the document frequency of each label set as the prior to label all the tweets in my data set as position-taking, credit-claiming, or advertising. On the test data, the model performed well with an F1 score of .8995.[18] However, upon further inspection there were two issues with this approach: first, when the trained model was applied to the entire data set it was unable to generalize to a larger time period. Similar to the challenges with an LDA topic model, the influence of words indicating policy topics and events associated with, for example, position-taking during this time period limited its ability to correctly identify position-taking over different policy areas or political events in other time periods. Second, a model is only as good as the data you give it and students are not individually great at identifying position-taking, credit-claiming, advertising. Luckily, the student coded tweets represents the classic example of the wisdom of the crowds: $19^{\text{th}}$ Century Statistician Francis Galton asked 800 attendees of a livestock fair to guess the weight of an ox, and while most individual guesses were wrong the median of all the guess was almost exactly the weight of the ox. Collectively a group of people are very good estimators, but individually they are often wrong. The same phenomenon occurred with the student coded tweets. Students mislabelled a lot of tweets, but when examining the words they collectively identified as associated with each of these four types of messages, they were right.

At this point, I pulled the 100 most frequent features associated with position-taking, credit-claiming, advertising, and policy as identified by the student coded tweets, and then removed certain words that I believed were not unique to that category. In most instances, the removed words were either frequently occurring across all messages categories or were related to specific current events. In addition, for the policy keywords I used the Comparative Agendas Project Master Codebook to include policy area specific keywords.[19] Table 3.1 displays the keywords selected for the policy topic. For example, policy keywords include words stems like *bill*, *health*, *union*, *budget*, *immigr*, and *educ*. Table 3.2 displays the keywords selected for credit-claiming, position-taking, and advertising topics. For example, credit-claiming keywords include the word stems *secur*, *consponsor*, *sign*, and *law*; position-taking keywords include *support*, *bill*, *vote*, *pass*, and *chang*; advertising keywords include stems such as *thank*, *celebr*, *visit*, *watch*, and *honor*. This process selects the most common

[17] Nearly 800 undergraduates in PSCI 1150 were given a random sample of 100 tweets to hand code as a class assignment. I am thankful for all the hard work and care they put in to completing this assignment in the midst of a global pandemic.

[18] An F1 score is a measure of a model's accuracy, where a value of 1 is a model with perfect precision and recall. $F1 = 2 * (Precision * Recall)/(Percision + Recall)$ where $Precision = (\#\ of\ True\ Positives)/(\#\ of\ True\ Positives + \#\ of\ False\ Positives)$ and $Recall = (\#\ of\ True\ Positives)/(\#\ of\ True\ Positives + \#\ of\ False\ Negatives)$

[19] `https://www.comparativeagendas.net/pages/master-codebook`

and unique words that are associated with each topic while avoiding features that are related to specific policies or current events.

Table 3.1: Policy Keywords

| | | | | | |
|---|---|---|---|---|---|
| **bill** | **pass** | fund | project | propos | improv |
| feder | grant | develop | economi | bipartisan | polici |
| law | cost | **health** | legisl | **vote** | introduc |
| committee | sponsor | floor | sign | reform | amend |
| cosponsor | budget | tax | govern | agenda | secur |
| climat | immigr | **act** | environ | **job** | program |
| oversight | regulat | deal | plan | stimulu | packag |
| educ | hear | agricultur | **famili** | ensur | **protect** |
| proud | **work** | employ | unemploi | industri | insur |
| trade | labor | union | infrastructur | regul | crime |
| transport | intellig | foreign | administr | | |

Note: Keywords that are among the top 20 most unique features for the estimated topic are bolded.

To apply the keyword assisted topic models I randomly sampled without replacement 150,000 tweets at a time, creating separate DFMs for each sample, until each of the three million tweets were sampled. The sampling technique has two advantages: first, it is computationally intensive to run this type of model with such a large quantity of documents. Reducing the size of the DFM makes it possible to use more sophisticated text modeling algorithms, such as the keyword assisted topic model. Second, it reduces the influence of specific events on the results of the model since tweets were sampled across the entire time period. The topic model was then implemented on each of the sampled DFMs using the keywords supplied, first to categorize each tweet as either position-taking, credit-claiming, or advertising and then again to categorize each tweet as either policy or non-policy. I then repeated this process two more times to ensure that results were consistent across DFM samples. For each document, we then obtain a probability that the document belongs to each of the $k$ topics provided. The keyword assisted topic model, like LDA, is designed so that documents are assigned a high probability of belonging to a specific document. Each document was then categorized appropriately based on the topic it was assigned the highest probability.

Table 3.2: Credit-Claiming, Position-Taking, and Advertising Keywords

| Credit-Claiming | | Position-Taking | | Advertising | |
|---|---|---|---|---|---|
| introduc | law | adminstr | **support** | **thank** | come |
| effort | **vote** | democrat | **vote** | **day** | morn |
| colleagu | **bill** | republican | **bill** | **year** | good |
| gov | **work** | stand | **work** | **honor** | togeth |
| small | honor | chang | **now** | **meet** | watch |
| sign | legisl | plan | **right** | **happi** | home |
| sign | pass | put | pass | celebr | safe |
| resourc | public | action | **protect** | **visit** | love |
| **act** | offic | **act** | action | serv | learn |
| **help** | **call** | polici | includ | look | tune |
| **secur** | cosponsor | want | nation | school | togeth |
| proud | project | want | countri | hear | loss |
| pass | improv | **fight** | continu | friend | rememb |
| bipartisan | relief | bipartisan | | talk | |
| sponsor | introduc | polit | | counti | |

Note: Keywords that are among the top 20 most unique features for the estimated topic are bolded.

Recall that all tweets were labelled either credit-claiming, position-taking or advertising such that these labels are mutually exclusive.[20] I assume that all tweets can be categorized as one of these three types of messages.[21] 26.62% of tweets were labelled credit-claiming and 36.44% were labelled position-taking – totaling to roughly the same percent of tweets labelled as Policy – and 36.28% were labelled as advertising. The average probability of each tweet belonging to the topic to which it was categorized was 99.22%. The second model categorized 61.90% of tweets as having policy content. Among these policy tweets, the topic model assigned an average probability of each document belonging to the policy topic of 99.79%.

How well did the keyword assisted topic model correctly identify the desired topics of tweets? If the model performed as intended, then we should observe the words we associate with each message to be frequently occurring and unique to the resulting topics created by the model. Figure 3.9 displays the frequency of the ten most unique word stems for each topic assigned by the model.

[20] 21,349 tweets, consisting of only .6% of total tweets, had so little text remaining after pre-processing and were not labelled by either `keyATM` model; These tweets are retaining in the data, and are assumed to have no message content.

[21] Allowing the topic model to create additional non-keyword assisted topics does not improve model interpretability

Words most associated with each topic are exactly what we would expect: credit-claiming tweets frequently refer to federal *fund*ing, *program*s, and *law*s, and members are likely to brag about policy they *secur*ed or the benefits the policies *provid*e. When position-taking, members *want* policy *plan*s to pass *right now*. In addition, these tweets often contain more partisan language like *democrat*, *gop*, and *realdonaldtrump*. Advertising tweets frequently mention *talk*ing or *visit*ing with *veteran*s and *celebr*ating a local *school*'s *first* championship win. When discussing policy, members are tweeting about how a *bill* becomes a *law* in the *House* and how they are *proud* to *vote* for (or against) a *health care bill*. In addition, the example tweets presented in section 3.4 were each correctly classified by the topic model as the appropriate message.

Next, each tweet was labelled as having partisan content. Rather than use a topic model, I used a keyword search. I created a list of partisan keywords, displayed in Table 3.3, including the names and Twitter handles of party leaders and presidents as well as words referencing either political party. Then I used the `Tidyverse` package's function `str_detect` to identify if each tweet contained at least one of the partisan keywords.

For district tweets, it was slightly more complicated. Here we are interested in identifying tweets where the member mentions their own district. As such, we want to exclude tweets where members mention a state or city outside their own state. A keyword assisted topic model would be unable to distinguish district tweets from tweets mentioning a geographic place in general, so I again used a keyword search to identify district tweets. All tweets were searched for the common keywords, "district", "county", and "CD". I then created separate data frames containing tweets sent by members from each of the 50 states. For each collection of state tweets, I then searched for the name of the state (e.g."Alabama"), the state abbreviation (e.g. "AL"), and the city names of the top 10% most populated cities in that state according to the 2020 Census.[22] This method prevents miscoding tweets mentioning current events specific to other states or using state identities, for example "California Democrats", for political messages. For example, tweets mentioning the Flint Michigan Water Crisis is only coded as a district message if the member tweeting about it is from Michigan.

If this keyword search is effective at identifying tweets with partisan or district content, then we should observe the words we associate with these messages to be frequently occurring and unique to the resulting classified tweets. Figure 3.10 shows the 10 most frequently occurring word stems for district and partisan tweets. District tweets mostly commonly mention the *district* and mention the representative's state. In district tweets, members tweet about travelling and making *local stops*

[22]Data of US cities by population: `https://simplemaps.com/data/us-cities` and the number of cities included for each state in the search can be found in Appendix 8.2.

Figure 3.9: Frequency of Top Ten Stems for Credit-Claiming, Position-Taking, Advertising, and Policy Tweets


Figure 3.9: Displays the top ten most frequently occurring word stems unique to each message and the number of times the stem appears in the those tweets. The stem for President Trump's Twitter handle "realdonaldtrump" was shortened to "realdt*" to improve presentation.

*across* the *district*. Other top word stems for district tweets include *home*, *go*, *back*, and *washington*. In partisan tweets, we see members most frequently referring to the *democrat* and *republican* parties or the *presid*ent. We see member's making appeals to the *american* people and discussing *vot*ing in the *hous*e. Judging from Figures 3.9 and 3.10 the process for identifying each of these messages was successful, with the words most commonly associated with each message matching

Table 3.3: Partisan Keywords

| | | | |
|---|---|---|---|
| democrat | democratic party | republican | housedemocrats |
| gop | majority party | minority party | obama |
| trump | president | realdonaldtrump | potus |
| pelosi | speaker | speakerpelosi | leadermcconnell |
| boehner | senschumer | speakerryan | mccarthy |
| gopleader | mcconnell | romney | biden |
| clinton | conservative | liberal | white house |

my expectations. Moreover, all the example tweets discussed earlier in this chapter were correctly classified by the keyword assisted topic model and the keyword search.

Figure 3.10: Frequency of Top 10 Stems for Partisan and District Tweets

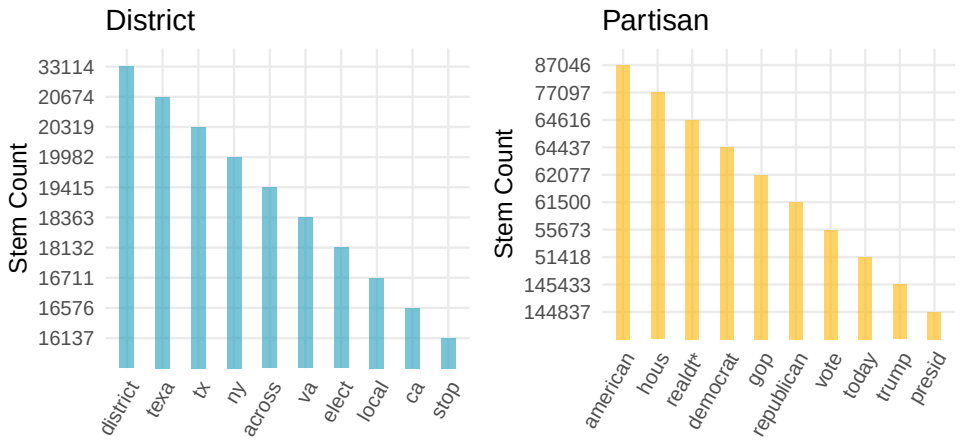



Figure 3.10: Displays the top ten most frequently occurring word stems unique to each message and the number of times the stem appears in the those tweets. The stem for President Trump's Twitter handle "realdonaldtrump" was shortened to "realdt*" to improve presentation.

In closing, this section reviewed the natural language processing methods used, specifically keywords assisted topic models and keyword searches, to identify position-taking, credit-claiming, advertising, policy, partisan, and district messages in the over three million tweets. The combination of methods yielded accurate and coherent classification of tweets by the types of appeals made by the representative. With these labelled tweets, the following section presents the prevalence of

each message type over time and between parties to understand which appeals members of Congress collectively use on Twitter.

### 3.3 Messaging Trends on Twitter

Twitter was first introduced in 2006 and quickly took off in popularity after the 2007 South by Southwest festival and the 2008 presidential campaign. I collected tweets starting in January 2009 when Twitter was still a relatively new platform, and this section explores how members collective use of Twitter has changed, if at all, over time. Early work documented that members of Congress used Twitter primarily to publicize political positions and direct followers to information about current events or government resources (Golbeck, Grimes and Rogers 2010; Hemphill, Otterbacher and Shapiro 2013). I find that across the twelve-year period members of Congress are by and large policy oriented on Twitter, but have increasingly used the platform for position-taking and partisan messaging at the expense of advertising. While previous work documented similar patterns of behavior between Democrats and Republicans (Golbeck, Grimes and Rogers 2010; Russell 2021*a*), I find large partisan differences beginning in 2017 with Democrats drastically increasing their emphasis of position-taking and partisan rhetoric on the site. This section begins with a discussion around the prevalence of each of the six message types on Twitter, and then discusses the divergent behavior of Democrats and Republicans following the 2016 election.

How are representatives using Twitter? Figure 3.11 displays the percentage of monthly tweets categorized by message type from 2009 through 2020.[23] I focused on the percent of total tweets by message type rather than the raw count, this ensured the outcomes were not skewed by general increases in tweeting frequency and variations across members. Moreover, we are interested in the emphasis members place on each message type not necessarily how often they posted, and a proportion approach better captures this concept than a count measure. For Twitter's reputation as a hyper partisan space devoid of substance, we see that the majority of tweets do in fact have policy content. 62.25% of all tweets have some policy content, and the rate of policy tweeting generally stays between 55% and 75% of tweets. House member's attention to policy is consistent with Russell (2021*a*) who found a similar proportion of senator's tweets with policy content – offering further evidence that the keyword assisted topic model was successful at identifying policy tweets. Moreover, policy tweets were retweeted on average of 278.27 times and liked on average of 314.90 times, creating a compounding effect of increasing the exposure of members policy messages across Twitter.

The proportion of policy tweeting was at its highest at the start of the Obama administration

[23] Because all labels are not mutually exclusive, totals can sum to over 100%.

Figure 3.11: Prevalence of Tweets Messages by the Message Type as the Percent of Total Monthly Tweets, 2009-2020

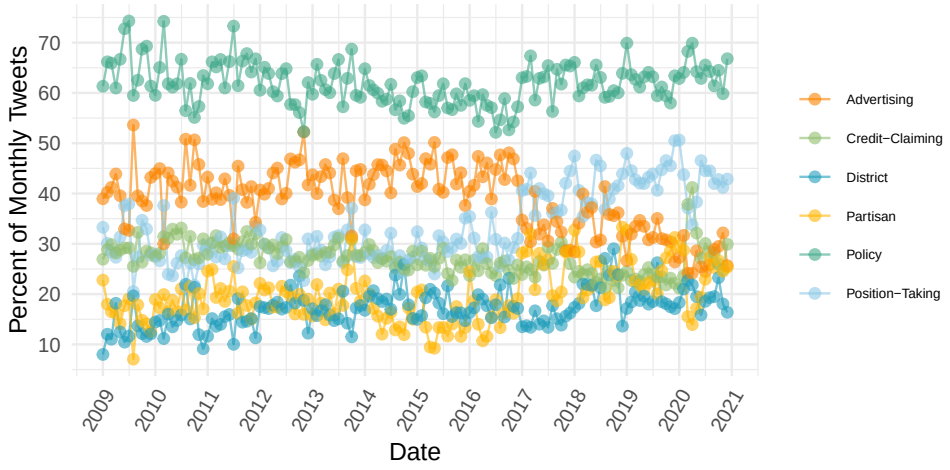



Figure 3.11: Displays the percent of total monthly tweets labelled as each message type. Because partisan, district, and policy messages are not mutually exclusive totals can be greater than 100%.

and then steadily declines throughout his term. For instance, during the 111$^{th}$ Congress (2009-2010) 63.51% of tweets were policy related and declines to 58.07% of tweets during the 114$^{th}$ Congress (2015-2016). Most high-priority policy initiatives occur at the start of a new presidential administration, such as the Affordable Care Act, so we should expect more policy specific messages as representatives work to influence the debates and public perceptions of policies. In addition, the early Obama administration was dominated by the historic Great Recession resulting in more policy tweeting – where in several months members dedicated over 75% of tweets to policy. Interestingly, policy tweeting is at its lowest levels during the 113$^{th}$ and 114$^{th}$ Congresses, when Republicans controlled the House and President Obama served his second term. Journalists highlight this time period as being particularly ineffective at passing legislation as a result of divided government coupled with the Republican Party's unwillingness to compromise with the President or the Democratic Party.[24]. Policy tweeting then increases with the start of the Trump Administration in the 115$^{th}$ Congress, when Republicans controlled both chambers of Congress and the White House. The trends in policy tweeting over time tracks with what we would expect: members of Congress are more policy focused during the start of a new administration when important and large scale policy changes are salient, and declines when legislating is gridlocked.

[24] https://www.washingtonpost.com/news/the-fix/wp/2014/07/09/the-113th-congress-is-historically-good-at-not-passing-bills/

The rates of credit-claiming and district tweeting are generally stable over time. Across the over 3 million tweets, 18.21% mention their state or district, with about 10-20% of monthly tweets mentioning the district. Representatives collectively dedicated 27.6% of all tweets to credit claiming. While the rate of credit-claiming has slightly decreased over time, it has generally stayed between 20-30%. Unlike policy tweeting, members do not appear to post more or less credit-claiming messages in response to political circumstances. However, as seen in Figure 3.11, there is an identifiable spike in credit-claiming in early 2020, when over 40% of representatives' tweets contained credit-claiming messages, as a result of the CARES Act and federal response to the COVID-19 pandemic. With so many Americans in desperate need of federal resources and a historic $1,200 direct payment to individuals, it is no surprise representatives used Twitter to claim credit and notify constituents of this federal resources. While the rates of credit-claiming and district tweeting is relatively constant over time, members have drastically shifted their focus to position-taking and partisanship and away from advertising in recent Congresses – particularly among Democrats.

Members of Congress have adapted their online messaging over time as Twitter became an important political force. Prior to 2016, members largely used Twitter to advertise (Golbeck, Grimes and Rogers 2010). However, following the 2016 Election, representatives in the 115$^{\text{th}}$ and 116$^{\text{th}}$ Congresses sent far more position-taking messages. From 2009-2016, 29.45% of representatives' tweets were used for position-taking, but from 2017-2020 42.46% were used for position-taking – a 44% increase. And a similar pattern is seen in partisan tweeting. From 2009-2016, 17.29% of tweets were identified as having some partisan content, while after 2016 the percentage of partisan tweets increases to 24.35%.

The increase in partisan rhetoric and position-taking on Twitter came at the expense of advertising. Between advertising, credit-claiming, and position-taking, advertising messages represent the largest share of tweets from 2009-2016 but quickly declines in 2017. From the 2009-2016 43.03% of tweets are advertising tweets, and from the 2017-2020 31.03% of all tweets are advertising tweets. As the percent of advertising tweets has decreased, as seen in Figure 3.12, the percent of position-taking tweets sent has increased. However, rather than decrease the raw number of advertising messages, representatives increasingly used Twitter to publicize their positions. As seen in Figure 3.12, the total number of advertising tweets levels off at around 125,000 tweets per month across all members, but the number of position-taking tweets continues to climb to over 200,000 tweets a month by the conclusion of the 116$^{\text{th}}$ Congress. Focusing on the percent of tweets rather than the raw count obscures this, as members are still using Twitter to advertise, however, the percent of tweets best captures the overall image of the representative presented to the public. And thus a decline in the percent of advertising tweets and increase in the percent of position-taking tweets is the behavior we want to measure to best approximate a member's digital presentation of self.

Figure 3.12: Percent and Number of Monthly Advertising and Position-Taking Tweets, 2009-2020

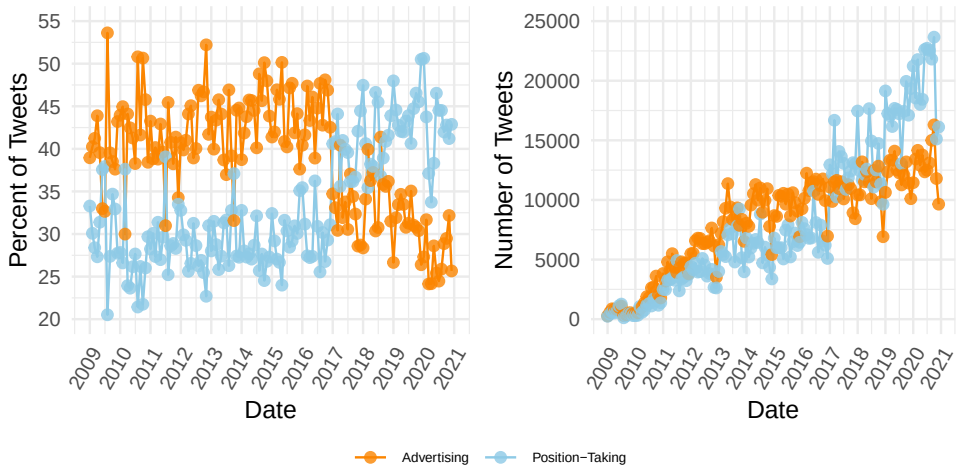



Figure 3.12: Displays the percent of tweets (left) and the total number of tweets (right) containing advertising (orange) or position-taking (blue) messages.

From 2009-2016, members of Congress prioritized advertising messages, tweeting about news articles, the local football team's record, and congressional internship opportunities. They primarily used the site to notify constituents of their activities and provide information, but at the start of the 115$^{th}$ Congress in 2017 this changed. At this point, members began using the platform for political messaging, posting more tweets about their positions on issues and partisan messages. One possibility is that this reflects the developing nature of Twitter as a messaging platform, where members over time have adapted their strategy to best take advantage of Twitter's larger user base. If this is the case, it appears that Democrats were quicker to take fully utilize Twitter's potential.

### 3.3.1 Party Differences on Twitter

As mentioned previously, members of Congress use Twitter to communicate a variety of messages on Twitter. The majority of posts have some policy content, and members have consistently used the site to focus on their congressional district and claim credit for policy advancements. Over time position-taking and partisan rhetoric has comprised a larger share of tweets while advertising messages have declined in importance. This shift towards position-taking and away from advertising was almost entirely driven by Democrats until Republicans followed suit in 2020. This section will document this shift in the Democrats' Twitter behavior and discuss the party's larger digital

messaging strategy that propelled an increase in position-taking and partisan rhetoric.

Figure 3.13 shows the percent of monthly tweets labelled as position-taking for Democrats and Republicans. We see that members equally emphasized position-taking prior to 2017, and then Democratic representatives nearly doubled their rate of position-taking on Twitter. From 2009-2016, roughly 30% of member's tweets are position-taking tweets and there are no significant party differences. But from 2017-2020, 46.70% of Democrats' and 34.69% of Republicans' tweets takes a position. The increase in position-taking was at the expense of advertising, as seen in Figure 3.14. Democrats and Republicans placed equal emphasis on advertising from 2009-2016, where 43% of tweets contained advertising messages. But from the 2017-2020, 27.31% of Democrats' tweets and 38.55% of Republicans' tweets were labelled as advertising.

One possibility is because Twitter's users lean Democratic and Republicans have been vocal in their opposition to Twitter's "censoring" of political content and President Trump's tweets, Democrats may have more incentive to use Twitter for political messaging rather than simply posting information.[25] We see some evidence for this theory in the general increase in tweeting overall by Democrats during the Trump administration (see chapter 2). However, Republicans also increased their rate of position-taking to match their Democratic colleagues behavior in 2020 with no substantial changes to Twitter's user base nor their guidelines for political tweets. The stronger explanation is that the Democratic Party made a concerted effort after the 2016 election to clearly articulate their policy agenda – one they believed better serves the voters they lost to Republicans in 2016 – and to articulate this message on social media. After being locked out of power in both chambers of Congress and the White House in 2016, the key takeaways among Democrats was, first, that their party needed to refocus on the policies the party stands for and find ways for their message to reach and connect with voters. Second, that their party was too reliant on wealthy political donors. To achieve both of these goals, it appears Democrats turned to Twitter.

Democrats believed their loss in 2016 was not the result of an unpopular message (particularly given Democrats won the majority of the presidential popular vote), but because their message wasn't reaching voters.[26] The Clinton campaign was criticized by members of her own party as well as those outside the party for lacking policy content and instead focusing too heavily on Trump's personality.[27] The Democratic Congressional Campaign Committee (DCCC) 2018 Playbook heavily focused on digital outreach as the key to winning back the House in 2018. Following the 2016 election, the DCCC opened 52 regional "pods" in the most competitive districts staffed with digital strategists to work with candidates on messaging and fundraising. This investment, according to

[25] https://www.axios.com/2022/04/15/musks-twitter-bid-political-implications
[26] https://ballotpedia.org/Presidential_election,_2016
[27] https://www.vox.com/policy-and-politics/2017/3/8/14848636/hillary-clinton-tv-ads

Figure 3.13: Position-Taking Tweets as Percent of Total Monthly Tweets by Party, 2009-2020

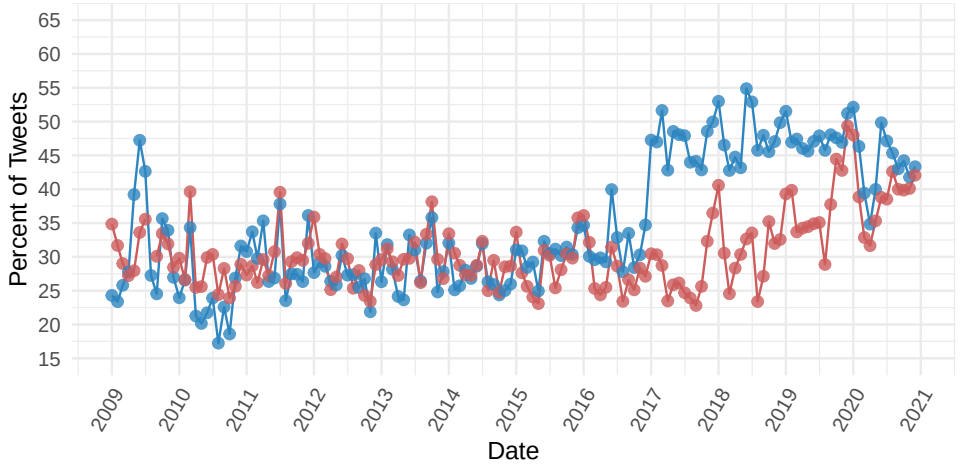



Figure 3.13: Displays the percent of Democrats (blue) and Republicans (red) total monthly tweets that contain position-taking messages.

Figure 3.14: Advertising Tweets as Percent of Total Monthly Tweets, 2009-2020

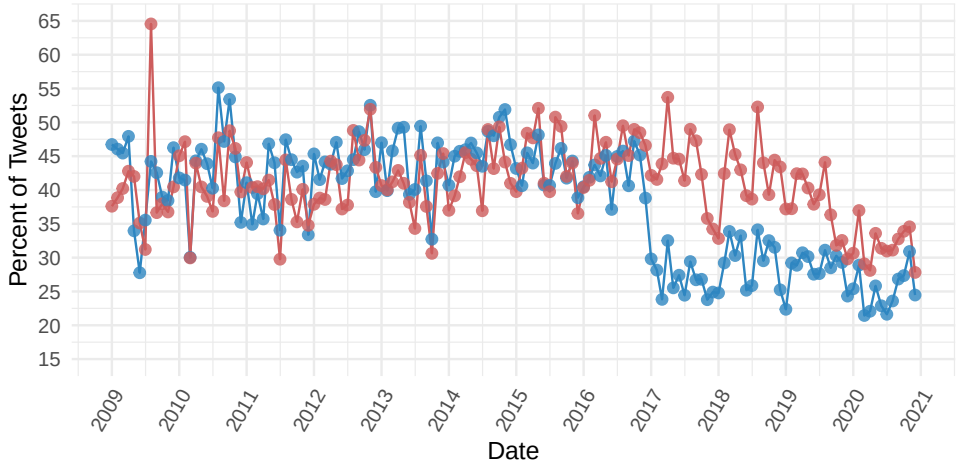



Figure 3.14: Displays the percent of Democrats (blue) and Republicans (red) total monthly tweets that contain advertising messages.

the Democratic Party, was "designed to provide a more aggressive strategy to drive discussions on Facebook, Twitter and other platforms" (Democratic Congressional Campaign Committee 2018, 8). Democrats, particularly those in the more liberal wing of the party, argued that in order to win

back seats in the 2018 midterm elections Democrats needed to come up with big policy ideas to win back voters. Senator Chris Murphy (D-CT) made this point at the start of the 115th Congress, "A lot of Democrats laughed at Bernie Sanders when he proposed free college. First of all, that's not impossible. But it's a way to communicate a really important issue in terms that people will understand."[28] Social media sites like Twitter provides candidates the chance to directly communicate these policy ideas, like free college, to voters. In addition, Twitter provided Democrats an opportunity to dispel stereotypes that Democrats are elitist or out of touch with "normal" people, a chance to show their authenticity – something Trump did exceptionally well in 2016. Senator Cory Booker (D-NJ) rebuked Democrats after their election loss to "do your own social media for crying out loud. That authenticity is important."[29]

In addition to a messaging problem, the House Democrats 2016 autopsy heavily focused on the party's fundraising problems. The report authored by Reps. Sean Patrick Maloney (D-NY) and Ben Ray Lujan (D-NM) emphasized Republicans' fundraising advantage from small donors and highlighted the ability of candidates like Donald Trump and Bernie Sanders to raise millions through Twitter.[30] A key goal of the DCCC's focus on digital messaging was to "capitalize on viral moments or breaking news that energized Democratic voters" and raise money from small donors online (Democratic Congressional Campaign Committee 2018, p.8). As a result of these efforts, Democrats more than doubled their online fundraising in 2018 from 2016.[31]

Democrats rethought their online messaging following the 2016 Election and members placed a greater emphasis on using Twitter to take positions, present themselves as policy-oriented, and dispel notions they are elitist or out of touch with voters – with the added benefit of raising money. To achieve these messaging goals, the Democratic Caucus pushed members to build their online presence. So much so that at the start of the 116th Congress Representatives Alexandria Ocasio-Cortez (D-NY) and Jim Himes (D-CT) along with a representative from Twitter corporation hosted a presentation for the Democratic Caucus on how to effectively use Twitter.[32] In short, Democrats saw the need to show voters they have clear policy ideas and to communicate them clearly and authentically in 240 characters or less. Given this concerted effort, it is no surprise we see a drastic increase in position-taking among Democrats at the start of the 115th Congress.

[28] https://www.politico.com/magazine/story/2017/01/democrats-trump-administration-wilderness-comeback-revival-214650/

[29] https://www.politico.com/magazine/story/2017/01/democrats-trump-administration-wilderness-comeback-revival-214650/

[30] https://www.politico.com/story/2017/04/27/house-democrats-2016-autopsy-237710

[31] https://www.politico.com/story/2018/10/31/dccc-fundraising-midterms-951082

[32] https://www.politico.com/story/2019/01/17/alexandria-ocasio-cortez-twitter-democrats-1108045

Figure 3.15: Distribution of Democrats' Percent Position-Taking Tweets, 114$^{th}$ - 115$^{th}$ Congress

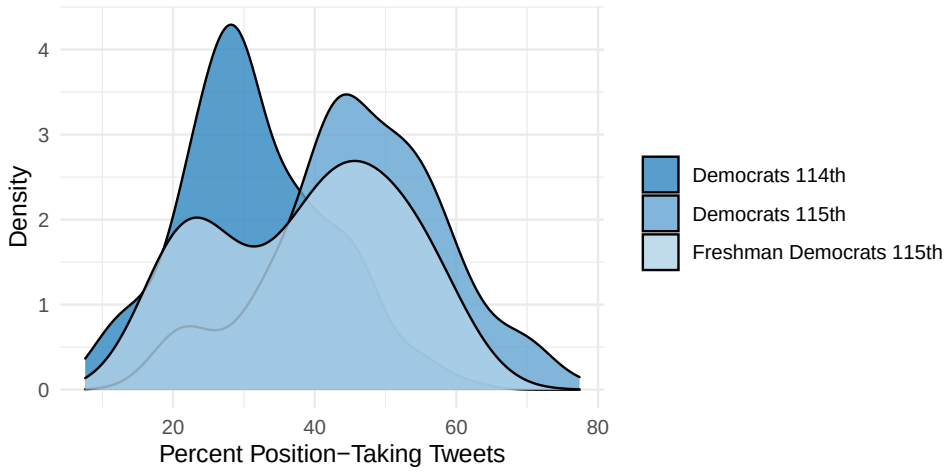



Figure 3.15: Displays the distributions of percent position-taking tweets for freshman Democrats in the 115$^{th}$ Congress, non-freshman Democrats in the 115$^{th}$ Congress, the same non-freshman Democrats in the previous 114$^{th}$ Congress. Democrats who served in the 114$^{th}$ and not the 115$^{th}$ Congress are excluded (unit is percent of all tweets sent that congress categorized as position-taking).

Figure 3.16: Average of Democrats' Position-Taking Tweets as Percent of Total Monthly Tweets, 2015-2019

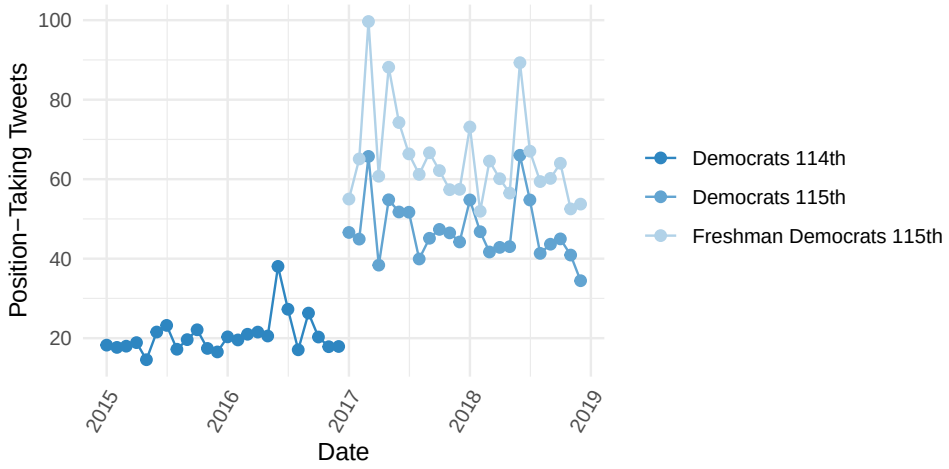



Figure 3.16: Displays the average monthly percent position-taking tweets for freshman Democrats in the 115$^{th}$ Congress, non-freshman Democrats in the 115$^{th}$ Congress, the same non-freshman Democrats in the previous 114$^{th}$ Congress. Democrats who served in the 114$^{th}$ and not the 115$^{th}$ Congress are excluded.

Figure 3.17: Distribution of Republicans' Percent Position-Taking Tweets in the 115$^{th}$ v 116$^{th}$ Congress

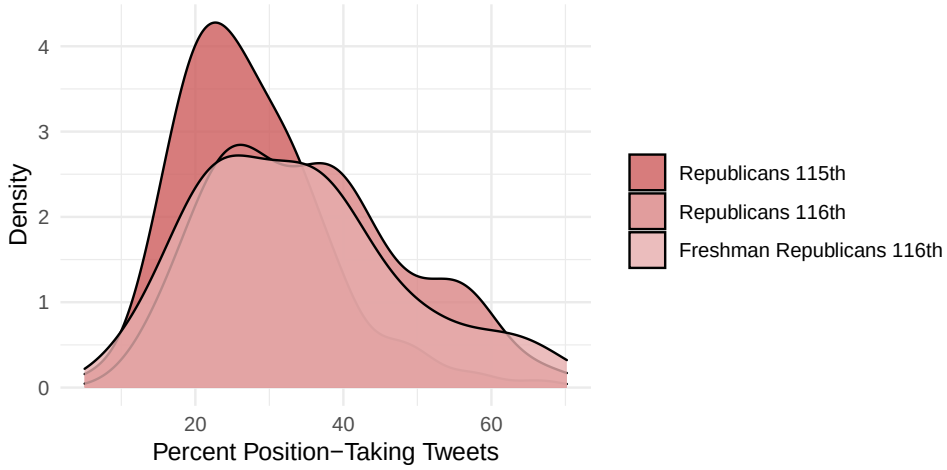



Figure 3.17: Displays the distributions of percent position-taking tweets for freshman Republicans in the 116$^{th}$ Congress, non-freshman Republicans in the 116$^{th}$ Congress, the same non-freshman Republicans in the previous 115$^{th}$ Congress. Republicans who served in the 115$^{th}$ and not the 116$^{th}$ Congress are excluded (unit is percent of all tweets sent that congress categorized as position-taking).

Figure 3.18: Average of Republicans' Position-Taking Tweets as Percent of Total Monthly Tweets, 2017-2021

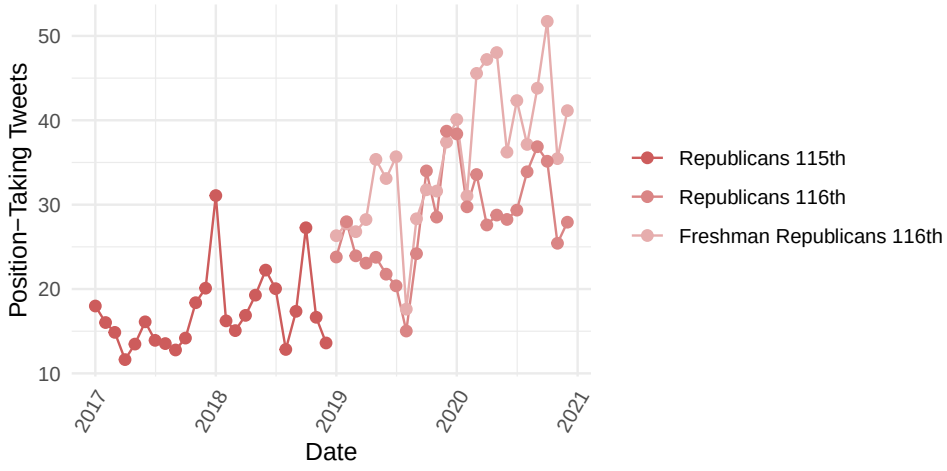



Figure 3.18: Displays the average monthly percent position-taking tweets for freshman Republicans in the 116$^{th}$ Congress, non-freshman Republicans in the 116$^{th}$ Congress, the same non-freshman Republicans in the previous 115$^{th}$ Congress. Republicans who served in the 116$^{th}$ and not the 115$^{th}$ Congress are excluded.

Did all Democrats change their behavior or was it driven by new, younger, and more liberal members? The short answer: both. Figure 3.15 displays the distribution of percent of position-taking tweets for Democrats in the 114$^{th}$ Congress and compares them to those same members re-elected and the Freshman Democrats in the 115$^{th}$ Congress. A Tukey's Honest Significant Differences (HSD) test on an Analysis of Variance (ANOVA) of these three distributions shows that the distribution of position-taking tweets for these three groups is statistically significant at the 1% confidence level. Not only did reelected Democrats increase their position-taking on Twitter in the 115$^{th}$ Congress, but freshman Democrats took more positions than their more senior party members. The average Democrat in the 114$^{th}$ Congress tweeted 20 positions a month, but these same members in the 115$^{th}$ took on average 50 positions, and Freshman Democrats posted on average 70 position-taking tweets. This is consistent with the previous discussion on efforts within the Democratic Party to increase position-taking on Twitter, as well as evidence of new representatives beginning their careers in the digital age relying on platforms like Twitter to win office and present themselves to their constituents.

Democrats were not alone in this effort for long. Republicans also increased their position-taking over time and matched Democrats by 2020. During the 115$^{th}$ Congress 29.45% of Republicans' tweets and 47.48% of Democrats' tweets were position-taking messages, but during the 116$^{th}$ Congress 38.5% of Republicans' and 45.56% of Democrats' tweets were used for position-taking. Republicans changing behavior suggests that there is group pressure that encourages members to do what their colleagues are doing, either because the strategy has proved to work or they don't want to risk appearing behind the times. Figures 3.17 and 3.18 displays Republicans' position-taking behavior from the 115$^{th}$ to the 116$^{th}$ Congress. Again using a Tukey Test, I found that Republicans, both freshman and re-elected Republicans of the 116$^{th}$ Congress, tweeted more positions than those same re-elected Republicans in the 115$^{th}$ Congress. But freshman Republicans in the 116$^{th}$ Congress are not distinguishable from the other members of their caucus.[33] While Republicans started tweeting more positions, they are still trailing their Democratic colleagues by 6 percentage points in the 116$^{th}$ Congress. This finding is perhaps indicative of ceiling effect for the effectiveness of Twitter for reaching Republican voters. Over time, Twitter's user base has grown more liberal and Republicans might see diminishing returns for messaging on Twitter compared to other social media platforms with more conservative user bases like Facebook.[34] The extent Republicans continue to increase their use of position-taking will be based on their confidence in the messaging effectiveness of the platform for reaching their constituents and supporters.

Partisan tweeting also increased following the 2016 election, as seen in Figure 3.11. Overall,

[33]Differences are significance at the 1% confidence level

[34]https://www.pewresearch.org/fact-tank/2021/04/07/partisan-differences-in-social-media-use-show-up-for-some-platforms-but-not-facebook/

21.26% of tweets mentioned either political party, ideological labels, president, or congressional party leaders.[35] As we might expect, how often the member's of each party collectively post partisan tweets is strongly related to if they share a party with the sitting president. When the opposite party controls the White House, as seen in Figure 3.19, a greater proportion of member's tweets use partisan cues. From 2009-2016, when a Democrat controlled the White House, Republicans tweeted partisan messages at nearly twice the rate of Democrats. For example, in the 113$^{th}$ Congress, 23.5% of Republicans' tweets and 11.9% of Democrats tweets were identified as containing partisan language. When Republicans regained the Presidency in 2017 the trend reverses and intensifies. In the 115$^{th}$ Congress, 30% of Democrats' tweets and 17.3% of Republicans' tweets contained partisan messages. Democrats when a Republican occupied the White House were more partisan on Twitter than Republicans when a Democrat occupied the White House.

Figure 3.19: Partisan Tweets as Percent of Total Monthly Tweets by Party, 2009-2020

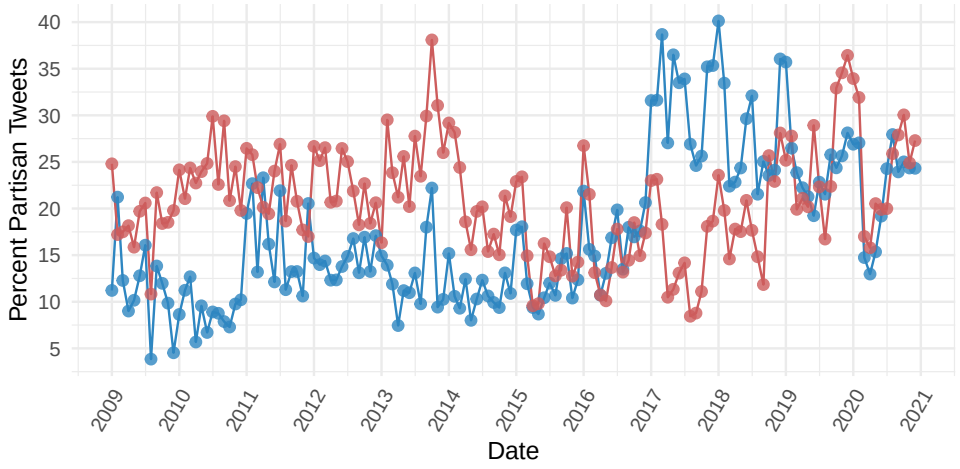



Figure 3.19: Displays the percent of Democrats (blue) and Republicans (red) total monthly tweets that contain partisan messages.

However, after 2019 Democrats and Republicans were equally partisan on Twitter. In the 116$^{th}$ Congress, 23.2% of Democrats' tweets and 25.1% of Republicans tweets were partisan. The increase in partisan rhetoric from the representatives from the president's party could be a result of Republicans rhetorically associating themselves with presidential coattails (Calvert and Ferejohn 1983). Because of President Trump's popularity with the Republican base, Republicans running for reelection with the President on the ballot in 2020 wanted to appeal to his voters and maintain the

[35]Results are consistent with prior work: Gelman and Wilson (2021) finds 22% of Members of Congress's tweets had partisan content

support of Trump himself. While we do not observe a similar pattern among Democrats leading up to the 2012 presidential election when President Obama was seeking reelection, the willingness of Republicans to associate themselves with the party and Trump in the 116$^{th}$ Congress might be specific to Trump himself. More so than any other modern president, President Trump has demonstrated a willingness to criticize and campaign against members of his own party.[36] Given the electoral risk of appearing against Trump, electorally motivated Republicans might have found it necessary to maintain a close image of themselves with Trump and the Party going into the 2020 election.

An additional explanation is perhaps that members of both parties have adapted their messaging on Twitter over time to become more partisan. Both Democrats and Republicans sent more partisan tweets in general during the Trump Administration, and the pattern is similar to what was observed with the rates of position-taking by party. If the parties coordinated increased position-taking, with Democrats doing so during the 115$^{th}$ Congress and Republicans following suit during the 116$^{th}$ Congress, then it follows that the positions members took would be tailored for building the party brand. As displayed in Figure 3.20, the percent of position-taking tweets that have partisan content increased after the 115$^{th}$. Not only did members start taking more positions on Twitter, but they did so in a partisan manner. Members act as team players in the legislative arena to generate partisan conflict (Lee 2009) and pass partisan legislation that shapes the party's image (Cox and McCubbins 2005). In recent years, members have acted as team players on Twitter to define their party brand through partisan position-taking. So while member's of the president's party are generally less partisan on Twitter, all members are increasingly tweeting partisan messages.

A final observation from Figure 3.19, members of the president's party decrease their partisan tweets leading up to a midterm election, elections held midway between a presidential term where the president is not on the ballot. The president's party almost always loses seats in Congress during the midterms (Jacobson and Carson 2019). The share of tweets that contained partisan language in the 2010, 2012, 2014, and 2018 midterms declines relative to the previous year. Electorally motivated members will want to create distance between themselves and the president during midterm elections to increase their chance of reelection. This phenomenon is most pronounced during the 2010 midterms when the Tea Party movement organized in opposition to the Obama Administration and the Affordable Care Act to elect Republicans nationwide. In the lead up to the election, over 20% of Republicans' tweets used partisan cues while Democrats dropped to less than 10%.

Taken together, we see a clear demarcation in the parties' Twitter behavior after Donald Trump's

[36] https://time.com/3951697/donald-trump-republicans/

Figure 3.20: Partisan Tweets as Percent of Total Monthly Position-Taking Tweets (2009-2020)

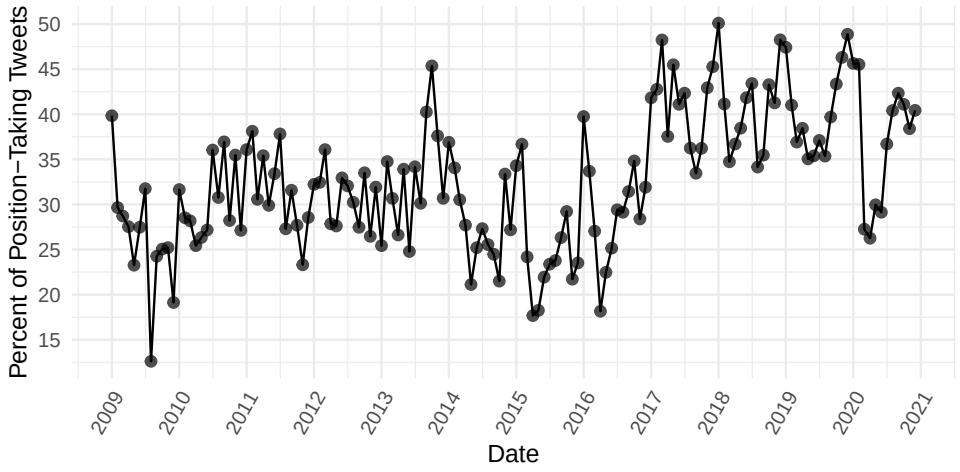



Figure 3.20: Displays the percent of total monthly position-taking Tweets that contain partisan messages.

election. Democrats increased position-taking and policy tweeting and decreased the overall share of advertising tweets. Democrats too posted more partisan tweets after 2016 both as a result of Republican control of the White House and their larger messaging strategy on Twitter to effectively communicate their party's image and policy goals to voters and to increase fundraising. While the overall liberal leaning of Twitter's user base might suggest that Twitter is a more effective messaging platform for Democrats, early evidence suggest that Republicans are adapting their behavior as well. Republicans tweeted more partisan and position-taking messages during the $116^{\text{th}}$ Congress than they did previously. As Twitter has become a well integrated platform for members and their parties to communicate with voters and present themselves, they have increasingly used the site to present their political positions and engage in party politics rather than use their Twitter accounts for the dissemination of information. Twitter has become a place for representatives to influence politics and the opinion of voters. This section demonstrated how members are both collectively responding to the larger political environment and responding to the behavior of the other party. When one party changes their behavior, the other party follows.

### 3.4 Analysis of Representatives' Twitter Messages

In the previous section we established the overall trends in how often members collectively tweet policy, position-taking, credit-claiming, advertising, partisan, and district messages. This section will explore how institutional, district, and personal factors explain variation in an individual mem-

ber's tweeting behavior and test the hypotheses derived from existing literature presented in section 3.1.1. To reiterate, these analyses serves two purposes: first, to identify the extent the variance of the share of tweets dedicated to message type is explained by variables arising from existing theories of congressional behavior. Second, is to explore the extent individual, district, and institutional factors are related to the degree in which a representative tweets about the six message types. To achieve both of these ends, I use ordinary least squares (OLS) regression with both Congress and member fixed effects. There are likely lots of covariates that might be related to what messages a member tweets about – some of which are unobservable – so the value of this approach is in examining what observable covariates are correlated with Twitter behavior while holding other factors constant, rather than make a causal claim.

Before proceeding to a discussion on the empirical strategy, this section will first examine the extent representatives' Twitter behavior in one Congress is correlated with their behavior in the following Congress. If the messages members tweet are intended to contribute to a member's digital presentation of self, which should be a stable and consistent reputation specific to each member and be somewhat independent of their institutional position, then we should observe a high degree of correlation within members' messaging priorities across time. Members want to build consistent and predictable presentations of self (Fenno 1978), and this requires that their online behavior matches their behavior in the district and in Washington and is generally stable over time. While there is variation within members with regard to how much they tweet each message type over time, members tend to maintain fairly consistent behavior on Twitter. Figure 3.21 shows the percent of member's tweets classified as each message type in the $113^{\text{th}}$ Congress compared to the emphasis on that same message in the $114^{\text{th}}$ Congress. Most members are close to the $x = y$ diagonal, indicating that members' behavior in the previous congress is correlated with their behavior in the current congress.

Table 3.4 shows the results from an OLS regression, where the percentage of tweets labeled for each message type is regressed on the percentage of tweets for the same message in the previous congress. Again, we see that the emphasis a member places on, for example, policy in the previous congress is statistically significantly related to the emphasis they place on policy in the current congress. We see the most consistency for position-taking, advertising, and district tweeting. This suggests the central importance of these messages in defining a member's digital presentation of self. Partisan tweeting in successive congresses is still strongly correlated, as seen in model 4 from Table 3.4, but given that party control of the presidency and majority status appears to affect member's willingness to use partisan rhetoric the relationship is slightly weaker. Policy and credit-claiming messages are also significantly correlated over time, but the relationship is slightly weaker, particularly for credit-claiming, than the other four messages. This is perhaps because member's

Figure 3.21: Correlation Between Percent of Tweets by Each Message Type in the 113$^{\text{th}}$ and 114$^{\text{th}}$ Congress

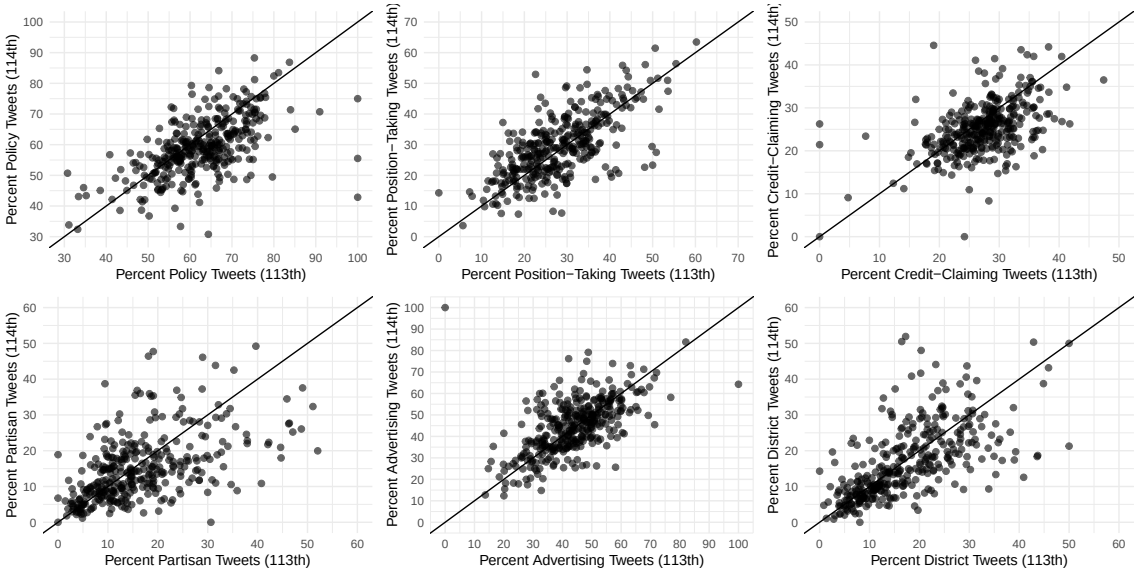



Figure 3.21: Displays the percent of tweets categorized as each message type in the 113$^{\text{th}}$ Congress versus the percent of tweets categorized by the same message type in the 114$^{\text{th}}$ Congress. The figure plots the $x = y$ line.

ability to claim credit is dependent on their own personal and party's policy success. Because the size of the congressional agenda varies from congress to congress, the need for policy messages would be expected to shift over time with the policy ambition of each congress. This would suggest that member's emphasis on policy, credit-claiming, and partisanship is somewhat constrained by institutional factors and the size of Congress's policy agenda.

Across all messages, the data suggests that representatives are not drastically changing their online messaging strategies and in general exhibit somewhat consistent preferences for tweeting certain messages. This supports the core claim of this dissertation: that members of Congress are using Twitter to create and communicate their desired presentations of self to their constituents. We have already seen some evidence that party control of Congress and the presidency influence the prevalence of partisan tweets in particular, and results confirm that members' institutional positions are correlated with the messages they tweet about. The remainder of this section will evaluate the extent institutional, district, and personal factors influence member's Twitter messaging priorities.

Tweeting, while a low-cost form of communication, still requires intentional effort by the rep-

Table 3.4: OLS Regression of Percent of Message Tweets on Lagged Percent of Message Tweets

| | *Dependent Variables:* | | | | | |
|---|---|---|---|---|---|---|
| | % Policy | % Position-Taking | % Credit-Claiming | % Partisan | % Advertising | % District |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Lagged Policy | 0.496*** | | | | | |
| | (0.022) | | | | | |
| Lagged Position-Taking | | 0.658*** | | | | |
| | | (0.021) | | | | |
| Lagged Credit-Claiming | | | 0.374*** | | | |
| | | | (0.022) | | | |
| Lagged Partisan | | | | 0.525*** | | |
| | | | | (0.023) | | |
| Lagged Advertising | | | | | 0.583*** | |
| | | | | | (0.022) | |
| Lagged District | | | | | | 0.571*** |
| | | | | | | (0.020) |
| Constant | 0.317*** | 0.135*** | 0.166*** | 0.105*** | 0.148*** | 0.080*** |
| | (0.014) | (0.007) | (0.006) | (0.005) | (0.010) | (0.004) |
| Observations | 1,544 | 1,544 | 1,544 | 1,544 | 1,544 | 1,544 |
| Adjusted $R^2$ | 0.251 | 0.381 | 0.164 | 0.255 | 0.322 | 0.352 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

resentative and a time commitment to post individual tweets. The share of a member's tweets dedicated to a particular message is indicative of how much that member prioritizes a message type in their digital presentation of self. I estimate several OLS regression models where the unit of observation is the representative-congress and the dependent variable is the proportion of a representative's tweets that includes each message type. Several dependent variables are related to the extent we might think individual members will vary in how often they tweet each message type. Section 3.1.1 derived eleven hypotheses arising from existing literature to identify the extent members' Twitter behavior mirrors their behavior more generally. From these hypotheses, I include three groups of independent variables: institutional, member, and district variables.

Institutional covariates include: $Majority$, an indicator variable for House majority status ($H_4$). Because presidential politics shapes legislative agendas and electoral context for members, I include an indicator for belonging to the president's party, *Copartisan President* ($H_5$). I also expect that a member's institutional positions within the chamber effects their messaging strategy. The model includes an indicator for representatives in *Party Leadership* ($H_3$). Party leadership positions themselves vary both across party and over time, but this includes any position either appointed by the Speaker or Minority Leader or elected by their party caucus. These individuals are generally responsible for leading the party conference, setting legislative agendas, marshaling support for bills, and directing committee assignments, among other duties, and thus should face unique messaging responsibilities as a result of their role. For similar reasons, I include an indicator for *Committee Chair*. Committee chairs have greater influence over legislation within their policy

domains, which I expect should influence their propensity to emphasize policy and credit-claiming messages on Twitter.

Member covariates are intended to capture a representative's qualities and skills that are unique to them and not necessarily related to their institutional positions. To capture any effect party has on Twitter messaging, the model includes an indicator for *Republican* representatives ($H_8$). I hypothesize that members who care more about passing good public policy should be more likely to use Twitter for policy messages and credit-claiming ($H_6$). To assess if a member's legislative focus affects their digital messaging, I include a categorical variable *Legislative Effectiveness* indicating if a member exceeds (= 2), meets (= 1), or falls (= 0) below their benchmark Legislative Effectiveness Score (LES) as measured by Volden and Wiseman (2014). This measurement assumes that "work horses" who devote greater resources towards legislating will be more successful legislators and have higher legislative effectiveness scores. Next, I measure a member's ideological *Extremism* using DW-Nominate scores (Poole and Rosenthal 2017) by taking the ideological distance between the party median and the representative ($H_7$). *Extremism* is calculated such that larger values indicate that the member is more extreme than the party median and smaller values indicate the member is more moderate than the party median. A member's *Seniority* within the chamber is included to assess if longer serving members have different message priorities as a result of their familiarity with their district and their higher rank within the party. I previously identified expectations relating to a representative's ethnicity ($H_{10}$) and gender ($H_{11}$), and additional member-level demographic covariates include indicators for *Male*, *Black*, and *Latino/*a representatives.

The final set of covariates are intended to capture the characteristics of a member's district that might influence the types of messages members emphasize on Twitter ($H_1$). I expect that the degree of homogeneity of a district influences a member's presentation style, so I include covariates to capture the political, income, and racial composition of congressional districts. Using the Cooperative Congressional Election Survey, an annual survey that samples respondents by congressional district, I construct two variables to capture the partisan composition of a member's district.[37] The relative share of constituents that are copartisans and political independents should affect what voters representatives have to target to secure re-election. *District Copartisan* measures the share of a member's district that identifies with or leans towards their representative's party. This includes respondents who indicated on the standard 7-point party identification scale that identify with or leans towards their representative's party. Party learners were included because previous research has shown they exhibit similar political behavior to party identifiers (Petrocik 2009). *District Independent* measures the percent of respondents in each district that identified as a pure independent on the 7-point party identification scale. Next, I include *District White* which cap-

[37] `https://cces.gov.harvard.edu/`

tures the percent of the district that identifies as racially white. I also expect that the economic class distribution of a member's district will affect the likelihood they tweet some messages – in particular credit-claiming messages – over others ($H_2$). I also include covariates for the percent of the district with self-reporting earnings over $100,000 a year (*High Income*) and the percent of the district earning less than $40,000 a year (*Low Income*).

Finally, I control for differing levels of social media use across members by including the log of the total number of tweets sent during that Congress, $log(Total\ Tweets)$. These factors collectively, while not all-inclusive, represent a large set of considerations we suspect will be correlated with the types of messages members tweet. The summary statistics and data sources for these variables can be found in Table 10.1 in Appendix 8.1.

To identify if and to what degree any systematic relationships might exist between a member's characteristics and their institutional position and the extent they tweet the six types of messages, I estimated ordinary least squares (OLS) regression models, with clustered standard errors to account for potential non-independence of their behavior over time. However, there are likely unobservable characteristics about a specific congress, such as a more ambitious legislative agenda or specific political events, that might affect the types of messages members tweet. For instance, the 116$^{\text{th}}$ Congress passed nearly 6,000 more bills than the 113$^{\text{th}}$ Congress.[38] Perhaps then, members of 116$^{\text{th}}$ Congress have more credit-claiming opportunities than those of the 113$^{\text{th}}$ Congress. A serious advantage for collecting tweets for all members across six congresses is we have repeated information for the same members across time, allowing for the inclusion of both congress and member fixed effects. Including congress fixed effects will capture all covariates, measurable or conceivable or neither, that are present for all individuals in a given congress and that may influence the outcome variable. In addition, there are likely unobservable representative characteristics that are held constant within the representative, but might influence the dependent variable. Returning to Fenno (1978), we know a member's presentation is a function of that individual's unique personality and strengths – variables we are simply unable to measure. To account for these unobservable factors, I include member fixed effects to account for all covariates that are stable within a member that may influence the outcome variable.

[38] `https://www.govtrack.us/congress/bills/statistics`

The key assumption when using fixed effects is that the unobserved confounding factors exist and are unit-specific or time-specific. I assume that for every individual $i$ in time $t$, the unobserved factors for time $t$ do not vary such that:

$$\alpha_t = \alpha_{it}$$

Similarly, I assume that for every point in time $t$, the unobserved factors for individual $i$ do not vary and thus satisfies: $\lambda_i = \lambda_i t$

$$\lambda_t = \lambda_{it}$$

Simply put, congress fixed effects are unique and constant across all individuals in a given time and capture variation between members holding time related factors fixed; member fixed effects account for variables that are unique and constant within each member over time and exploit variation within members. There is a draw back when using fixed effects: fixed effects account for *all* unit-invariant covariates that might influence the dependent variable. While there are no variables in the model that are congress-specific and apply to all representatives in that congress, there are some variables we are interested in estimating – party and gender, for example – that are member-specific and generally stable over time. This means the member-level covariates we are interested in that do not vary within individuals – $Republican$, $LegislativeEffectiveness$, $Extremism$, $Male$, $Black$, and $Latino$ – will be absorbed into the member-specific intercept. $Seniority$ is also dropped in the member-fixed effects model, since this variable is linearly increasing over time for each individual member. There is a similar problem with including member fixed effects when estimating $Extremism$, while this variable technically changes for an individual congress to congress an individual member's DW-Nominate scores do not. The other component of $Extremism$ is the party median, which also does not shift a great deal congress-to-congress. The result is that this variable is too highly correlated with the member level fixed effects, resulting in large standard errors. To prevent throwing the proverbial baby out with the bath water, I estimated two regression models: model 3.1 only includes congress fixed effects with standard errors clustered by member and model 3.2 includes member fixed effects with standard errors clustered by congress. The former model leverages variation across members and includes sufficient regressors and Congress fixed effects to eliminate concern about error correlation, and then uses cluster standard errors by members to account for any remaining error correlation within members to estimate effects of covariates. The latter model leverages variation within members and includes sufficient regressors and member fixed effects to eliminate concern about error correlation, and then uses cluster standard errors by congress to account for any remaining error correlation within congresses to estimate effects of

covariates.

For $N$ members indexed by $i = 1, ..., N$ and $T$ congresses indexed by $t = 1, ..., T$, I estimate the following regression models where $Y_{it}$ is the percentage of tweets labeled as either position-taking, credit-claiming, advertising, policy, partisan, or district:

$$\begin{aligned} Y_{it} = \beta_0 + \beta_1 Majority_{it} + \beta_2 Co\text{-}Party\ President_{it} + \beta_3 Party\ Leader_{it} + \beta_4 Committee\ Chair_{it} + \\ \beta_5 Republican_{it} + \beta_6 Seniority_{it} + \beta_7 LES\ Rank_{it} + \beta_8 Extremism_{it} + \beta_9 Male_{it} + \beta_{10} Black_{it} + \\ \beta_{11} Latino_{it} + \beta_{12} District\ Copartisan_{it} + \beta_{13} District\ Independent_{it} + \\ \beta_{14} District\ White_{it} + \beta_{15} Low\ Income_{it} + \beta_{16} High\ Income_{it} + \beta_{17} log(Total\ Tweets)_{it} + \alpha_t \end{aligned} \tag{3.1}$$

$$\begin{aligned} Y_{it} = \beta_0 + \beta_1 Majority_{it} + \beta_2 Co\text{-}Party\ President_{it} + \beta_3 Party\ Leader_{it} + \beta_4 Committee\ Chair_{it} + \\ \beta_5 District\ Copartisan_{it} + \beta_6 District\ Independent_{it} + \beta_7 District\ White_{it} + \\ \beta_8 Low\ Income_{it} + \beta_9 High\ Income_{it} + \beta_{10} log(Total\ Tweets)_{it} + \lambda_i \end{aligned} \tag{3.2}$$

### 3.4.1 Correlates of Twitter Messages

This section demonstrates that the messages members of Congress emphasize on Twitter are systemically related to their institutional positions, the character of the districts they represent, and their personal identities as representatives. In most cases, results are consistent with previous research, validating that the behavior I measured accurately captured the intended concepts. I find that ideologically extreme representatives and those from aligned districts are more likely to tweet partisan and position-taking messages, while ideologically moderate representatives and those from misaligned districts emphasis advertising, district, and credit-claiming messages on Twitter. Moreover, we find that minority party and those of the opposite party of the president tend to prioritize position-taking and partisan messages. While we find that party leaders are more policy oriented and partisan on Twitter, we do not find evidence that more effective legislators or committee chairs exhibit any unique patterns in their tweeting. Finally, the results suggest that minority lawmakers and those from minority districts are less likely to adopt policy focused messaging and chose instead to focus on the district and advertising.

I expect that more ideologically extreme representatives should be more likely to tweet position-taking and partisan messages all else equal ($H_7$), and we find strong support for this hypothesis. Figure 3.22 displays the bi-variate relationship between a member's average percent of position-

Figure 3.22: Representatives' Average Percent Position-Taking Tweets by First Dimension DW-Nominate Score

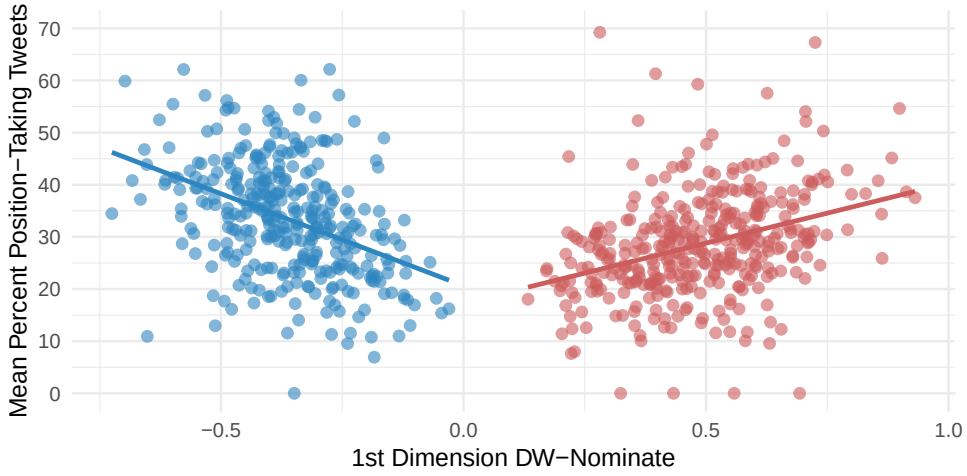



Figure 3.22: Displays the relationship between Democratic (blue) and Republican (red) representatives' average percent of position-taking tweets posted in each Congress and their first dimension DW-Nominate score. The figure plots the bivariate relationship ($y \sim x$).

taking tweets and their DW-Nominate Score. Without accounting for other factors, more ideologically extreme members dedicate a higher share of their tweets to position-taking. Figure 3.23 shows the estimated coefficients for model 3.1 and 3.2 for the percent of total tweets where the member engages in position-taking.[39] Ideological extremism has the largest single effect on position-taking on Twitter. Moving from the most moderate to the most extreme representative is associated with a 30.1 percentage point increase in position-taking.[40] The positive relationship between position-taking and ideological extremism indicates that those who prefer policies that do not have the support of a majority of members in order to pass – policies like providing free universal college or abolishing the Department of Education – turn to Twitter to vocalize these policies. Since their policies are unlikely to receive a House vote or become law, these members only method of demonstrating their policy commitments to their constituents is position-taking on Twitter.

Ideologically extreme members are not only more likely to engage in position-taking, but more likely to post partisan tweets. As displayed in Figure 3.24, a one-unit change in extremism is associated with a 26.7 percentage point increase in partisan tweeting. For example, the most extreme

[39] Appendix 8.3 includes regression tables for model 3.1 in Table 8.4, model 3.2 in Table 8.5, and Tables 8.7:8.12 estimates model 3.1 separately for each Congress.

[40] *Extremism* ranges from -.67 to .48.

Figure 3.23: Marginal Effects of Percent Position-Taking Tweets with 95% Confidence Intervals

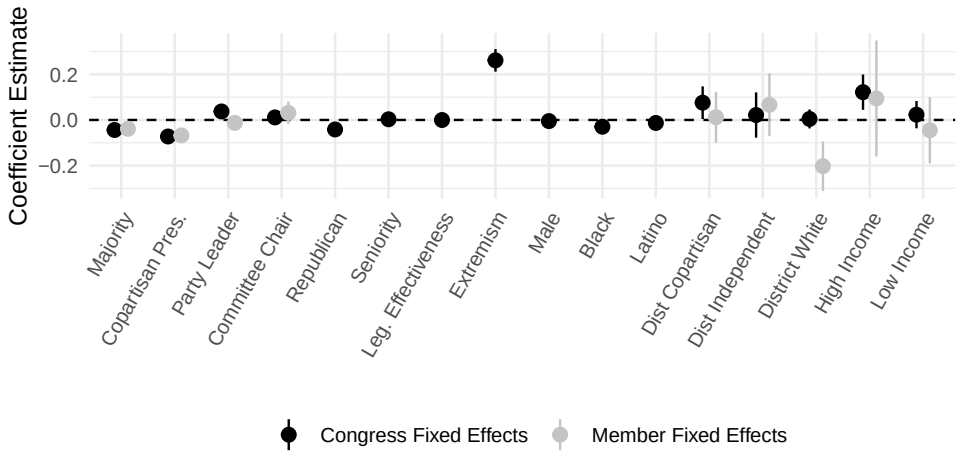



Figure 3.23: Displays estimated coefficients for the displayed covariates with congress fixed effects (black points) or member fixed effects (gray points). 95% confidence intervals calculated with standard errors clustered by member (black points) or by congress (gray points). Both specifications also include the log of total tweets posted by the member (unit of observation is representative-congress).

Republican, Representative Andy Biggs (R-AZ), is predicted to post 30.7 percentage points more partisan tweets than the most moderate Republicans, Representative Van Drew (R-NJ). Representatives with the most extreme ideological preferences are far more likely to not only take positions, but tweet a greater number of partisan messages than more moderate members. Because extremism is measured from DW-Nominate scores, which are calculated from the roll call behavior of members of Congress, members with high party extremism scores (more ideologically extreme relative to their party median) vote with members of their own party more than the opposite party. And their online messaging reflects this partisan voting behavior.

Ideological moderates prefer instead to emphasize advertising and their congressional district in their Twitter messages. Figures 3.31 and 3.28 plots the estimated coefficients for regression results on the percent of advertising tweets and district tweets, respectively. Relative to the most ideologically extreme representative, results indicate that the most moderate representative is predicted to post 25.8 percentage points more district tweets and 22.1 percentage points more advertising tweets. If a member seeks to build a reputation as a moderate non-partisan representative, the data suggests we will see a focus on advertising messaging that lacks polarizing policy and partisan content and a greater emphasis on their congressional district. And if a member's desired image is one of a strong ideologue and it's backed by their voting record, the data would suggest we will see a stronger

emphasis on position-taking and partisanship. This finding has important implications for voters' perception of Congress's policy agenda. If members with more extreme ideologically preferences are substantially more likely to tweet their positions than moderate members, then this could obscure the public's perception of the policy agenda as one far more ideologically extreme than it actually is.

Figure 3.24: Marginal Effects of Percent Partisan Tweets with 95% Confidence Intervals

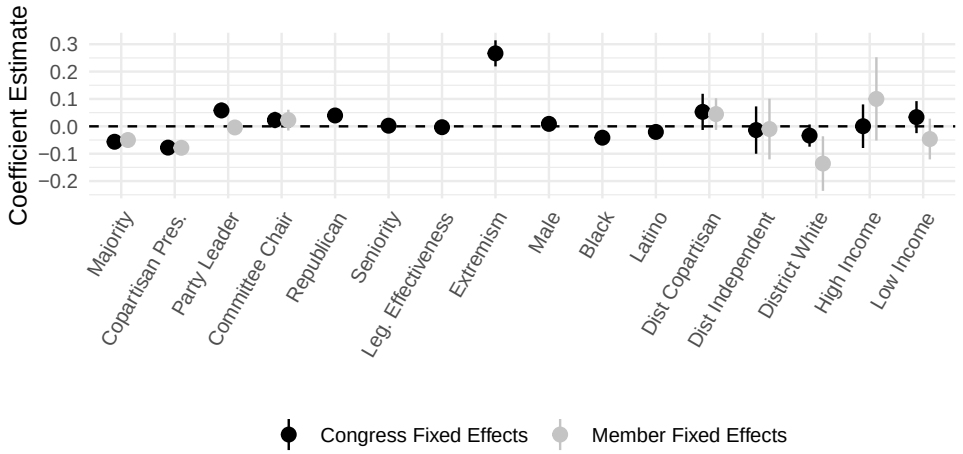



Figure 3.24: Displays estimated coefficients for the displayed covariates with congress fixed effects (black points) or member fixed effects (gray points). 95% confidence intervals calculated with standard errors clustered by member (black points) or by congress (gray points). Both specifications also include the log of total tweets posted by the member (unit of observation is representative-congress).

Representatives select their positions by anticipating the actual and potential preferences of their constituents, and in turn select the position that best serves their reelection interests (Arnold 1990). As such, we expect that members from aligned districts, congressional districts with a greater share of copartisans, are more likely to tweet positions and partisan messages ($H_1$). These members are less likely to alienate important segments of their reelection constituency by taking positions, giving them a greater number of positions they can freely take without risking reelection. For members representing districts with a greater share of copartisans – whom are more likely to agree with or adopt the member's stated position – position-taking can enhance the perceived alignment and trust between the district and representative. Figure 3.25 displays the bivariate relationship between the estimated share of constituents identifying with or leaning towards the representative's party and the percent of position-taking tweets. I find a positive relationship between district copartisanship and position-taking, even without controlling for the large increase in position-taking by the Democratic Party during the $115^{\text{th}}$ and $116^{\text{th}}$ Congresses. After controlling for other covariates, we

find a positive relationship between a member's emphasis on position-taking with the share of their district that identifies with their party. A one-unit change in district copartisanship, moving from 0% copartisans to 100% copartisans, is associated with a 7.6 percentage point increase in position-taking. The share of the district identifying as independent is also modestly correlated with the percent of position-taking tweets, a one-unit change in district share of independents corresponds to a 2.2 percentage point increase in position-taking. This suggests that members can appeal to independent voters through the positions they take, and are only inclined to reduce position-taking to increase their appeal to opposite party voters.

Figure 3.25: Percent Position-Taking Tweets by District Copartisanship

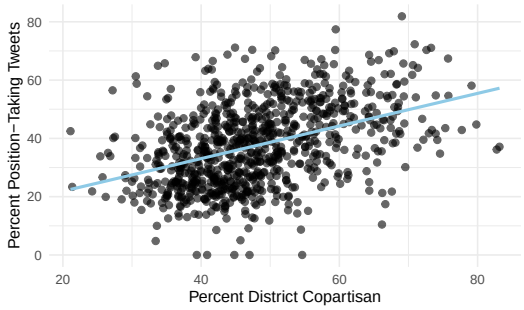



Figure 3.26: Percent Partisan Tweets by District Copartisanship

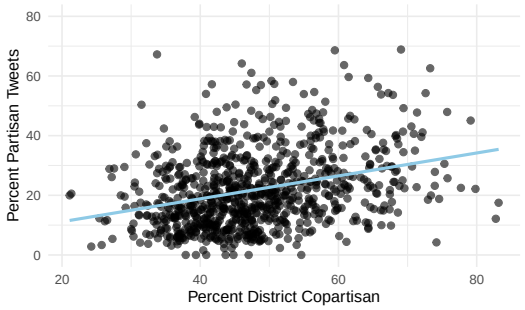



Figure 3.25 & 3.26: Displays the relationship between district copartisanship and the percent of position-taking (left) and partisan (right) tweets for 2017-2020 (where the unit of observation is the representative-congress). The blue line displays the estimated bivariate relationship ($y \sim x$).

I also expect that as the share of the district identifying with the representative's party increases, they should be more likely to tweet partisan messages ($H_1$). Members who represent districts comprised with a larger share of potential voters of their own party are able to use partisan messaging to appeal to their districts without risking alienating opposing party or independent voters. Figure 3.26 displays the positive relationship between the percent of partisan tweets and the share of district copartisans. I find support for this hypothesis, as seen in Figure 3.24, and estimate that a one-unit increase in district copartisanship is associated with a 5.3 percentage point increase in partisan tweeting. While members with a greater share of independent constituents are more likely to use Twitter for position-taking to win electoral support, they are less likely to use partisan rhetoric. A one-unit change increase in the share of independent constituents, moving from 0% to 100% independents, is associated with a modest 1.4 percentage point decrease in partisan rhetoric. While representatives can rely on position-taking to appeal to both copartisan and independent voters, members using position-taking to appeal to independent voters are position-taking on a different subset of issues and framing their messages in a different way. In addition to the negative

relationship between the share of independent constituents and partisan rhetoric, we also see that as the share of independent constituents increases, so does the percent of district tweets, as seen in Figure 3.28. Those representing aligned districts are more likely to use position-taking and partisan messages, while those seeking to appeal to independent voters are more likely to use position-taking and district messages to gain the support of voters.

While we see that even after controlling for extremism there is a positive relationship between district copartisanship and position-taking and partisan rhetoric, it is likely the case that some of the effect is captured by the *Extremism* variable. There is a close relationship between a member's ideological extremism and the underlying partisan distribution of their districts. Members representing a greater share of copartisan voters will take more positions aligned with their party's positions, and therefore have more extreme voting records. As a result, ideologically extreme members are more likely to represent districts with a greater share of co-partisans.[41] In fact, members who are more ideologically extreme than the median member of their party, where *Extremism* is greater than 0, represent districts on average that are greater than 50% copartisan. To assess the full extent a member's constituency affects their propensity to use Twitter for position-taking and partisan rhetoric, I re-estimated model 3.1 without *Extremism*.[42] After dropping ideological extremism, the relationship between district copartisanship and percent of position-taking and partisan tweets more than doubles. In this model, a one-unit change in district copartisanship is associated with an 18.3 percentage point increase in position-taking and a 16.2 percentage point increase in partisan rhetoric. Disentangling the extent increased position-taking and partisan rhetoric on Twitter is a function of the district or the true ideological preferences of the member is beyond the scope of this statistical tool. However, we do see that even after controlling for the extremity of their roll call record, the partisan composition of a member's district still has the predicted effects on their online messaging.

I hypothesized that members representing marginal districts, districts with a lower share of copartisan voters, would be more likely to use Twitter for credit-claiming, advertising, and district focused messages ($H_1$), and we find evidence to support this claim. Figure 3.27 shows the estimated effect of the model variables on the percent of credit-claiming tweets with 95% confidence intervals. I find a statistically significant negative relationship between credit-claiming and district copartisanship. A one-unit increase in district copartisanship is associated with a 4.5 percentage point decrease in credit-claiming tweets. And as a member's district comprises fewer copartisans and more political independents, they dedicate a greater share of their tweets to district messages all else equal, As seen in Figure 3.28. Results indicate that a one-unit increase in district coparti-

[41] Ideological Extremism and District Copartisanship is correlated by .293.
[42] Regression Results are presented in Table 8.6 in Appendix 7.3.

Figure 3.27: Marginal Effects of Percent Credit-Claiming Tweets with 95% Confidence Intervals

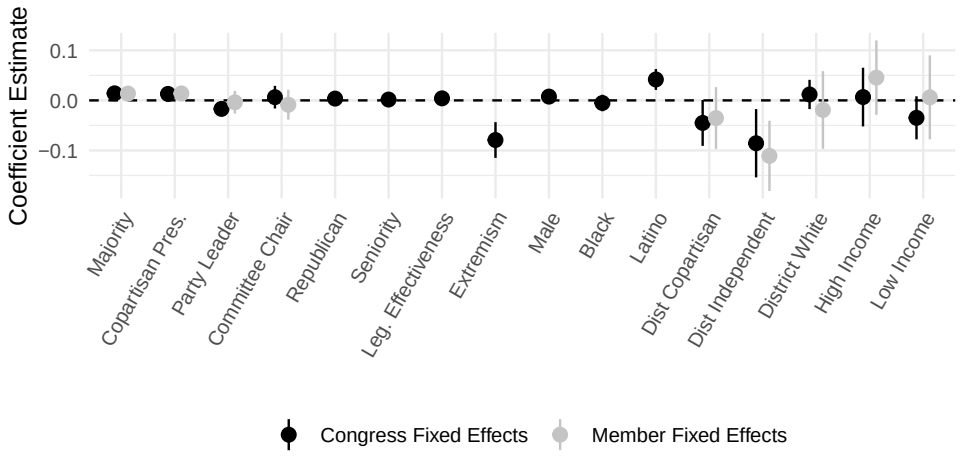



Figure 3.27: Displays estimated coefficients for the displayed covariates with congress fixed effects (black points) or member fixed effects (gray points). 95% confidence intervals calculated with standard errors clustered by member (black points) or by congress (gray points). Both specifications also include the log of total tweets posted by the member (unit of observation is representative-congress).

sanship is associated with a 10.7 percentage point decrease in the percent of district tweets. While a one-unit increase in the share of independent voters is associated with a 2.1 percentage point increase in district tweets. In addition to increased emphasis on credit-claiming and district messages, as the share of the district identifying with the member's party increases, so does the share of advertising tweets. A one-unit increase in district copartisanship is associated with a 2.4 percentage point decrease in advertising tweets, and a one-unit increase in the share of district independent voters is associated with a 7.3 percentage point increase in advertising. Once again, we see these effect sizes nearly double when excluding ideological extremism from the model.

As with district partisanship, we expect that district income should affect member's messaging. Districts with lower income and higher need are more likely to demand legislative resources from their representatives, and their representatives have in turn been found to focus on district-focused legislative behavior to capitalize on credit-claiming opportunities (Wessel Tromborg and Schwindt-Bayer 2019). So representatives from lower income districts should be more likely to credit-claim and tweet about the district ($H_2$). Results from Figure 3.28 finds that representatives from 100% high income districts (earning more than $100,000 annually) tweet 18.4 percentage points fewer district tweets than those representing entirely middle or low income districts. However, I find the exact opposite for credit-claiming, whereas district income *increases* representatives are *more* likely

Figure 3.28: Marginal Effects of Percent District Tweets with 95% Confidence Intervals

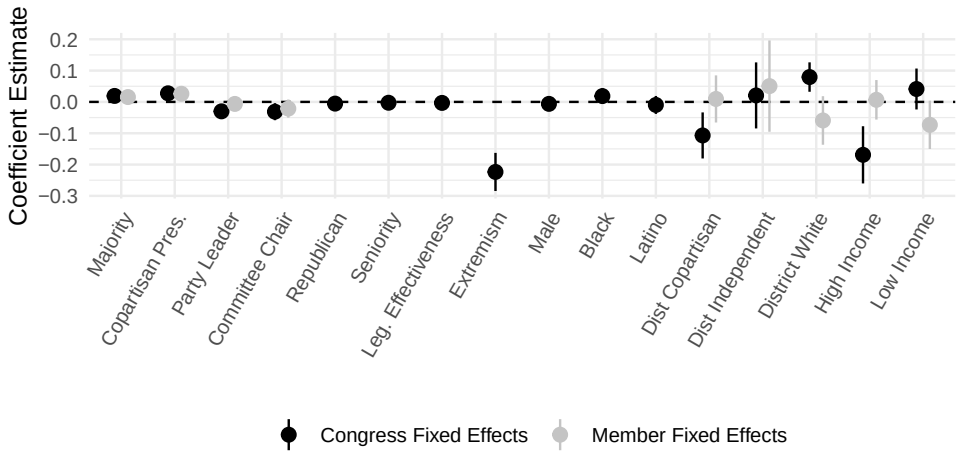



Figure 3.28: Displays estimated coefficients for the displayed covariates with congress fixed effects (black points) or member fixed effects (gray points). 95% confidence intervals calculated with standard errors clustered by member (black points) or by congress (gray points). Both specifications also include the log of total tweets posted by the member (unit of observation is representative-congress).

to post credit-claiming tweets. Regression results indicate that a one-unit increase in the share of the district identified as low income (earning less than $40,000 annually) is associated with a 4 percentage point decrease in credit-claiming. Because credit-claiming captures messages that highlight particularistic district policy benefits as well as those that claim credit for large national or even symbolic policy benefits, this perhaps obscures an increased focus on direct and substantial policy benefits as a result of district need.[43] For instance, we see representatives from wealthier districts are more policy focused and less district focused. Figure 3.30 plots the estimated coefficients for the percent of policy tweets with 95% confidence intervals. A one-unit change in *High Income* is associated with a 6.6 percentage point increase in policy tweets. This suggests that these members are not credit-claiming in response to district demands for federal resources, but instead are credit-claiming for general policy successes. Moreover, we identify a strong relationship between high income districts and position-taking. A one-unit change in the share of the district identified as high income is estimated to produce 14.0 percentage points greater share of position-taking tweets. And this appears to be at the expense of advertising, where the estimated effect of the share of high income families on the percent of advertising tweets is $-.123$, or a 12.3 percentage point decrease. In summary, we find that members from lower and middle income districts focus their

[43]This puzzling finding is resolved in chapter 4 where representatives from lower-income districts are more likely to adopt presentation styles that emphasis credit-claiming and the district.

messaging on the district and advertising. Without the strong district demands for federal resources, members from higher income districts focus on messaging that emphasis position-taking and policy.

I expect that majority party members should be more likely to use Twitter to post credit-claiming messages and minority party member should be more likely to post position-taking and partisan messages ($H_4$). The majority party's reputation is determined by their ability to pass legislation and they have procedural control over the lawmaking process. As such, the majority party has greater incentive to credit-claim and the ability to pass legislation through partisan voting coalitions creates more credit-claiming opportunities for majority party members while depriving the opportunity from the minority party (Cox and McCubbins 2005). In contrast, the minority party, whom lack procedural control over the legislative agenda, focus on the policies they would pass if given majority control rather than compromise and pass the majority party's bills (Cox and McCubbins 2005; Lee 2016). Results from both models 3.1 and 3.2 are consistent with this perspective: majority party members send 4.4 percentage points fewer position-taking tweets and 1.4 percentage points more credit-claiming tweets than the minority party, all else equal.

Majority party members, in addition to more frequent credit-claiming, are more likely to tweet advertising messages than the minority. I find that representatives in the majority post 2.8 percentage points more advertising tweets. Majority members' increase in advertising tweets is not off set by their increase in policy-related credit-claiming, so all else equal, majority party members are less likely to tweet about policy overall than minority party members, as seen in Figure 3.30. Rather than engage in position-taking, majority party members are more likely to tweet credit-claiming and advertising messages.

Results from Figure 3.24 demonstrates that minority party members are, as we expected, more likely to use partisan rhetoric on Twitter, all else equal. Minority party members are estimated to post 5.6 percentage points more partisan tweets than the majority party. Legislative initiatives that are associated with either the majority party or the president in the public then become partisan, and thus are unlikely to receive votes from the opposing party (Lee 2009). So minority party members have greater incentives to take more positions on their legislative proposals than the majority party, who should be more likely to claim credit for legislation (Curry and Lee 2020).

I also expect members of the president's party to be more likely to post credit-claiming tweets and less likely to post position-taking and partisan tweets ($H_5$). If voters hold the president and his copartisan representatives responsible for passing legislation, particularly presidential agenda items, position-taking risk politicizing these efforts resulting in reduced likelihood of opposing party support and success. As seen in Figure 3.23, representatives in the president's party take 7.2 per-

centage points fewer positions on Twitter. These members instead emphasize credit-claiming and advertising, posting 1.3 percentage points more credit-claiming tweets and 5.7 percentage points more advertising tweets, all else equal. During the 115$^{th}$ Congress, Republicans were the majority party in both the House and Senate and Republican President Trump began his term following Democratic President Obama. During this time, for example, 27.1% of Republicans' tweets, on average, were credit-claiming messages compared to 23.65% of Democrats' tweets. Republicans not only enjoyed unified government during this time, but it was also the start of a new presidential administration, during which presidents are pressured and have the most political capital to push for large policy changes, such as the Tax Cut and Jobs Act. Republicans were estimated to post 12.9 percentage points fewer position-taking tweets from 2017-2018.[44]

In addition, we find that members of the president's party post 7.8 percentage points fewer partisan tweets than members in the opposing party. If the average representative post 1,600 tweets in a congress, then this translates into a predicted 125 additional partisan tweets. When members tweet partisan messages, the sentiment of the tweets is conditional on the party of the president. Figure 3.29 displays comparative data from 2009-2020, demonstrating differences in the average sentiment of partisan tweets between Republicans and Democrats. While partisan tweets are overall more likely to be positive – 38.8% of all partisan tweets were labelled as positive sentiment, 30.2% with negative sentiment, and 31% contained neutral sentiment – the president's copartisans tweet more positive partisan messages.

Across all six messages, the estimated coefficients for majority status and serving with a co-partisan president moves in the same direction. Voters are holding the president, his party, and the majority party in Congress responsible for achieving the policy promises of the previous election (Stimson, MacKuen and Erikson 1995; Ansolabehere and Jones 2010; Jones and McDermott 2010). Presidential politics and public attention can polarize legislative support along party lines (Lee 2009), therefore making legislation harder to pass when congressional majorities are narrow (Lee 2016). The majority party and the president's co-partisans have incentives to try and shield policymaking from the public. In addition, recall that member's with more extreme ideological preferences, whom have less ability to see their preferences reflected in legislative outcomes, are also more likely to post position-taking and partisan tweets and less likely to post credit-claiming tweets. Taken together, the relationships between ideological extremism, majority status, and the president's party with position-taking suggest that when members have less influence over legislative outcomes they increase position-taking. Members with less political power and are defined by their "outsider status" can turn to Twitter for an avenue to develop policy debates and connect with voters online (Evans and Clark 2016). Members who are held responsible for governing

[44]See Table 8.8 in Appendix 8.3.

Figure 3.29: Average Sentiment of Partisan Tweets by Party, 2009-2020

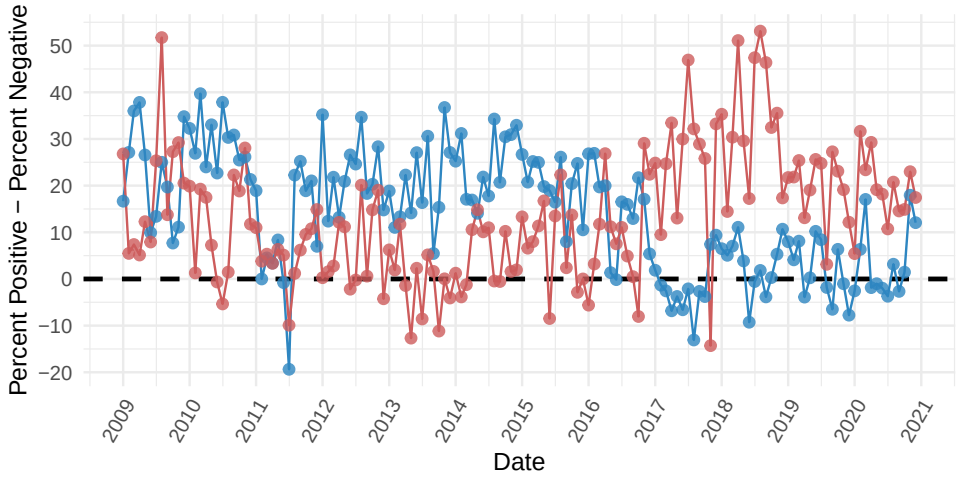



Figure 3.29: Tweets are labelled as have negative sentiment if the number negative words - positive words $\geq 1$. Tweets are labelled as have positive sentiment if the number positive words - negative words $\geq 1$. Word sentiment was identified using the 2015 Lexicoder Sentiment Dictionary provided by Quanteda.

outcomes by controlling major branches of government are more likely to tweet "safer" messages such as advertising, district, and credit-claiming. With an expectation to maintain active Twitter accounts, members can increase these messages to avoid shinning light on legislative initiatives that risks bad press or polarizing the bill. And those with less governing responsibility, are more likely to emphasize position-taking, policy, and partisanship in their online messaging.

Given evidence that the Republican Party has polarized to a greater extent than the Democratic Party, we expect Republicans should all else equal be more partisan on Twitter ($H_8$). Previous results found that more ideologically extreme members tweet more partisan messages, and the results presented in Figure 3.24 find that Republicans tweet more partisan messages. Republicans post 4.0 percentage points more partisan tweets than Democrats, even after controlling for majority status, the party of the President, and ideological extremism. This is a consistent finding across time, with the exception of the 115$^{\text{th}}$ Congress (2017-2018) when Democrats were slightly more likely to tweet partisan messages. The polarization of the Republican Party is not simply confined to more ideologically extreme policy positions, but translates into an increase in partisan rhetoric.

Recall that section 3.3.1 detailed the difference in attention the Republican and Democratic parties collectively emphasis position-taking in their online behavior following the 2016 Election.

Pooling across congresses, as seen in Figure 3.23, we find a statistically significant negative relationship between Republicans and the percent of position-taking tweets. Republicans are estimated to post 3.2 percentage points fewer position-taking tweets than Democrats, but the size and significance of this relationship varies over time. There is no significance relationship between position-taking and party status from the 112$^{th}$ through the 114$^{th}$ Congress. During the 115$^{th}$ Congress – when Democrats increased their position-taking on Twitter – Democrats sent, all else equal, 12.9 percentage points more position-taking tweets. But in the 116$^{th}$ Congress, the effect size reduces by over half to .048.

I find similar results for policy tweeting. All else equal Republicans all else equal post 3.2 percentage points fewer policy related tweets, but we only find a statistically significant relationship between Republicans and policy tweeting after 2016. When examining congress-by-congress results in Table 8.7, we see that party differences in the policy tweeting is only found during the 115$^{th}$ and 116$^{th}$ Congresses, when Democrats are estimated to post about 7 percentage points more policy tweets than Republicans. While overall Democrats are more likely to take positions and discuss policy on Twitter than Republicans, all else equal, this result is perhaps an artifact of the time period selected rather than a generalizable finding to other modes of communication.

Figure 3.30: Marginal Effects of Percent Policy Tweets with 95% Confidence Intervals

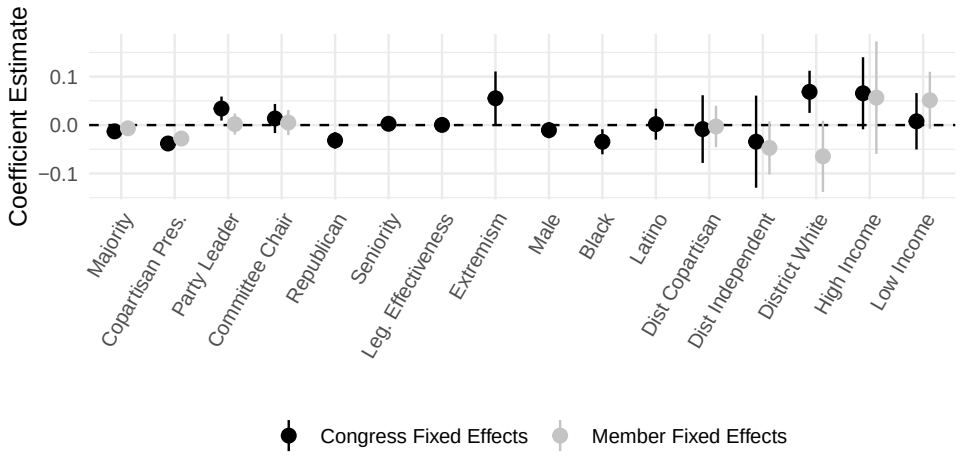



Figure 3.30: Displays estimated coefficients for the displayed covariates with congress fixed effects (black points) or member fixed effects (gray points). 95% confidence intervals calculated with standard errors clustered by member (black points) or by congress (gray points). Both specifications also include the log of total tweets posted by the member (unit of observation is representative-congress).

I expect that party leaders will use Twitter to disseminate partisan and policy messages and will be less likely to post messages pertaining to their congressional district ($H_3$). Party leaders are tasked with protecting the party's reputation (Cox and McCubbins 2005) and orchestrating its messaging campaigns (Lee 2016). Partisan messaging is an important part of modern party responsibilities (Sinclair 2016; Lee 2016). So party leaders should emphasis partisan language more than rank-and-file members. My results confirm this, party leaders post 5.8 percentage points more partisan tweets, all else equal. Accordingly, I also expect that party leaders who are responsible for promoting the party's image and controlling the national agenda will be less district focused and more focused on national issues than rank-and-file members. Results in Figure 3.28 demonstrates that party leaders are estimated to post 3.0 percentage points fewer district tweets. Party leaders are also more likely to post position-taking and policy focused tweets, all else equal. Because leaders have greater control over the legislative process and are leaders of their party's policy agenda, party leaders should be more likely to publicize their party's policy ideas through policy and position-taking tweets. Party leaders post 3.7 percentage points more position-taking tweets and 3.4 percentage points more policy tweets than rank-in-file in model 3.1. This result is consistent with the perspective that Members with institutional positions of influence over the legislative agenda will be more policy focused (Woon 2008). Members who are or have ambitions to be party leaders want to demonstrate their commitment to the party message and platform, a task better achieved through position-taking and partisan tweets rather than advertising or district tweets.

However, when including member fixed effects, the size of the coefficient between party leadership and the emphasis on each message type is greatly reduced. This suggests that members who are already tweeting about the party, position-taking, and national politics are more likely to be selected for party leadership, rather than the leadership position itself inducing this behavior. For example, members who use party labels on Twitter, perhaps an indication of their willingness to be a partisan player within Congress, are more likely to gain these positions rather than the position itself inducing greater partisanship in their messaging.

Members vary in their interest and skill in the legislative process. I expect that these members who are active and skilled legislators should be more policy focused and have more credit-claiming opportunities, and thus should tweet more policy and credit-claiming messages ($H_6$). When polling across congresses, there is a very small but positive relationship between a member's LES score and the propensity for credit-claiming and policy tweeting. Recall that members are classified as either performing below, at, or above their expected legislative effectiveness, and moving from a below expectation to an above expectation legislator is associated with only a .8 increase in credit-claiming and a .06 increase in policy tweeting. Given the small coefficient sizes, we can conclude that there is no sufficient evidence to support this hypothesis.

Perhaps, committee chairs – who enjoy procedural control over the bills under their jurisdiction and thus have greater ability to effect legislative outcomes than non-chairs – would be more likely to credit-claim all else equal. However, I again find a small but positive relationship between chairing a committee and credit-claiming. While the coefficient is statistically significant, the size of the estimated effect is less than 1 percentage point in model 3.1 and is actually negative in model 3.2. This is perhaps a result of the limited ability of committee chairs, except for appropriations subcommittee chairs, to actually increase federal resources to the district (Berry and Fowler 2016). Committee chairs, do however, all else equal, post 1.4 percentage points greater policy tweets, 2.3 percentage points more partisan tweets, and 3.1 percentage points fewer district tweet. Suggesting that, like party leaders, committee chairs adopt more national and partisan messaging as a result of their legislative leadership in the chamber.

The relative weak relationships for committee chairs and legislative effectiveness and their emphasis on policy suggests that policy tweeting is largely about agenda setting in public than it is about influencing the legislative process within Congress. Policy messages in general can be used as a vessel to communicate any number of presentations styles (Fenno 1978). So policy can be used to articulate position-taking, credit-claiming, and advertising messages, and therefore policy tweeting itself does not necessarily indicate that the member is policy-driven within Congress.[45] All members of Congress can use policy messaging to achieve their desired presentations, so policy messages themselves are less informative for distinguishing member's by their legislative commitments. Similarly, credit-claiming messages do not necessarily indicate the member was uniquely responsible or even had an active role in shaping the successful policy, so legislators who are in fact "work horses" are perhaps unable to distinguish themselves on Twitter using credit-claiming messages.

I hypothesized that Black representatives should be more likely to use Twitter for advertising and less likely for credit-claiming ($H_{10}$). Black legislators, all else equal, post 3.1 percentage points greater advertising messages. While we do find a negative correlation between Black representatives and credit-claiming, the effect size is less than 1 percentage point. However, Black legislators are estimated to post 3.4 percentage points fewer policy tweets and 3.1 percentage points fewer position-taking tweets. One possible explanation is that because minorities have higher trust for representatives of their own group (Gay 2001), Black lawmakers feel less need to take positions or discuss policy to demonstrate their commitment to Black interests because such positions go unspoken. And we see some evidence for this. As districts become less white, or have a greater

[45] Advertising tweets with policy content are typically announcing media appearance in which policy is discussed or town halls with a particular policy focus.

Figure 3.31: Marginal Effects of Percent Advertising Tweets with 95% Confidence Intervals

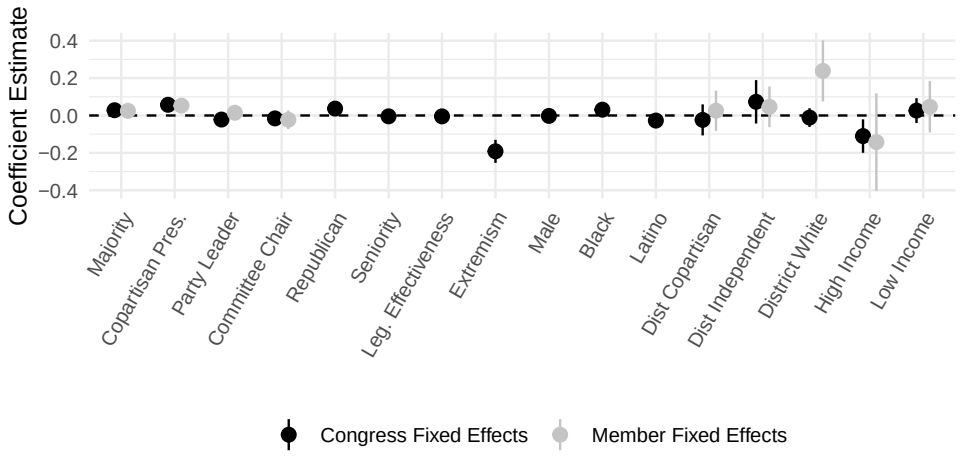



Figure 3.31: Displays estimated coefficients for the displayed covariates with congress fixed effects (black points) or member fixed effects (gray points). 95% confidence intervals calculated with standard errors clustered by member (black points) or by congress (gray points). Both specifications also include the log of total tweets posted by the member (unit of observation is representative-congress).

concentration of minority voters, members discuss policy less on Twitter.

As displayed in Figure 3.24, Black lawmakers post 4.2 percentage points fewer partisan tweets. This is surprising given that Black lawmakers tend to represent districts with a higher concentration of Black voters (Canon 2020; Grose 2011) and Black voters overwhelmingly identity with the Democratic Party (Tate 1994). If Black leaders see themselves as representing the Black community by focusing on Black issues in their messaging (Canon 2020), constituency casework, and delivering federal spending to the district (Grose 2011), then partisan messages should be less valuable at creating this type of presentation. While advertising is the least informative regarding the member's job as a legislator, heavy advertisers are still creating an image for voters. Heavy advertisers are presenting themselves as a person deeply connected to the people they represent and should be reelected for who they are as an individual rather than for their policy positions or legislating ability.

Previous research suggest that Latinx representatives are particularly likely to use credit-claiming in their messages ($H_{10}$). Results indicate that these legislators post 4.2 percentage points greater credit-claiming tweets than other legislators, all else equal. If the average member sends 1,600 tweets a congress, this translates to 67 more credit-claiming tweets from Latinx lawmakers.

Another way to test these claims is to examine the effect of the district identifying as white on the types of messages a member tweets. In contrast to what previous literature suggests, districts that have smaller minority populations are less likely to credit-claim on Twitter. And moving from a completely non-white district to a completely white district, as displayed in Figure 3.27, is associated with a modest 1.2 percentage point increase in credit-claiming tweets. While we find support that Latinx representatives are more likely to credit-claim, there is no relationship between Black legislators or those representing minority-majority districts and credit-claiming. In addition, moving from a completely non-white district to a completely white district is associated with a 6.9 percentage points increase in policy tweets and a 1.1 percentage points decrease in advertising tweets. These results, while not conclusive, suggest that minority lawmakers from minority districts provide distinct representation from white lawmakers from white districts. Minority lawmakers and lawmakers representing more diverse districts are more likely to shy away from policy and partisanship and instead focus on advertising messages to build support from their constituents. Whereas white lawmakers and lawmakers representing majority white districts emphasis policy, partisanship, and the district. It could be that voters' race is related to the types of representation voters demand of their lawmakers. Another explanation is that voters race is correlated with their political preferences, so members can use partisan and position-taking messages to appeal to more homogeneous districts in order to build their reelection constituencies.

Finally, we expect that female lawmakers should be more likely to use Twitter for policy, position-taking, and partisan messages than male lawmakers ($H_{11}$). Previous work has found that female representatives communicate more positions and policy messages than men to counter stereotypes that women are less policy-oriented or only interested in "women's" issues (Russell 2018*a*; Evans and Clark 2016). I find very limited support for this perspective. While, women are estimated to post 1.0 percentage points more policy tweets than their male counterparts, women are only very slightly more likely to post position-taking messages and men are actually more likely to tweet partisan messages. Across this twelve-year period, male and female legislators exhibit very similar messaging behavior across each of the six message types, and we fail to uncover any meaningful gender differences. While differences might arise between lawmakers of different genders over what policy areas they tweet about, women and male lawmakers tweet similar types of messages.

### 3.5 Discussion

There are several key takeaways from the preceding analysis: First, ideological extremism is strongly related to the types of messages members tweet. As members become more extreme relative to the party median, they take more positions and are far more partisan than more moderate representatives. Members want to build a consistent and predictable image of themselves to their

constituents, so their behavior within Congress should reflect their behavior outside of Congress on Twitter. Those members, whose voting records are more partisan and therefore have higher extremism score via DW-Nominate, are also more partisan on Twitter. I have also suggested that members with more extreme policy preferences are less able to pass their preferred legislation in Congress, and thus have to turn to position-taking messages to indicate to voters the policies they would like to implement. And in contrast, more moderate members rely on credit-claiming, district, and advertising messages. If those with more extreme political positions are more likely to tweet their positions, then this would polarize the public's perception of Congress's policy agenda as more ideologically extreme and partisan than it really is. Not only do these members dedicate a higher proportion of their tweets to position-taking and partisan messages, but we know from chapter 2 that ideologically extreme members tweet more and have more Twitter followers than ideologically moderate members. The increased exposure of these message exacerbates the polarizing political atmosphere developed on Twitter.

Second, members' Twitter messaging is directed towards the types of voters they need to appeal to in order to win election. Members can avoid ideological or partisan conflict and appeal to moderate voters or voters from the opposite party by "staying local." By focusing on legislative successes and the district while avoiding more controversial positions and partisan cues, they can make a stronger appeal to voters of the opposite party and independent voters for electoral support. While members from aligned districts can use position-taking and partisan messages to appeal to copartisans to win their reelection in both their general and primary election. The direction of the estimated coefficients for both district copartisanship and independents are what we would expect if members of Congress are using Twitter to disseminate messages to voters.

Third, majority status and serving with a co-party president always move in the same direction and have substantive and statistically significant effects on the types of messages members tweet. I have argued that when members perceive they are held responsible for governing outcomes, they strategically adopt messages that direct voters' focus towards their successes via credit-claiming and seek to build favorability through advertising and tweeting about the district. Members who are seeking to gain majority status and have less control over the policymaking process focus more on articulating why voters should give their party power in the next election by taking more positions and doing so in a partisan way.

Fourth, party leaders tweet differently than rank-and-file members. Party leaders hold important institutional positions that give them outsized control over the legislative agenda, are responsible for maintaining the party brand and messaging, and are the public faces of both their party and of Congress. As such, party leaders are more focused on national and partisan politics, and are more

policy oriented and take more positions than rank-and-file members.

Fifth, minority lawmakers and the racial composition of a member's district is correlated with their tweeting behavior. Black lawmakers in particular appear to behave differently on Twitter than non-black lawmakers, and are more likely to tweet district and advertising messages while shying away from posting policy and partisan messages. The data would suggest that Black lawmakers presentation of self is unique and based somewhat on the race of constituents they represent. As districts becomes more homogeneously white, representatives are more likely to emphasize policy, partisan, and district messages on Twitter. While the following chapter continues to understand how race affects presentations of self, further exploration into this topic is an area ripe for future research.

This chapter began by discussing the six types of messages members can use to develop their digital presentations of self – position-taking, credit-claiming, advertising, partisan, district, and policy – and demonstrated how these messages were identified in over three million tweets using natural language processing methods. The analysis here began to dissect how a member's institutional, district, and personal characteristics are related to their emphasis of each message type, as well as provided evidence for the increased use of position-taking and partisan rhetoric on the platform over time. Importantly, we see that the messages members tweet are by and large consistent with their communication strategies across other platforms and aligns with their electoral and institutional constraints. In the following chapter 4 we incorporate all six measures simultaneously to measure representatives' digital presentations of self and see how these presentations shift over time. Incorporating these six components allows a more robust view of how members present themselves to their constituency than previous work has allowed. Members can claim credit for federal policy while being extremely partisan, or they can do so in a way that claims credit for distributive spending in the district. Some members might advertise their district, and others might advertise their appearances on cable news. Members can indicate their policy stances by taking positions or through credit-claiming. They can frame policy debates as partisan or argue why a policy benefits the district. Members might take positions on a bill, or they might take a position on President Trump's rhetoric. The relative balance of each message type in a member's tweets can reveal the reputation a member wishes to create through their presentations.

## Chapter 4

## Digital Presentations of Self

Thus far, we have established that Twitter is an important communication tool for members of Congress (chapter 2) and the six messages types they publicize through the site (chapter 3). Crucially, the messages members tweet are consistent with their communication strategies across other platforms and aligns with their electoral and institutional interests. We saw throughout our previous analysis how members of Congress might layer multiple messages to foster unique digital presentation of self. For instance, the results showed how representatives use position-taking messages to appeal to both copartisan and independent voters, but use partisan appeals to appeal only to copartisan voters. We also saw how assuming credit-claiming and district messages are indicative of a more local, less partisan presentation can be misleading. To understand how members of Congress present themselves, we need to consider how members balance these six messages types in their online messaging.

How then do members emphasis different messages to create a digital presentation that communicates the member's desired image? There has been little research documenting the different presentations of self representatives utilize to appeal and represent their constituencies, and previous scholars have focused solely on the trade-off between credit-claiming and position-taking. This chapter will use the previously defined messaging priorities expressed over time via Twitter and categorize them into four clusters of self presentation: party loyalist, policy wonk, district hero and personal advertiser. By applying k-means clustering and a multidimensional scaling algorithm to simultaneously consider all six types of messages, I uncover that a member's presentation of self can be described as one of these four presentations, and that these digital presentations are distinguished by the extent members build their image around their party (party loyalist), policy (policy wonk), their district (district hero), or themselves (personal advertiser).

In what follows, we first explore the theoretical foundations of presentation of self and how the modern political environment might shape member's strategic choices. Next, we review the methodology used to incorporate information across six tweet messages across a twelve-year period to estimate the four general clusters of presentations of self. Then we will describe the typical Twitter behavior of representatives belonging to each cluster. Next, we explore how the presentation a member adopts is related to their personal qualities and institutional and electoral constraints. Finally, we will explore how member's presentations of self have changed over time and the extent these changes are driven by both social media and the modern political environment.

### 4.1 Theoretical Foundations for Presentation of Self

The fundamental connection between constituents and their representatives is elections – often called the electoral connection (Mayhew 1974). Representatives are seeking to be re-elected by their constituents, and constituents observe the behavior of representatives and decide whether to reelect them. Representatives need to anticipate how constituents will respond to their actions. Political scientists have examined the electoral connection with respect to the roll call votes representatives take to represent their constituents' interests (e.g. Miller and Stokes 1963). However, Richard Fenno (1973) argued that "the electoral goal is achieved – first and last – not in Washington but at home" (Fenno 1978, 31). And the primary way representatives elicit the electoral support and represent their constituents is through presentation of self, the performance and expression of the image a representative wants others to see.

Fenno (1978) distinguished representatives' presentations of self by the extent they emphasized policy, their personal relationships, and their district in their communications with voters. For instance, we might see members using advertising and district messages to demonstrate their personal identification with their constituents. Or a member might use policy messages to show they are qualified and interested in the policy needs of their constituents. The six messages identified in representatives' tweets – position-taking, credit-claiming, advertising, district, policy, and partisan – and the relative balance they place on each message can be used to uncover their presentation of self.

Despite the importance of presentation of self to representatives' electoral strategy and representation, limited academic work has systematically studied how they chose to present themselves to their constituents. Among the exceptions, Grimmer (2013*b*) identified the policy areas of Senator's press releases and defines Senators ranging from issue-oriented (position-takers) to appropriators (credit-claimers) depending on the emphasis they place on certain policy topic areas. Most research has distinguished members only by the extent they are either district-focused, which is commonly measured through credit-claiming, or policy focused, which is assumed to be conveyed through position-taking (Yiannakis 1982; Parker and Goodman 2009; Butler, Karpowitz and Pope 2012; Grimmer 2013*a*; Grimmer 2013*b*).

In the previous chapter, we saw that the assumptions that credit-claiming is always district focused and that position-taking is always policy focused are likely false. Recall that tweets are labelled as either position-taking, credit-claiming, or advertising and then are identified as containing policy, district, or partisan content. Table 4.1 shows the percent of each tweet message that was simultaneously coded as a different message. We can quickly see how distilling presentation of self

into the perceived trade-off between position-taking and credit-claiming is limiting. For example, we see that not only are less than 20% of credit-claiming tweets related to the district, but credit-claiming tweets are just as likely to use partisan rhetoric as they are to mention their district. In fact, the majority of tweets that mention the district are done through advertising messages. And not all position-taking tweets are used for delivering policy messages: Only 76.67% of position-taking tweets also mentioned policy, and these tweets also used partisan rhetoric about one-third of the time and mentioned their congressional district about 10% of the time. In fact, credit-claiming and position-taking are just as likely to mention policy, showing that both of these messages are used by representatives to demonstrate their policy focus and commitment to constituents. Members' presentations are more complex than simply credit-claiming versus position-taking, and can be better measured by the relative balance of each of these six messages as expressed through their Twitter behavior.

Table 4.1: Co-occurrence of Message Types in Members' Tweets

| Tweet Message | Also Labelled As | | | | | | |
|---|---|---|---|---|---|---|---|
| | Position-Taking | Credit-Claiming | Advertising | Total | Policy | Partisan | District |
| Position-Taking | 100% | - | - | 100% | 76.67% | 36.17% | 9.84% |
| Credit-Claiming | - | 100% | - | 100% | 75.33% | 17.96% | 18.97% |
| Advertising | - | - | 100% | 100% | 38.34% | 9.08% | 26.36% |
| Policy | 45.13% | 32.40% | 22.47% | 100% | 100% | 25.02% | 16.31% |
| Partisan | 62.01% | 22.49% | 15.49% | 100% | 72.86% | 100% | 10.29% |
| District | 19.71% | 27.73% | 52.54% | 100% | 55.45% | 12.01% | 100% |

Note: Percent of total tweets for a message type that contain another message type (e.g. total position-taking + policy tweets / total position-taking tweets).

Given the lack of academic research on presentation of self and the narrow focus on only two types of messages, we have limited theoretical expectations for how representatives will present themselves. As such, much of the analysis in this chapter is descriptive, and its contribution is largely the classification of members' digital presentations of self into four clusters of presentation styles using their expressed priorities across six messages. We do know that members of Congress are strategic actors that take actions to "control the images that constituents have of them" (Cain, Ferejohn and Fiorina 2013, 47). Both in the district and in Congress, members engage in "patterns or 'packages' of activity that correspond to a particular constellation of goals" (Bernhard, Sewell and Sulkin 2017, 478). They want "their constituents to see patterns in their home style activities that reinforce the images they are constantly 'polishing' and promulgating" (Parker 1986, 35).

Members craft presentations of self to convey these qualities, and they are intentional about it. Members use different types of appeals to achieve the desired image for constituents, depending on the nature of their district and their unique personal qualities.

We might also consider how partisan politics might influence how members of Congress present themselves to their constituents. Since Fenno's (1978) writings in the 1970s, politics have drastically changed: members of Congress have become more ideologically polarized with nearly each successive Congress (Poole and Rosenthal 1984, 2000, 2017), as seen in Figure 4.1, and competition over party control in government has intensified.

Party polarization refers to the increasingly extreme and homogeneous policy preferences within each party, and the increasingly distinct preferences between the two parties. The increase in congressional polarization is partly a function of the ideological sorting of the two parties since the 1970s: ideology is now strongly correlated with partisan identification, both among elites (Theriault 2008) and the mass public (Abramowitz, Alexander and Gunning 2006; Abramowitz and Saunders 2008). Liberal "Rockefeller" Republicans, like Senator Arlen Specter (who joined the Democratic Party in 2009), and conservative Democrats, such as Senator Harry Byrd Jr. (who joined the Republican Party in 1970), are a rare occurrence in today's Congress. The ideological realignment of the parties is a national phenomenon, but was first and primarily driven by the partisan realignment of the South following the 1960s civil rights legislation (Aldrich and Rohde 2017) and is responsible for roughly two-thirds of the increase in polarization (Theriault 2006).

In addition, polarization is driven by changes within the district. Members of Congress today represent districts with a larger concentration of copartisans than 50 years ago (Abramowitz, Alexander and Gunning 2006; Levendusky 2009). Redistricting produced more ideologically homogeneous districts (Carson, Crespin, Finocchiaro and Rohde 2007) and individuals are geographically sorting, perhaps not explicitly for political reasons, into like-minded communities (Oppenheimer 2005; Bishop 2009). The majority of Americans have always identified with a political party and relied on that party identification to guide their vote choices (Campbell et al. 1960). Since the 1970s, voters have increasingly voted in line with their party identification (Bartels 2000; Jacobson and Carson 2019) and are less likely to engage in split-ticket voting (Fiorina and Levendusky 2006; Abramowitz and Webster 2016; Jacobson and Carson 2019). As congressional voting patterns began to look like presidential voting patterns, voters replaced their representatives with more ideologically aligned, and often more extreme representatives (Han and Brady 2007; Theriault 2008).

In the past 50 years, the changing composition and boundaries of congressional districts has delivered reliable Democratic or Republican representatives, which has shifted members' arena of

Figure 4.1: Party Polarization, $57^{th}$-$117^{th}$ Congress

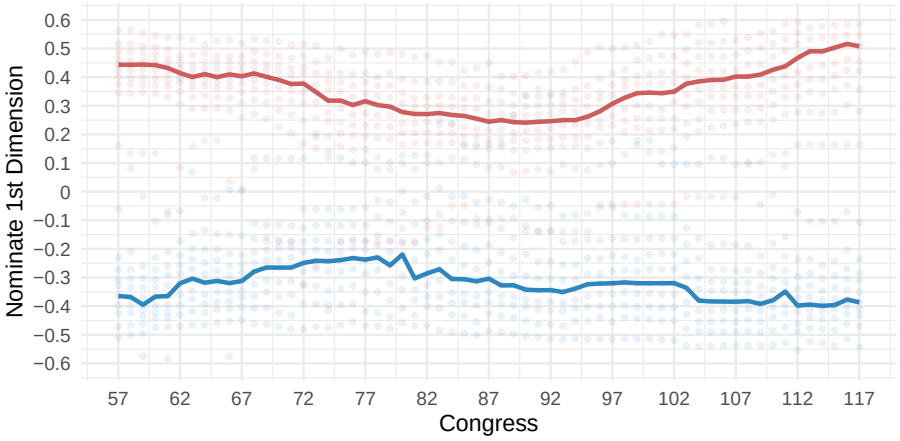



Figure 4.1: Displays the range of first dimension DW-Nominate scores (Poole and Rosenthal 1984) for representatives in each congress and highlights the first dimension location for the median member of the Democratic (blue) and Republican (red) Party.

electoral competition from the general to the primary election. Members who face a more precarious primary election will target their presentations of self towards these voters (Fenno 1978). Primary elections are, by design, intra-party affairs and in most states voting is restricted to party members and, in some cases, independent voters.[1] Ideologically extreme voters are more likely to participate in primaries and prefer more ideologically extreme candidates; as a result, incumbents adopt more extreme positions to appeal to these voters and fend off electoral defeat (Brady, Han and Pope 2007). In addition, Brady, Han and Pope (2007) argue that while primary loses for incumbents is a relatively rare event, incumbents that do lose a primary race are more moderate than the winning primary challenger and often lose because of the opposition of organized interests. These party activists are more active in primary elections (Fiorina and Levendusky 2006), and in turn have become more ideologically extreme and placed greater emphasis on "ideologically purity" (Theriault 2008). Even the threat of being "primaried" will induce a change in members' presentations, and the low-frequency in which incumbents lose a primary election is evidence that reelection-minded members have adapted their strategies to prevent such an outcome.

Modern politics is not simply characterized by an increase in ideological polarization, but by an increase in partisan conflict. Democrats controlled the House of Representatives, with the exception of only two congresses, from 1931-1994. House Republicans, led by Representative Newt

[1] `https://ballotpedia.org/Primary_election_types_by_state`

Gingrich (R-GA), in the 1980s began strategizing ways to win back majority control of the House (Theriault 2013). These members adopted the strategy of partisan warfare: the range of actions, which extends beyond roll call votes to member's rhetoric, designed to "go beyond defeating your opponents into humiliating them, go beyond questioning your opponents' judgement into questioning their motives, and go beyond fighting the good legislative fight to destroying the institution and the legislative process in order to serve not only your ideological goals, but more importantly, your electoral goals" (Theriault 2013, 11). While partisan warfare was pioneered by a small group of Republicans, it has since been adopted by members on both sides of the isle to serve their electoral goals. The overall reputation of a member's political party matters both for their own reelection and for winning majority status (Cox and McCubbins 2005), so members have a vested interest in not only crafting a positive party image but in tarnishing the opposition party's image (Lee 2009). And the narrowly held congressional majorities since Republicans first won back control of the House in the 1994 election, making majority party control up for grabs in every election, exacerbates the need to magnify the differences between the parties (Lee 2016).

Parties accomplish this by manipulating the congressional agenda (Cox and McCubbins 2005; Lee 2009) and designing partisan messaging (Sinclair 2006; Lee 2016) to divide the two parties. The responsibility of these activities largely falls on party leaders (Cox and McCubbins 2005; Sinclair 2006). Sinclair (2006) argues that party leaders "regularly decides on an issue emphasis, a theme, and a message that members are asked to convey to their constituents" (275). While aligned members have incentives to adopt these messages given the partisan makeup of their districts and their own desire for majority status, leaders further incentivize rank-and-file to adopt these messages by involving them in party tasks and financially supporting their campaigns (Sinclair 2006). Members who want their party to win majority control in the next election or increase their power and influence within the House vis-à-vis party leadership have strong incentives to adopt these party messages in their online messaging.

While other scholars have argued that a member's presentation is designed to create a personal vote based on personal qualities and independent of partisanship (Cain, Ferejohn and Fiorina 2013; Tucker 2019), the increased electoral pressure from the primary electorate and party leaders seeking to differentiate their party from the opposition will incentivize members to adopt presentations that emphasize partisanship and aligned policy positions. We see in Table 4.1 that 72.86% of partisan tweets contain policy language and 62.01% are used to take a position – suggesting that party messages are most often done through position-taking on policy issues. As demonstrated in chapter 3, over the past twelve years representatives have increasingly used Twitter to publicize position-taking and partisan messaging, especially representatives from aligned districts and with ideologically extreme preferences. Emphasizing partisanship in their presentations has the benefit

of reinforcing the partisan identity of voters, influencing the issue positions of co-partisan voters, and demonstrating their party loyalty to party leaders (Bartels 2008; Barber and Pope 2019). Fenno (2000) speculated that the stronger relationship between party and ideology in the electorate would likely produce greater promotion of position-taking while in the district. Members today have strong party and electoral incentives, both personally and collectively, to adopt more partisan and more combative presentations of self.

As a result of these incentives, we find that members of Congress increasingly adopt party loyalists presentations of self, placing a strong emphasis on their party and position-taking at the expense of district politics. Members with more ideologically extreme voting records and aligned congressional districts are most likely to adopt these partisan presentations on Twitter. However, voters still value policy representation, constituency service, and personal contact from their elected officials (Griffin and Flavin 2011; Harden 2013; Costa 2021). As a means to navigate a highly partisan political environment, other members chose to define themselves as policy wonks and emphasize their policy skill and involvement in the legislative process. Although members might have difficulty in establishing their own reputation independent of their party – either because voters increasingly attach the national party brand to representatives or representatives increasingly adopt party messages in their own presentations – such a challenge might provide further incentive to emphasize constituent-service and the district (Dropp and Peskowitz 2012). A third group of representatives adopt a district hero presentation of self, centering their presentations around their congressional district and avoid partisan politics. And a declining number of representatives, the personal advertisers, have avoided partisan politics by avoiding policy in general and instead focus primarily on advertising messages on Twitter. Prior to providing a more detailed description of these four presentation styles and addressing the growing number of party loyalists, the following section will review the methodology behind the estimation of these four clusters of presentations styles.

### 4.2 Measuring Digital Presentations of Self

Differences in presentations emerge based on *what* representatives discuss, and less on the specific policies or topics they are messaging about. In other words, it matters less how members talk about their district or what positions they take on a bill, it only matters *if* they are talking about the district or taking positions. As such, we can understand a member's presentation of self by the expressed priorities (Grimmer 2013*a*; Russell 2021*b*) of their tweets. So far we have identified six types of messages representatives use on Twitter to convey their digital presentations of self: position-taking, credit-claiming, advertising, policy, partisan, and district tweets. Through the message representatives tweet, they define the kind of representation they offer to their constituents. The proportion of tweets members dedicate to each type of message is combined to represent their

expressed priorities on the social media platform.

Formally, for each $N$ member indexed by $i = 1, ..., N$ in each $T$ congress indexed by $t = 1, ..., T$, the proportion of tweets a member dedicates to message type $k$, where $k$ is indexed by $k = 1, ..., K$ and $K = 6$, is $Message_{i,t,k}$. Such that a member's expressed priorities in a given congress can be understood as:

$$Priorities_{i,t} = (Message_{i,t,1},\ Message_{i,t,2},\ Message_{i,t,3},\\ Message_{i,t,4},\ Message_{i,t,5},\ Message_{i,t,6})$$

A thoughtful discussion of member's presentations of self across six dimensions is, however, both limiting and difficult. First, presentations of self are not defined by the emphasis of one particular message type, but by the relative balance of several messages that together create a certain impression of that member. A member who wishes to project a hardworking, policy focused presentation will want to emphasize policy, position-taking, and credit-claiming to show that they care about policy, have policy ideas, and can achieve policy success in the institution. A member who wants to be known as a district-focused appropriator will place more emphasis on district tweets and credit-claiming. In this case, only examining the rates of credit-claiming alone will be misleading for uncovering these two member's presentations – we need to incorporate the emphasis on all six messages to understand a given presentation. Second, on a practical note, human beings are able to comprehend at most three dimensions. It's why we use statistical tools like regression analysis to disentangle how multiple variables might relate to one another. To understand how these expressed priorities create a presentation of self, I used k-means clustering and multidimensional scaling to define the types of presentations members create on Twitter.

### 4.2.1 K-Means Clustering

K-means clustering is an algorithm that organizes observations into a set number of clusters based on how similar observations are to one another. And this method has been applied to legislators behavior in other areas of political science (Bernhard and Sulkin 2018). The objective here is to group similar data points together, based on their expressed priorities, and discover underlying patterns within and between clusters. K-means clustering requires two inputs: $K$ number of clusters and the data to be clustered. In this case, the input data is the expressed priorities of each member-congress observation. Selecting the number of desired clusters is both an art and a science. The `NbClust` package in `R` compares how well k-means clustering performs across 26 performance metrics.[2] The

[2] `https://www.rdocumentation.org/packages/NbClust/versions/3.0/topics/NbClust`

majority of performance metrics identified two clusters as the optimal clusters, followed then by three and four clusters.[3] After clustering members' expressed priorities using two, three, and four clusters and exploring the members and the typical behavior of each grouping, I determined that four clusters produced the most coherent results.

K-means clustering members' expressed priorities begins by selecting $C = 25$ random points to be the cluster centroids.[4] Then, the remaining $N - C$ points are assigned to the centroid they are closest to, using the Euclidean distance. After each point is assigned to a cluster, a new cluster centroid is selected using the mean expressed priorities of all the data points within the same cluster. The algorithm then repeats this process until the centroid locations of each cluster have stabilized. The result of this process is that each member's expressed priorities in a given congress is assigned to a cluster with other members with similar expressed priorities. By examining the average messaging behavior of members within a cluster, we can classify the clusters as a type of digital presentation of self.

K-means clustering only sorts observations into groups, and most often we are also interested in visualizing the spatial location of clusters to better understand the patterns within and between clusters. To do this, I then applied multidimensional scaling to members' expressed priorities to assign members a two-dimensional location. As a quick aside, clustering algorithms are computationally very similar to multidimensional scaling (Bernhard, Sewell and Sulkin 2017). Clustering algorithms try and create clusters of observations based on the similarities of inputs for each unit. Multidimensional scaling, in contrast, tries to extract two dimensions that best displays the differences of inputs for each unit.

### 4.2.2 Multidimensional Scaling

Multidimensional scaling (MDS) is a statistical technique that uses the dissimilarity of individuals in a data set to uncover the dimensionality of the data and visualize individuals according to their location on the uncovered dimensions (Bakker and Poole 2013). MDS has been used in political science most famously to calculate Nominate Scores (Poole and Rosenthal 2017), but has also been used in a variety of other settings (e.g. Brady 1990; Clinton, Jackman and Rivers 2004; Pope and Treier 2011). Here, MDS uses the expressed priorities for each member in each congress to characterize the digital presentations of self onto a two-dimensional place.

The value of this method is, in part, descriptive, the locations of member's presentations are

[3] see Figure 9.1 in Appendix 9.1.

[4] K-means clustering was applied using the `kmeans` function in `R`. Results are consistent across various values of $C$.

not in and of itself valuable. The locations of individuals are purely relational: the coordinates of a member's presentation tells you how similar (and dissimilar) they are from all other members' presentations. MDS, simply put, tries to find a configuration where the distance between points in an N-dimensional space is as close as possible to the same distance between the observed distances. So the relative location of points depends on each pairwise distance between members. For instance, adding additional data points would shift an existing a member's coordinate estimate, but the estimated distance between the points would be (roughly) retained. This also means there is no "true" set of coordinates, the relative placement of points will be arbitrary. This feature is undesirable in settings where the exact positions of the resulting coordinates are informative (for instance when calculating the distance between cities), but in most social science applications the dimensions are subjective in nature. Multidimensional scaling is an appropriate method for this setting and allows us to visualize the clusters of member's online behavior, or their presentations, in an intuitive way, and compare how members generally differ (or don't) in their presentations.

Classical multidimensional scaling (MDS), also known as principle coordinate analysis, was originally developed by Gower (1966). MDS translates a distance matrix containing the distances between each pair of observations and places each observation into an N-dimensional space. MDS requires two inputs, the $P$ number of dimensions and a distance matrix.[5] The distance matrix is a $NxN$ matrix containing the Euclidean distances between each $N$ member's expressed priorities. Formally, the distance between member $i$ and member $j$'s expressed priorities, $\delta_{ij}$, for $k$ messages is $\sqrt{\sum_{k=1}^{6}(Message_{ik} - Message_{jk})^2}$. Just as we did with k-means clustering, we estimate each member-congress observation separately, so if someone served in multiple congresses they are considered as a unique individual in the data. Next, we set the number of dimensions to $P = 2$, a standard choice, because "MDS analyses are almost always in three dimensions or less because the whole *raison d'être* of MDS methods is to produce a visual summary" (Bakker and Poole 2013, 128).

MDS takes a set of dissimilarities and returns a set of $N$ points $x_1, ..., x_n \in \mathbb{R}^p$, or configuration, such that the distance between the points $d_{ij}$ are approximately equal to the dissimilarities $\delta_{ij}$, or $d_{ij} \approx \delta_{ij}$.[6] To accomplish this MDS minimizes the loss function, or the stress function, where $x_i$ denotes vectors in a $P$ dimensional space:

$$Stress_D(x_1...x_P) = \left( \sum_{i=1,...N} (d_{ij} - ||x_i - x_j||)^2 \right)^{1/2}$$

[5] I used the `R` function `mcdscale(distance.matrix, k = 2)` where `k` is the number of dimensions
[6] Full math details for MDS can be found in Appendix 9.2

This method graphically represents these expressed priorities based on how different one member's priorities are from another member's priorities. For both k-means clustering and multidimensional scaling, I dropped all members with less than 100 tweets in a given congress, since these individuals do not have enough text data to accurately capture their presentations. Table 4.2 shows the number of members whose digital presentations were estimated by these methods. While we only have sufficient data to estimate the presentations for 38.2% of representatives of the $111^{\text{th}}$ Congress, this quickly changes by the $112^{\text{th}}$ Congress where we can estimate the presentations for the majority of members as members adopt and increasingly rely on Twitter for presenting themselves to their district.

Table 4.2: Measured Presentations of Self

| $111^{th}$ Congress | $112^{th}$ Congress | $113^{th}$ Congress | $114^{th}$ Congress | $115^{th}$ Congress | $116^{th}$ Congress |
|---|---|---|---|---|---|
| 170 Representatives (38.20%) | 321 Representatives (72.13%) | 383 Representatives (86.26%) | 389 Representatives (88.21%) | 410 Representatives (91.11%) | 424 Representatives (95.93%) |

With these two methods in hand, I first applied k-means clustering and then applied multidimensional scaling to the Representatives' expressed priorities in each congress. Taken together, k-means clustering identifies the groupings of members of Congress based on the similarities of their expressed priorities and MDS identifies a spatial configuration based on the differences of members' expressed priorities. Combining these methods allows us to both identify a typology of presentations of self (via clustering) and make more granular comparisons between members' presentations using their coordinate locations (via MDS). The following section will describe the typical Twitter behavior of members belonging to each of the four clusters.

### 4.3 Typology of Digital Presentations of Self

The purpose of this section is to describe the four types of presentations of self that emerge from our clustering and multidimensional scaling analysis: What are the typical messaging priorities of the members adopting each presentation, and what distinguishes one presentation from another? As shown in Figure 4.2, by applying k-means clustering and MDS to the expressed priorities of each member and each congress, we can plot the member's presentation of self across two dimensions and group the points based on their respective cluster. First, from the average message priorities and the four clusters, we can characterize the four general types of presentation of self. Second, using the spatial locations of each member's presentation of self, we can describe how that member uniquely presents themselves relative to other members. We identify four types of presentations of self, or four clusters, that members adopt: the policy wonk, the district hero, the personal advertiser, and the party loyalist.

Figure 4.2: Spatial Location and Cluster Assignment of Representatives' Digital Presentations of Self

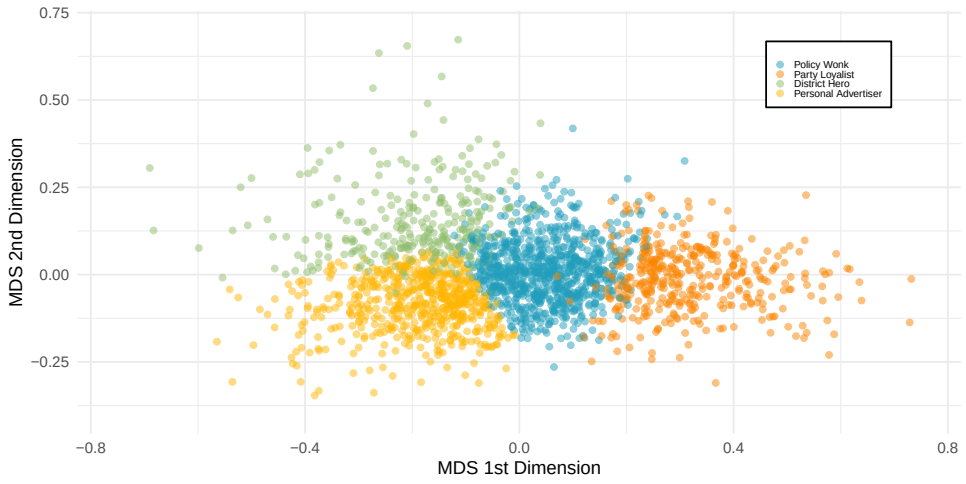



Figure 4.2: Displays cluster assignment and multidimensional scaling locations for representatives' digital presentations of self (where the observation is the representative-congress).

A common approach to describing the estimated clusters is to examine the average input values, in this case the percent of tweets labelled as each message type (Bernhard and Sulkin 2018). The heat map in Figure 4.3 shows the average emphasis members of each cluster (or type of presentation) placed on each of the six message types. The first type of presentation of self we will discuss is the party loyalist. This presentation type, comprising 19.2% of all presentations, is distinguishable from the other three presentations by their emphasis on partisan and position-taking tweets. The average party loyalist takes a position in 51.3% of their tweets and uses partisan rhetoric in 34.9%, far more than any other cluster. This same group is also the least likely to tweet about the district (11.2%) and advertising (23.1%) when compared to the other three clusters.

13.5% of representatives were sorted into the district hero cluster. District heroes are distinguishable from the other three presentations by their heavy emphasis on their congressional districts. These representatives mention their district, on average, in 42.4% of their tweets, more than twice as often as any other presentation. In addition, district heroes, when compared to party loyalist, only use partisan language in 12.8% of tweets and are less likely to use Twitter for position taking. District heroes are further distinguishable by their greater emphasis on advertising messages – 48.1% of their tweets, on average, are advertising tweets – and their slightly greater emphasis on credit-claiming messages.

Figure 4.3: Heat Map of Cluster Means

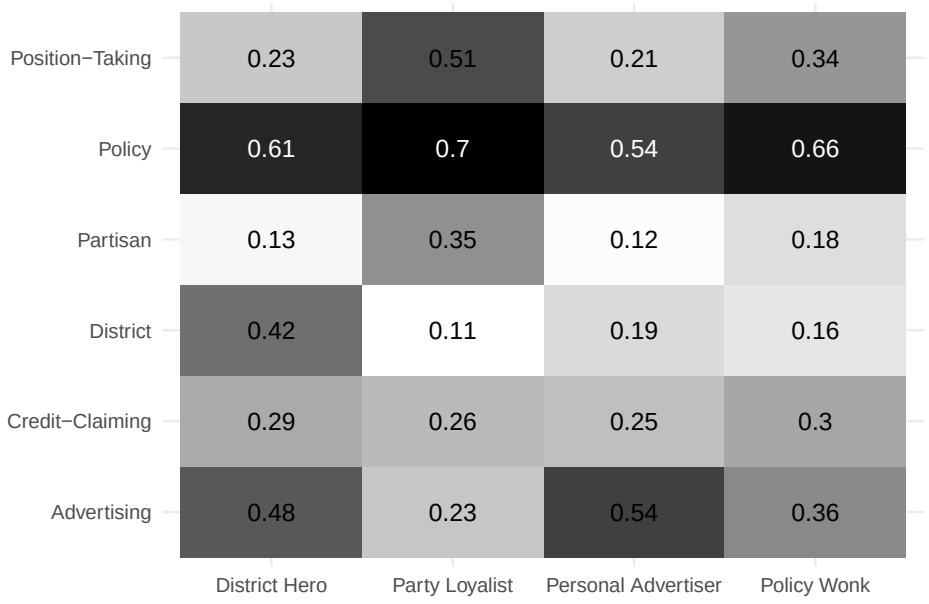



Figure 4.3: Heat map of each cluster's mean for each of the six message types. White indicates low values and black high values.

Policy wonks, who comprise 39.4% of all presentations, equally balance position-taking, advertising, and credit-claiming in their messaging priorities. These members are, as their name suggests, policy focused, and the average policy wonk tweets about policy in 66.5% of their tweets. While a slightly larger share of party loyalists tweets are policy related, the greater emphasis on credit-claiming and lesser emphasis on partisanship suggest that the nature of their policy tweets is more focused on policy successes than positioning or party messaging. Moreover, the policy wonk isn't as district focused as the district hero, 16.3% of the average policy wonk's tweets have district content, nor are they as partisan as the party loyalist, 18.0% of the average policy wonk's tweets have partisan content.

Finally, the personal advertiser presentation, comprising 27.8% of presentations, places the greatest emphasis on advertising messages in their expressed priorities. Of all presentations, they are the least likely to take positions, claim credit, or discuss policy – but a majority of their tweets (54.1%) on average still have policy content. In addition, personal advertisers are the least likely

to use partisan rhetoric, only 11.9% of their tweets do so on average, and are far less likely to tweet about the district compared to the district hero. From this discussion, we can generally characterize each of these four presentations as follows:

1. **Party Loyalist**: These members rely most heavily on partisanship and, like the Policy Wonk, focus on national politics rather than district concerns. While policy still plays a central role in their presentations, they favor position-taking far more than credit-claiming, and are the least likely to incorporate advertising messages into their presentations.

2. **Policy Wonk**: These members are policy focused, blending credit-claiming and position-taking into their presentations. They build reputations around articulating national policy to their constituents, rather than focus on local concerns. But in contrast to party loyalists, the policy wonk places less emphasis on partisan politics and more emphasis on the actual issues themselves.

3. **District Hero**: These members are defined by their consistent emphasis on their congressional districts. They rely on policy and credit-claiming messages, while relying less on position-taking than the policy wonk. District heroes are sure to always frame these messages as how it relates to their districts, and stay clear of partisan politics.

4. **Personal Advertiser**: Members with this type of presentation are the least policy focused, and their presentations are defined by the centrality of advertising messages. They aren't particularly district-focused, but they also don't rely on partisan messaging to build their presentations.

Now that we have established the average behavior within each of the four types of digital presentations of self, we will next describe what the spatial location of each presentation reveals about that member's Twitter behavior. Recall that multidimensional scaling plots each member's expressed priorities in a given congress on a two-dimensional plane that best retains the overall distance between members' expressed priorities across six dimensions. By examining what variation in Twitter behavior each dimension captures, we can, first, understand any patterns specific to the messages that representatives tweet. Second, we can gain insight into how an individual member's digital presentations change over time and compare them to other members based on their dimension locations.

Table 4.3 displays the correlation between each presentation's first dimension and second dimension location and the share of tweets labelled as each of the six message types. The first dimension,

corresponding to the x-axis, largely captures the extent a member emphasizes position-taking in their digital presentations of self. Position-taking is positively correlated with the first dimension by .92 and is not strongly correlated with the second dimension. Figure 4.4 plots the locations of presentations of representatives serving in $114^{\text{th}}$ Congress and highlights those who were in the $90^{\text{th}}$ percentile for the greatest emphasis for that message type. In the position-taking sub-figure, members who dedicated the highest percent of their tweets to position-taking are concentrated on the right side of the graph, where $x > 0$. We see a close relationship between position-taking and partisan rhetoric, where members who are frequent position-takers are also highly partisan. The percent of partisan tweets is also correlated with the first dimension by .71 and only slightly correlated with the second dimension by -.11. Similarly, members who most emphasize partisan rhetoric on Twitter have presentations located in the bottom right quadrant, and closely resembles the location of the members who most emphasize position-taking.

Table 4.3: Correlation Matrix of Message Priorities and MDS Dimension Locations

| | Position-Taking | Advertising | Credit-Claiming | Policy | Partisan | District |
|---|---|---|---|---|---|---|
| MDS $1^{\text{st}}$ Dimension | $.92^{***}$ | $-.93^{***}$ | $.09^{***}$ | $.64^{***}$ | $.71^{***}$ | $-.59^{***}$ |
| MDS $2^{\text{nd}}$ Dimension | $-.04^{**}$ | $-.25^{***}$ | $.58^{***}$ | $.56^{***}$ | $-.11^{***}$ | $.67^{***}$ |
| *Note:* | | | | | | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

From Figure 4.4, we see that the $x = -y$ diagonal displays the trade-off between district-focused tweets and partisan tweets. District tweeting is correlated -.59 with the first dimension and .67 with the second dimension, placing those members with the greatest share of district tweets in the second quadrant, where $x < 0$ and $y > 0$. Since keeping politics local and focusing on local policy concerns can be an effective strategy to avoid national partisan politics, it makes sense that the most partisan tweeters have spatial locations the furthest away in the fourth quadrant, where $x < 0$ and $y < 0$.

The $x = y$ diagonal captures the trade-off between policy and advertising tweets. The percent of policy tweets is positively correlated with both the first and second dimension locations, placing those members with the most policy focused presentations in the first quadrant, where $x > 0$ and $y > 0$, as seen in Figure 4.4. Directly opposite of highly policy focused presentations are those who are highly advertising focused. The percent of advertising tweets is correlated -.93 with the first dimension and -.25 with the second dimension. Recall from Table 4.1 that advertising tweets are the least likely to also contain policy content – they are most often messages about holidays, media appearances, or family pictures. This trade-off is consistent with what we would expect: representatives who wish to be seen as skilled legislators with strong policy ideas will not find much value in advertising tweets, and instead will prioritize policy messages. Those representatives who want to avoid controversial policies and emphasis their personal qualities in their presentations will

find value in advertising messages rather than policy messages.

Figure 4.4: Spatial Location of Representatives' Digital Presentations of Self With The Strongest Emphasis on Each Message Type, 114$^{\text{th}}$ Congress

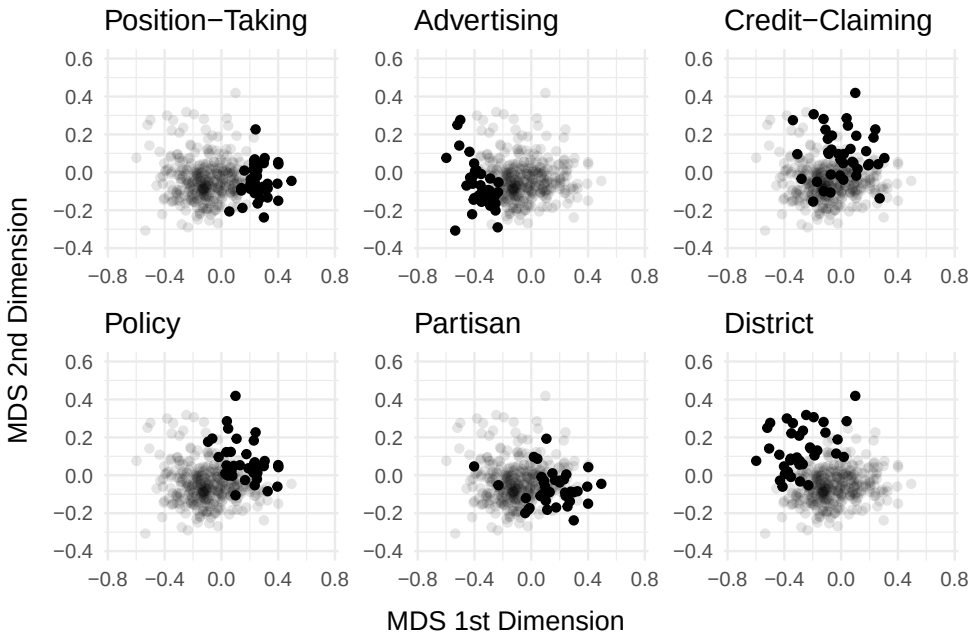



Figure 4.4: Displays the locations of representatives' digital presentations of self for the 114$^{\text{th}}$ Congress and highlights (black points) the locations of representatives in the 90$^{\text{th}}$ percentile for their share of tweets dedicated to each message type.

Finally, the second dimension, or y-axis, captures the extent members use credit-claiming in their expressed priorities. Credit-claiming is correlated .58 with the second dimension, and is only slightly correlated with the first dimension by .09. While credit-claiming is not as strongly correlated to the second dimension as position-taking is to the first dimension, we do see in Figure 4.4 that presentations with the most emphasis on credit-claiming largely have coordinate locations with $y > 0$. The weaker relationship between MDS locations and credit-claiming also speaks to the universal use of credit-claiming between all four presentations of self. The average member of each cluster uses credit-claiming in 25% (personal advertisers) to 30% (policy wonk) of tweets, a relatively narrow gap between presentation styles.

Finally, it is important to note that the dimensions are not strongly correlated to DW-Nominate, as we can see with the lack of partisan separation in Figure 4.5. The second dimension is correlated

.04 with first dimension DW-Nominate scores, and the second dimension is correlated .17. Moreover, the correlation between the first dimension and DW-Nominate is almost entirely a result of members' behavior in the 115$^{th}$ Congress, when Democrats dramatically increased their emphasis on position-taking and partisanship. Excluding this Congress, the first dimension is correlated with DW-Nominate by only .06 and the second dimension by .01. This analysis is uncovering something unique about presentation of self, not simply their ideological position.

Figure 4.5: Spatial Location of Representatives' Digital Presentations of Self by Party

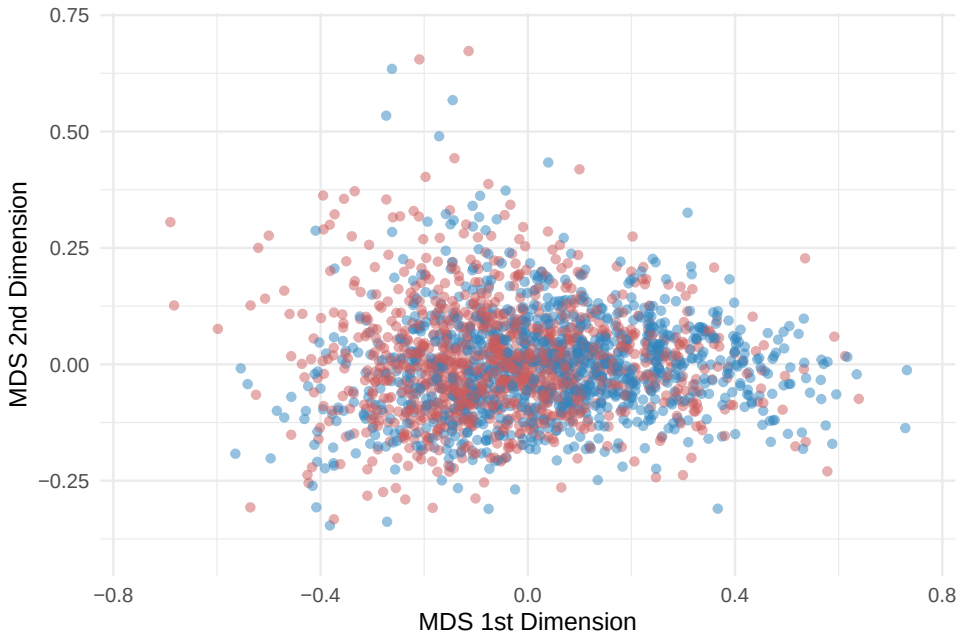



Figure 4.5: Displays multidimensional scaling locations for Republicans' (red) and Democrats' (blue) digital presentations of self (where the observation is the representative-congress).

Combining what we know about what a presentation's spatial location reveals about their expressed priorities and the clusters of presentations themselves, we can then characterize the presentation styles of each member of Congress. I find that representatives generally adopt four types of presentations of self: the policy wonk, party loyalist, personal advertiser, and district hero. And their presentations can be distinguished by the extent they emphasize policy rather than advertising, and the extent they emphasize their district as opposed to partisan politics and position-taking. To further examine how members present themselves, we can examine how they might "layer" these messages to create unique presentations of self.

The value realized by coding tweets to simultaneous contain different types of messages – position-taking tweets with partisan rhetoric or advertising tweets that also mention the district – is we are able to examine how members layer these messages to create their desired presentations of self. For instance, we know party loyalists are more likely to take both positions and use partisan language, so we might expect these members are more likely to use partisan position-taking. To further characterize each presentation style, I created new message types, as seen in Table 4.4, which displays the coding rules for each tweet and the average percentage of members' tweets for each message type.

Table 4.4: New Tweet Messages

| New Message | Coding | Mean % of Tweets |
|---|---|---|
| Partisan Policy | Policy = 1 & Partisan = 1 | 15.49% |
| Non-Partisan Policy | Policy = 1 & Partisan = 0 | 46.41% |
| Pure Partisan | Policy = 0 & Partisan = 0 | 5.80% |
| Partisan Position-Taking | Position-Taking = 1 & Partisan = 1 | 13.18% |
| Non-Partisan Position-Taking | Position-Taking = 1 & Partisan = 0 | 23.26% |
| Partisan Credit-Claiming | Credit-Claiming = 1 & Partisan = 1 | 4.78% |
| Non-Partisan Credit-Claiming | Credit-Claiming = 1 & Partisan = 0 | 21.84% |
| District Policy | Policy = 1 & District = 1 | 10.09% |
| National Policy | Policy = 1 & District = 0 | 51.81% |
| District Credit-Claiming | Credit-Claiming = 1 & District = 1 | 5.05% |
| National Credit-Claiming | Credit-Claiming = 1 & District = 0 | 21.57% |
| District Advertising | Advertising = 1 & District = 1 | 9.57% |

Again, we can characterize each digital presentation by the messages members of that cluster most often tweet. Figure 4.6 displays the predicted percent of tweets with 95% confidence for each of the message types in Table 4.4 from an OLS regression with the four presentation styles as regressors.[7] In each regression model, the excluded variable is the personal advertiser presentation, so the intercept term can be understood as the predicted percent of tweets for members with this presentation and the predicted percent of tweets for all other presentations is their estimated coefficient plus the intercept term.

While all presentations styles reference policy topics in a majority of their tweets, we can see differences in how they discuss policy emerge between presentations. Party loyalist are distinguished from their colleagues by framing their presentations and politics generally in partisan terms. For example, they tweet about policy while referencing partisan politics in over 25% of their tweets, twice as often as any other presentation style. In contrast, policy wonks and district heroes are

[7]Standard Errors are clustered by member for all coefficients, except for the intercept term (personal advertiser) which uses the standard reported standard error for the coefficient.

more likely to tweet about policy in a non-partisan fashion, or at least without using explicit party cues, in just over 50% of their tweets. Both party loyalists and policy wonks take more positions on Twitter than district heroes or personal advertisers, but party loyalists are more likely to take partisan positions. About 24% of policy wonks' tweets are non-partisan position-taking and 10% are partisan position-taking; whereas 27% of party loyalists' tweets are non-partisan position-taking and 24% are partisan position-taking. The average member tweets about 1,500 times per congress, while the average party loyalist post 2,400 tweets per congress. If 27% of these tweets are used to take partisan positions, representing about 650 tweets on average, then this has a distorting effect on the public's view of Congress, making Congress appear more partisan and possibly less effective than it really is.

Figure 4.6: Estimated Percent of Tweet Messages by Cluster Assignment

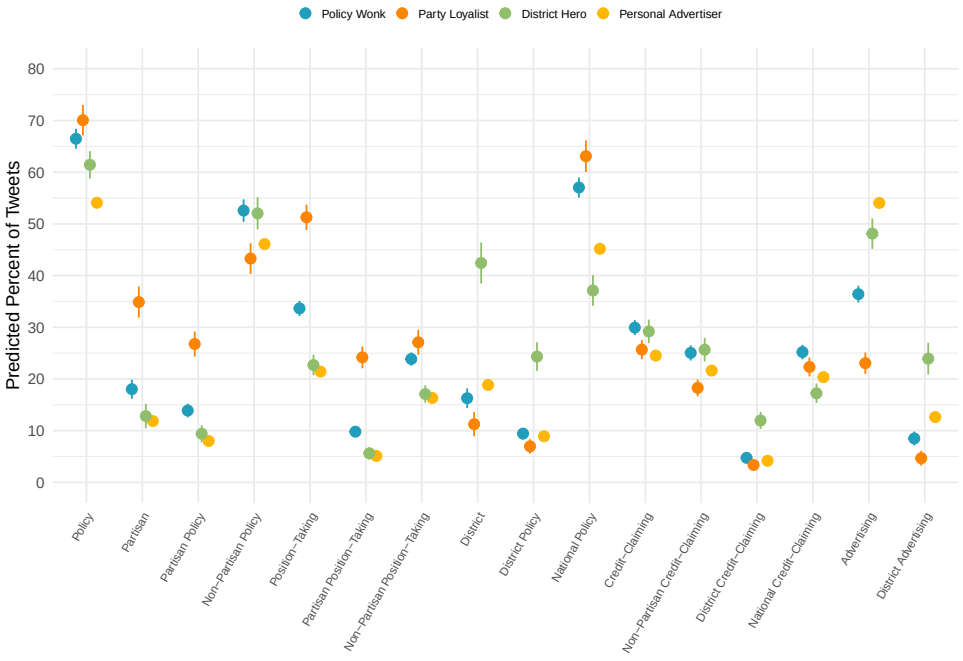



Figure 4.6: Displays the predicted percent of tweets for each message type (dependent variable) for each presentation of self (independent variables) with 95% confidence intervals and standard errors clustered by congress (where the observation is the representative-congress).

District heroes distinguish themselves, as their name suggests, by framing messages as it relates to their district. These members are predicted to tweet about the district twice as frequently as

any other presentation style. District heroes tweet about policy and the district together in an estimated 25% of tweets, and are the least likely of any presentation cluster to tweet about policy without referencing the district. They are estimated to credit-claim explicitly for the district 12% of the time, translating to roughly 147 tweets per congress on average. District credit-claiming is a relatively low-occurring message overall – suggesting further evidence that the particularlistic credit-claiming described by Mayhew (1974) is too restricting for the way modern members of Congress win the electoral support of their constituents. But district heroes are more than twice as likely to credit-claim while mentioning their district than any other presentation type. District heroes are further distinguished by their lower rate of position-taking compared to policy wonks and party loyalist, taking positions in an estimated 20% of tweets. They are also more likely than policy wonks and party loyalists to use advertising, but are different from personal advertisers by their more frequent use of district advertising messages in their tweets – for example, tweeting about appearances around the district or tweeting about the local high school.

Personal advertisers are distinguished by their strong emphasis on advertising messages, as their name suggests. In Figure 4.6 personal advertisers are estimated to dedicate nearly 55% of their tweets to advertising. Of all presentations styles, personal advertisers are least likely to use policy messages. Their lack of policy content is not however matched with a greater emphasis on the district – they are only slightly more likely than the party loyalists or policy wonks to post district advertising tweets or general district tweets. In short, the personal advertiser is defined more by what they are *not* tweeting. In many cases, this digital presentation is perhaps best characterized by a lack of presentation. Most of their tweets are perfunctory messages about a national holiday or link to a press releases, rather than presenting a crafted, deliberate message. Personal advertisers use Twitter less than other members. They tweet about 1,100 times per congress, compared to other members tweeting 1,600 per congress on average. In other cases, other members with this presentation are deliberately avoiding potentially polarizing issues by focusing their digital presentations around advertising.

Through the analysis presented in this section, we have a rich picture of each type of digital presentation of self that members of Congress develop through their Twitter accounts and a sense of what their spatial location reveals about their messaging priorities. Figure 4.7 shows the spatial locations and cluster assignment of each digital presentation of self and the messages that uniquely define each presentation from another. The four presentations are unique in their Twitter behavior, and the types of messages they prefer to tweet are consistent with a specific image a representative would want their constituents to have of them. Some representatives want to be seen as skilled legislators and policy focused, others wish to cultivate an image as district focused and non-partisan, some create an image as non-controversial and stay under-the-radar, and a growing number of rep-

Figure 4.7: Annotated Spatial Location and Cluster Assignment of Representatives' Digital Presentations of Self

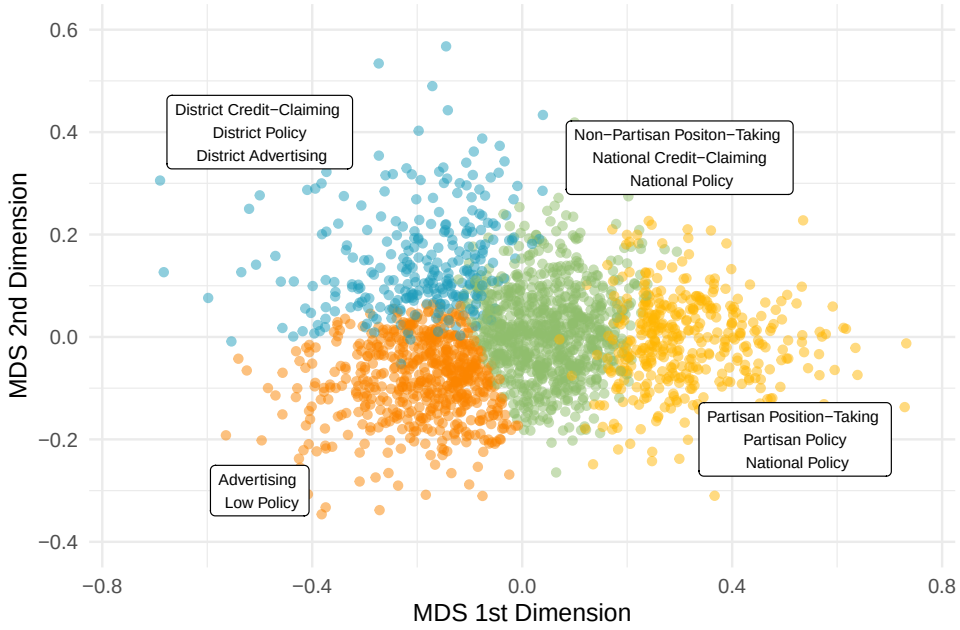



Figure 4.7: Displays cluster assignment and multidimensional scaling locations for representatives' digital presentations of self (where the observation is the representative-congress).

resentatives seek to be seen as strong partisans with frequent takes on national politics and policy debates. The following section will explore the digital presentations of four representatives and see the extent their digital presentations match their behavior and presentations offline.

### 4.3.1 Four Representatives and Four Presentations

Representative Alexandria Ocasio-Cortez (D-NY) is perhaps the most well known Representative on Twitter, and she has already amassed over 12 million followers in her short tenure in office. Rep. Ocasio-Cortez is the youngest woman to serve in Congress after defeating 10-term incumbent Representative Joe Crowley (D-NY) in the 2018 Democratic primary. Besides her online popularity, she is most well known for her progressive policy agenda as a member of the "squad" – a small group of liberal Democrats who have distinguished themselves by their social media savvy and willingness to confront the party establishment. Rep. Ocasio-Cortez's digital presentation of self is identified as a party loyalist. While she is not the most partisan Representative on Twitter, only 14.51% of her

tweets use partisan language, she is classified as a party loyalist as a result of her strong emphasis on position-taking. In 52.27% of her tweets she takes a position and in only 8% does she mention her district. As a member of the liberal wing of the Democratic Party, her policy preferences often put her at odds with the Democratic Party leadership. For example, in 2021 she was one of only six Democrats to vote against President Biden's signature Infrastructure Investment and Jobs Act. Rep. Ocasio-Cortez is a party loyalist not because of her resounding commitment to her party, but through her strong emphasis on national policy and position-taking and her infrequent use of credit-claiming and district tweets.

In chapter 1 we briefly discussed the careers and presentations of three representatives, including Representative Elissa Slotkin (D-MI). Recall that Rep. Slotkin came to Congress with tremendous foreign policy skills and has built a reputation as a policy leader in this field and is generally regarded as an effective and policy focused legislator. Her digital presentation reflects this. Figure 4.8 displays the average location of Rep. Slotkin's presentation of self and her average cluster assignment.[8] Consistent with the general reputation she has developed offline, Rep. Slotkin is identified as a policy wonk. 64.33% of her tweets have policy content and over half of her tweets are non-district policy tweets, demonstrating her focus on national policymaking. Rep. Slotkin is more likely than the average member to post non-partisan position-taking tweets. The average member posts non-partisan position-taking messages in 23.26% of their tweets, as seen in Table 4.4, whereas she does the same in 32.62% of her tweets. Relatedly, only 16.5% of her tweet messages contain partisan cues.

Representative Kurt Schrader (D-OR) represents a mostly suburban district outside of Portland. Prior to serving in Congress, he served in local government as a city planner and then was elected to the Oregon State Legislature. He was elected to Congress in 2008, and his seat is fairly competitive, with him winning between 51-55% of the vote. A moderate Democrat, he has been a thorn for the Democratic Party. He has been vocal in his opposition of Representative Nancy Pelosi's (D-CA) speakership and in 2019 joined "The Unbreakable Nine", a group of nine conservative Democrats, seeking to exercise influence over Biden's infrastructure package by withholding their support. Recently, progressives have been targeting Rep. Schrader in order to elect a more progressive and loyal Democrat in his place. He sits on the Energy and Commerce Committee, where he is uniquely positioned to deliver benefits to the district. With that background, we see that Rep. Schrader posts district credit-claiming messages in 11.92% of his tweets and 20.23% district policy messages, this is nearly double the average we see from other members. On average, over a third of his tweets mention his district and he almost never mentions either political party.

[8]For representatives serving multiple congresses, their average cluster assignment is the weighted average of their cluster assignments in each congress by the number of tweets posted in that congress and their average MDS dimension locations are the weighted average of the coordinates in each congress by the number of tweets posted by the member in that congress.

Figure 4.8: Representatives' Digital Presentations of Self

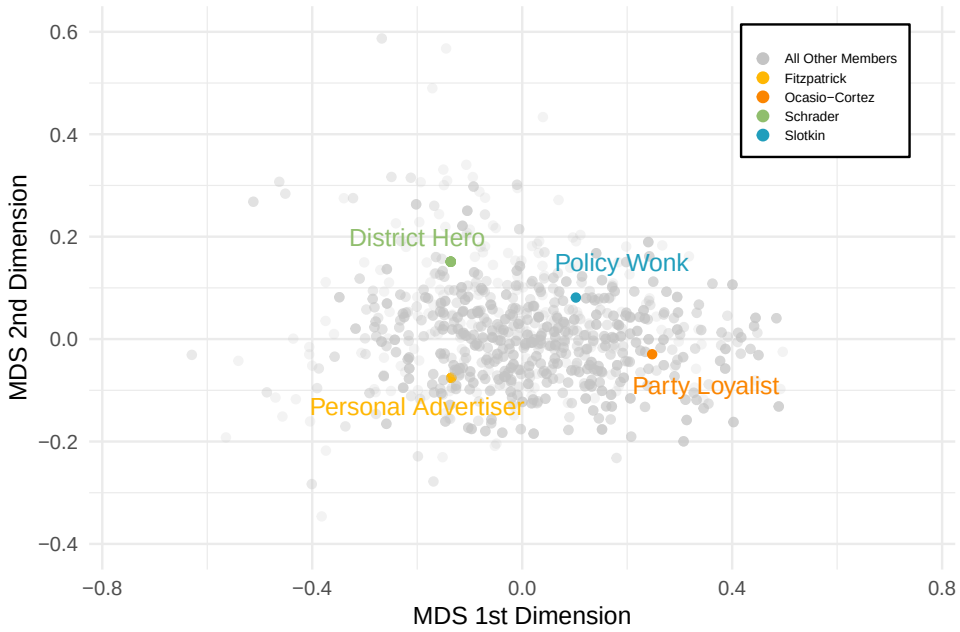



Figure 4.8: Displays average cluster assignment and multidimensional scaling locations for Reps. Fitzpatrick, Ocasio-Cortez, Schrader, and Slotkin's digital presentations of self (where the observation is the representative).

Offline, Rep. Schrader presents himself as both non-partisan and district-focused, and this is reflected in his digital presentation as a district hero.

Representative Brian Fitzpatrick (R-PA) has represented his district outside of Philadelphia since his late brother vacated the seat in 2016. His district, currently numbered as the 1$^{st}$ Congressional District, includes all of Bucks County and despite Pennsylvania's redistricting over the past several decades his district has retained roughly the same geographic boundaries. The district was also one of the nine Congressional Districts that voted for Joe Biden and elected a Republican to the House in 2020. Rep. Fitzpatrick won the district in 2020 by 13 points, while Biden won the district by 6 points – an impressive example of split-ticket voting in modern politics. His ability to win in a swing district is perhaps a result of his presentation of self. The policy issues he cares about aren't really about policy at all: term limits, abolishing congressional pensions, and ending gerrymandering.[9] In the 116$^{th}$ Congress he was the most moderate Republican in the caucus. Rep. Fitzpatrick is identified as having a personal advertiser presentation. He uses advertising in over

[9] `https://rollcall.com/2017/06/28/take-five-brian-fitzpatrick/`

half of his tweets, while having 10 percentage points fewer policy tweets than the average member. Rep. Fitzpatrick avoidance of potentially polarizing policy in his presentation is evidence by his classification as a personal advertiser.

The reputations of each of these representatives is reflected in their digital presentations of self. Their Twitter behavior is consistent with their behavior more generally, and our application of k-means clustering and multidimensional scaling of their Twitter behavior accurately captured their digital presentations of self. With this descriptive evidence, we can be confident that the four types of presentations we uncovered are correctly measuring the intended behavior. With that, the following section will explore why members of Congress adopt each type of digital presentation of self.

### 4.4 Strategic Adoption of Presentations

Now that we have characterized the four types of presentations members of Congress adopt and communicate through Twitter, this section will explore why do representatives adopt a particular digital presentation of self. In the previous chapter we examined how a member's institutional, district, and personal characteristics – including their electoral security, district co-partisanship, district income, racial makeup of their district, party leadership, and ideological extremity – are correlated with the emphasis a member places on different types of Twitter massages. Here, we again examine how these same covariates are correlated with a member's presentation of self using a series of logistic regression models. As stated previously, we do not have strong theoretical expectations for why members will adopt one presentation over another, as such these analyses are largely exploratory. Very little work up to this point has systemically examined how representatives present themselves over an extended time period using a range of different message types. The primary contribution of this chapter is to provide a comprehensive examination of how a representative's institutional positions, the districts they represent, and their individual qualities influence the types of presentations they adopt and exhibit. In addition, we will discuss how presentation of self helps members achieve their goals while in office.

We know that members pursue various goals while in office, but their approximate goal is reelection (Mayhew 1974). The presentation a member selects is ultimately chosen to ensure reelection, but they also have the ability to use their presentation to support other goals. Members also care about passing good public policy, becoming congressional party leaders, running for higher office as a Senator or President, and being in the majority party. Specific to Twitter, some members might also seek to increase their popularity to become political celebrities in their own right. This might be an avenue for increased influence within the institution or to run for a higher or different office,

even a presidential run, or it might be a goal in and of itself to reap financial benefits. Well-known representatives can become cable news fixtures, start podcasts, become best-selling authors, and sell out political rallies. Differing digital presentations of self may serve certain goals compared to others. For example, members primarily concerned with securing reelection might need to appeal to opposing party voters and may adopt a personal advertiser or district here presentation style. While members seeking to be party leaders or appeal to copartisan voters might be more likely to adopt a party loyalist presentation style. By examining what variables are associated with adopting a particular presentation, we can gain insight into why members' present themselves the way they do.

To assess what factors are correlated with each digital presentation, I use a logistic regression to assess the probability a member adopts a presentation given a series of independent variables. As we did in chapter 3, I again consider three groups of independent variables: institutional, member, and district variables. Institutional variables include indicator variables for *Majority* status, *Copartisan President*, *Party Leader*, and *Committee Chair*. Member variables, which are generally stable within the individual, include *Republican*, *Seniority*, *Legislative Effectiveness*, ideological *Extremism*, gender (*Male*), and race (*Black* and *Latino*). Finally, I include several district characteristics including the percent of the district that identifies or leans towards their own political party (*District Copartisan*), identifies as a pure independent (*District Independent*), racially white (*District White*), earning less than $40,000 a year (*Low Income*), and earning more than $100,000 a year (*High Income*).[10] Finally, to account for the general shift over time I include congress fixed effects. Formally, I estimate the following for $n$ covariates across $i$ members:

$$P(Presentation = 1) = \frac{e^{(\beta_0 + \beta_1 x_i \ldots \beta_n x_i)}}{1 + e^{(\beta_0 + \beta_1 x_i \ldots \beta_n x_i)}} \tag{4.1}$$

To be clear, the preceding results are in no way causal nor can be sure the direction of the relationship. We cannot say if effective legislators present as "policy wonks" or if policy wonks become effective legislators. The aim here is simply to understand the correlation between members' presentations and the other aspects of their careers in Congress. In part, this serves as a check that the presentation styles we identified for each member are consistent with what we would expect and it aligns with the member's behaviors more generally.

Over the course of exploring what factors are correlated with a given presentation style, I find large differences between parties. In many ways this makes sense: parties today are relatively homogeneous in their ideological platforms, Democrats generally favor larger government programs

[10] Chapter 3 goes into greater detail on how these variables are measured and Appendix 8.1 includes Table 8.1 which details variables coding, summary statistics, and sources.

and increased federal spending and Republicans generally favor the exact opposite. Democrats and Republicans often represent very different constituencies and need to appeal to distinct primary constituencies to win re-election. Therefore, adopting a district hero or policy wonk presentation can look different depending on the representative's party. To better assess the determinants of member's digital presentations, I run model 4.1 separately for Democrats and Republicans, as well as a pooled model for all members regardless of party. The following discussion is organized by presentation, starting with party loyalists.

### 4.4.1 Party Loyalist

Results from Model 4.1 for party loyalists can be found in the Appendix under Table 9.3, which includes estimates for Democrats, Republicans, and a pooled model. Across all three models, I find that more ideologically extreme members are more likely to be party loyalists. Figure 4.9 displays the predicted probability of a member adopting a party loyalist presentation for the observed values of *Extremism*, while setting all other covariates to their mean. The relationship between extremism and party loyalist digital presentation is substantially significant: the most moderate representative has almost a 0% probability of being a party loyalist, while the most ideologically extreme member has a nearly 70% probability of being a party loyalist. And ideological extremism exhibits the largest effect on the probability of being a party loyalist compared to the other three presentations. Figure 4.10 displays the predicted coefficients for an ordinary least square regression on a member's MDS first and second dimension coordinates. Recall that the share of tweets with partisan rhetoric is positively correlated with the MDS first dimension and negatively correlated with the second dimension, and more ideologically extreme members have more positive first dimension locations and lower second dimension locations – which corresponds to the party loyalist cluster. Ideologically extreme members are more partisan in their voting records (hence why they are identified as ideologically extreme via their DW-Nominate scores) and are also more partisan in their digital presentations. Representatives with strong ideological views and want to build their reputations around these views are more willing to use ideological and partisan labels to reinforce their desired reputation among their constituencies.

By virtue of being leaders of their party, party leaders are more likely to adopt party loyalist presentations. Party leaders are responsible for being the public face of their party, setting the party's legislative agenda, and orchestrating the party messaging in order to win majority status in the following election (Cox and McCubbins 2005; Lee 2016; Aldrich 1995). In chapter 3 we found that party leaders, all else equal, are more likely than rank and file to post partisan and position-taking messages on Twitter. Party loyalists are defined by their strong emphasis on both of those messages, and results from Table 9.3 supports that when all else is equal, a party leader is

Figure 4.9: Predicted Probability of Party Loyalist Presentation by Ideological Extremism with 95% Confidence Intervals

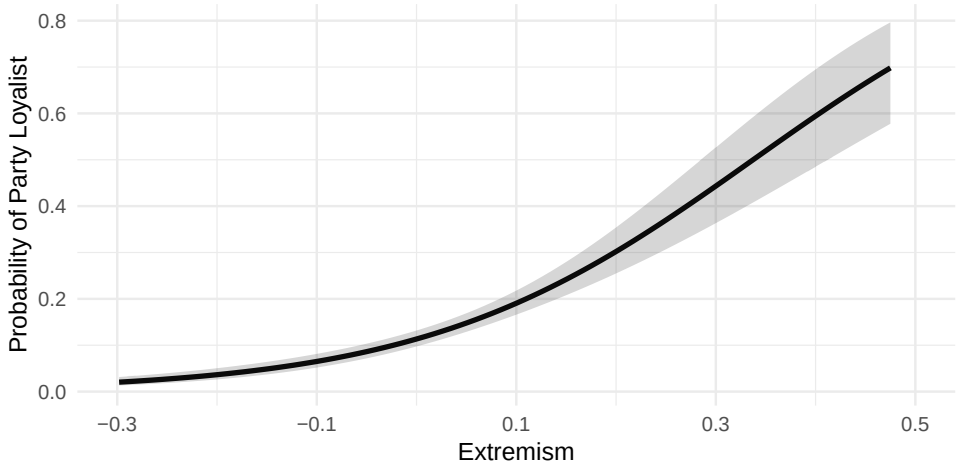



Figure 4.9: Displays the predicted probability with 95% confidence intervals a representative adopts a party loyalist digital presentation for the observed values of *Extremism* holding all other covariates to their mean.

.353 more likely to be a party loyalist than a rank and file member. As seen in Figure 4.10, party leaders' first dimension coordinate location is .09 higher than rank-and-file, and the relationship is stronger for Republican Party leaders who have first dimension locations estimated .14 higher than other Republicans. The higher a member's first dimension location, the more their presentation centers around position-taking and partisanship, locating them further within the party loyalist cluster.

A member's presentation is also influenced by if their party is in control of the government. Majority party members have first dimension locations that are .08 lower and the president's copartisan have first dimension locations that are .13 lower, all else equal. Relatedly, I find that majority party members and the president's copartisans are less likely to adopt party loyalist presentations: majority party members have a predicted probability of being a party loyalist that is .135 lower and copartisans of the presidents have a predicted probability that is .189 lower, as displayed in Table 9.3. The degree a member's digital presentations of self emphasize their political party is strongly related to party control of government and governing responsibility: those that are held responsive for governing outcomes try to distance themselves from their party, while those who can run as the opposition are more willing to embrace their party in their presentations of self.

Turning our attention to Democratic lawmakers, I find that Black Democrats and Democrats

Figure 4.10: Marginal Effects of MDS Dimension Locations with 95% Confidence Intervals

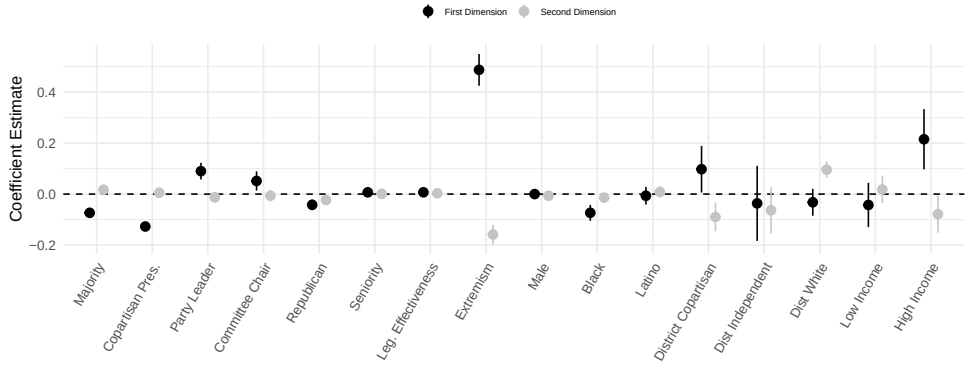



Figure 4.10: Displays estimated coefficients for the displayed covariates on a member's presentation MDS first dimension location (black) and second dimension location (gray) with 95% confidence intervals. Model includes congress fixed effects.

representing whiter and lower income districts are less likely to be party loyalists. The probability of being a party loyalist, all else equal, for Black Democrats is .3 lower than it is for non-Black Democrats. Figure 4.11 displays the predicted probability of a party loyalist presentation for the observed values *District White*.[11] For white Democrats, as their district becomes more white, and in turn increasingly homogeneous with their own racial identity, the probability they adopt a party loyalist presentation decreases. And Black Democrats, as their districts become less white, and in turn increasingly homogeneous with their own racial identity, the probability they adopt a party loyalist presentation decreases. Black representatives who represent 100% minority districts, and holding all other variables at their mean, have a .124 probability of being a party loyalist, whereas Black legislators representing majority white districts are twice as likely to adopt a party loyalist presentation.[12]

These results noted in the earlier paragraph are reflecting the unique aspects of minority representation and racial identity: lawmakers who represent constituents of their same race can use racial identity, rather than partisan identity, to build trust within their districts. Party loyalist presentations are less valuable at providing representation and building support within their district than other presentation styles. Democrats representing majority-minority districts are more likely to adopt a personal advertiser presentations, as seen in Table 9.8, and are less likely to adopt a party

[11]Predicted Probability for party models hold all other independent variables at their mean for the observed data among only those party's members.

[12]Appendix 8.3 shows logistic regression results interacting *District White* with *Black* in Table **??**.

loyalist presentation. And Fenno (1978) observed this same phenomenon among the Black Democratic congressman he studied in the 1970s, arguing that there is a strong sense of identification with the district and these members felt the need to be local political leaders for their communities rather than a national partisan figures. The same phenomenon exists for white Democrats. As their districts become increasingly minority populated they are more likely to adopt party loyalist presentations in order to use party identity, in the absence of racial homogeneity, to build trust with their constituents.

Figure 4.11: Predicted Probability of Party Loyalist Presentation For Black and White Democrats with 95% Confidence Intervals

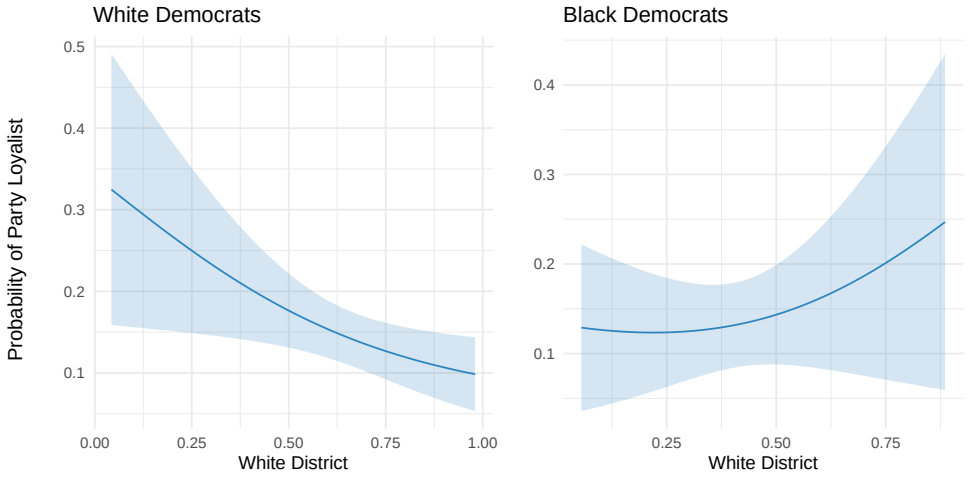



Figure 4.11: Displays the predicted probability with 95% confidence intervals a white Democratic representative (left) and a Black Democratic representative (right) adopts a party loyalist digital presentation for the observed values of *District White* holding all other covariates to their mean.

### 4.4.2 Policy Wonks

Policy wonks are more likely to come from aligned districts: districts where the majority of constituents identify with the representative's party. Democrats are increasingly likely to be policy wonks as the share of their district identifying with or leaning towards the Democratic Party increases.[13] Holding all other variables at their means, Democrats with the lowest share of district copartisans (29.5%) have a .294 predicted probability of being a policy wonk, while those representing districts with the largest observed share of district copartisans (52.98%) have a .531 predicted probability of adopting a policy wonk presentation. As seen in Figure 9.5, Republicans, however,

[13]Results hold if you remove party leaners and only examine the effect of party identifiers.

appear to be responsive to the share of pure independents in their districts rather than the share of copartisan constituents, and this trend is consistent across presentation styles. Republicans with very few political independents have a .474 predicted probability of being a policy wonk, while those with nearly a third of their district identifying as an independent show a decrease to .262 probability of being a policy wonk.

Figure 4.12: Predicted Probability of Policy Wonk Presentation with 95% Confidence Intervals

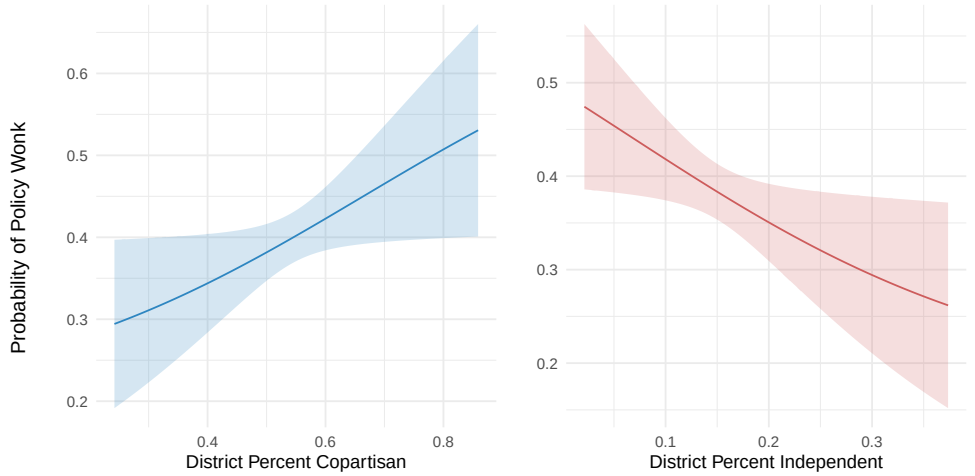



Figure 4.12: Displays the predicted probability with 95% confidence intervals a Democratic representative (left,blue) and a Republican representative (right,red) adopts a policy wonk digital presentation for the observed values of *District Copartisans* (left,blue) and *District Independent* (right,red) holding all other covariates to their mean.

The difference between the parties is likely a result of the differences between the way voters are distributed across congressional districts. Democrats tend to be highly concentrated in urban areas, and therefore Democrats tend to represent districts with a higher concentration of co-partisan than Republicans. In addition, Republicans control nearly twice as many state legislatures than Democrats and thus have the ability to draw districts that elect more Republicans to the U.S. House by "spreading" Republican voters.[14] Republicans, on average, represent districts with 43.6% copartisans, ranging from 13.5% to 69%. While Democrats, on average, represent districts with 53.5% copartisans, ranging from 24.2% to 85.9%. The greater share of co-partisans and the lower share of political independents both suggest that members running in these districts are able to appeal largely to copartisans to win. As members have to rely on votes from the opposite party or political independents, they are more likely to shy away from creating digital presentations centered around policy that has the risk of alienating these voters.

[14] `https://ballotpedia.org/Partisan_composition_of_state_legislatures`

While we find a relationship between district partisanship and adopting a *policy wonk* presentation, we do not, however, find a statistically significant relationship between district partisanship and the probability of adopting a *party loyalist* presentation. I would expect that members representing more aligned congressional districts would be more likely to adopt a party loyalist presentation in order to reinforce their voters' partisan identity. To further investigate this puzzling result, I run model 4.1 with the dependent variable as the probability a member is either a party loyalist *or* a policy wonk. I find a stronger relationship between district partisanship and adopting either a party loyalist or policy wonk presentation than the relationship between district partisanship and adopting a policy wonk presentation. Among Democrats, we see a steeper slope and larger predicted probabilities in Figure 4.13 between district copartisanship than in Figure 4.12. A one-unit increase in district copartisanship is associated with a 2.55 increase in the odds a Democrat is either a party loyalist or a policy wonk – compared to a 1.72 increase in the odds a Democratic is a policy wonk. Likewise, a one-unit increase in district independents is associated with a 3.41 decrease in the odds of being a party loyalist or policy wonk – compared to a 2.88 decrease in the odds of being a policy wonk alone.

Figure 4.13: Predicted Probability of Adopting a Party Loyalist or Policy Wonk Presentation with 95% Confidence Intervals

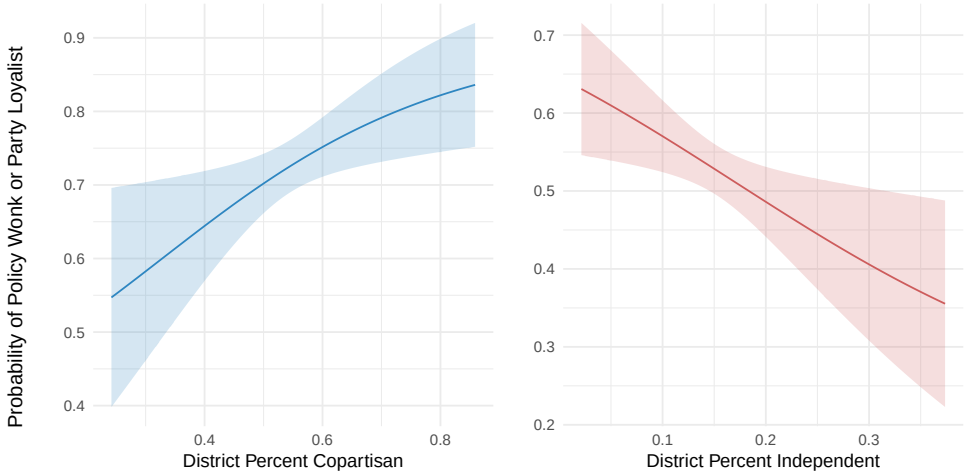



Figure 4.13: Displays the predicted probability with 95% confidence intervals a Democratic representative (left,blue) and a Republican representative (right,red) adopts a party loyalist or policy wonk digital presentation for the observed values of *District Copartisans* (left,blue) and *District Independent* (right,red) holding all other covariates to their mean.

Policy wonks and party loyalist are alike in their strong emphasis on national policy issues and

politics. This suggests that representatives who can secure reelection largely with co-partisan support are more likely to create presentations that emphasize national politics. For example, these representatives might tweet about the party's policy priorities, landmark nationally important legislation, or about the most recent presidential scandal. In doing this, they re-enforce voters' partisan identities and insulate themselves from criticism or a primary challenger for not being a "strong" enough partisan or ideologue. For these aligned representatives, there a re strong incentives "to both remind co-partisans of in-step positions and affirm to voters that their representative is a member of the same 'team,' aligning with the party brand in Washington" (Grimmer 2013*a*, 626). Representatives can use either policy or partisan messages to appeal to copartisans, so both party loyalist and policy wonk presentation styles are appropriate choices. Perhaps then other factors, like legislative effectiveness and ideological extremism, influences which of these two presentation styles a member adopts.

To build on this same topic, I find a statistically positive relationship between Republican's legislative effectiveness and their likelihood of adopting a policy wonk presentation. Figure 4.14 shows the predicted probability of Republicans adopting a policy wonk presentation for the observed values of legislative effectiveness while holding all other variables at their mean. Moving from an underachieving Republican lawmaker to an over-achieving legislator increases the probability of adopting a policy wonk presentation from .332 to .449. I expect that members that invest greater resources into legislating and are more successful legislators than their peers, will be more likely to adopt policy wonk presentations where they emphasize credit-claiming, non-partisan position-taking, policy, and national politics. But interestingly, effective Democrats are not any more likely to be policy wonks. This perhaps is a function of the character of the party brands during this time period. For instance, the Republican Party has defined themselves, particularly during the Trump administration, as culture warriors and anti-establishment. To illustrate this, compare Representatives Alexandria Ocasio-Cortez (D-NY) and Jim Jordan (R-OH), both of whom are identified as party loyalists. Rep. Ocasio-Cortez's presentation still places a strong emphasis on actual policy like the Green New Deal or cancelling student loan debt, whereas Rep. Jordan's presentation contains less policy messages and instead focuses on "draining the swamp" and Hunter Biden's scandals.[15] Perhaps, policy orientated Democrats are able to adopt either party loyalist or policy wonk presentations to communicate their policy skills and interest to constituents, while policy orientated Republicans, constricted by the Republican Party's brand, gravitate only towards the policy wonk presentation style. This is precisely what we find. Over-achieving Democratic legislators are nearly 10 percentage points more likely to adopt either of these presentations, policy wonk or party loyalist, compared to underachieving Democratic legislators.[16] Because the partisan

[15] In the 116$^{th}$ Congress 63.4% of Rep. Ocasio-Cortez's tweets and 47.7% of Rep. Jordan's tweets contained policy language.

[16] See Table 9.6 in Appendix 8.3 for full results.

messaging within the Democratic Party is centered around policy, Democrats who are strong legislators have the flexibility to adopt either a policy wonk or party loyalist presentation to convey their policy chops to their constituents. However, Republicans who wish to present themselves as policy oriented find the best home among the policy wonks.

Figure 4.14: Predicted Probability of Policy Wonk Presentation for Republican Representatives with 95% Confidence Intervals

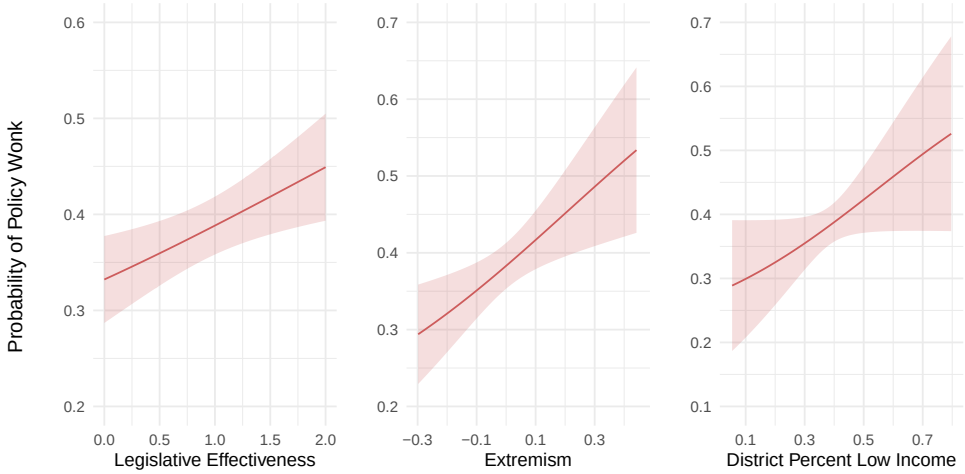



Figure 4.14: Displays the predicted probability with 95% confidence intervals a Republican representative adopts a policy wonk digital presentation for the observed values of *Legislative Effectiveness* (left), *Extremism* (center) and *Low Income* (right) holding all other covariates to their mean.

I also find that more ideologically extreme members are more likely to be policy wonks, but the effect is entirely driven by Republicans. The most moderate Republican has .282 probability of being a policy wonk, compared to the most extreme Republican, who has a predicted probability of .544, as seen in Figure 4.14. Among Democrats, we do not find a statistically significant relationship between ideological extremism and adopting a policy wonk presentation. As a result, ideologically extreme Republicans have an outsized influence on their party's policy messaging in online spaces, and, if their digital presentations mirror their real world presentation, on their party's policy platform in Congress.

### 4.4.3 District Hero

In our analysis of the data, we find that ideological moderates and members representing misaligned districts are more likely to be district heroes. As shown in Figure 4.15, moving from the most mod-

erate members to the most ideologically extreme members results in a decrease of nearly .3 in the probability that a member will be a district hero. The relationship between ideological extremity is stronger for Democrats, where moving from the most moderate to most extreme member produces a decrease of over .4 in the probability of being a district hero. In Figure 4.10 we see that ideological extremity is positively correlated with the first dimension and negatively correlated with the second dimension. Ideological moderates should then have presentations located in the second quadrant, precisely where the district hero presentation cluster is located. National politics and highly salient policy initiatives from 2009-2021 have been highly partisan. As a result, moderate members who are more bipartisan in their voting records and do not share the policy preferences of the majority of their party and its leaders can turn their focus towards the district and away from national politics when presenting themselves to their constituents.

We again see the same split between Democrats and Republicans' responses to the distribution of partisanship in their districts and adopting a district hero presentation. As the share of district copartisans decreases, Democrats are more likely to be district heroes (and less likely to be party loyalists), and as the share of district independents increases Republicans are more likely to be district heroes (and less likely to be party loyalists or policy wonks). Democrats representing districts where only 20% of their constituents identify with their party have a .177 predicted probability of being a district hero, and those representing districts with an overwhelming majority (80%) of copartisan votes have a predicted probability of only .013. For Republicans, those with nearly zero-percent independents in their district have a predicted probability of .083 while those who represent districts with over a third of their district identifying as independent have a predicted probability of .329 being a district hero. Taken together, members who need to appeal to independent or opposite party voters are more likely to emphasize the district and discuss policy as it relates to their constituents. District heroes are able to emphasize their service to the district to cultivate goodwill among misaligned constituencies and highlight their bipartisan (or non-partisan) legislative work that aligns with the reputation their roll call records suggests.

Districts with greater need for government resources or assistance are more likely to demand these resources from their representatives, and their representatives have in turn been found to focus on district-focused legislative behavior to capitalize on credit-claiming opportunities (Wessel Tromborg and Schwindt-Bayer 2019). Results in Figure 4.16 show that Democrats representing lower-income districts are more likely to be district heroes. As the share of a Democrat's constituents earning less than $100,000 annually increases, they go from .042 probability to .134 probability of being a district hero. Democrats from lower and middle class districts are more likely to be district heroes and less likely to be party loyalist. Figure 4.17 shows that as the share of constituents earning less than $40,000 a year increases, the probability they adopt a party loyalist presentation

Figure 4.15: Predicted Probability of District Hero Presentation with 95% Confidence Intervals

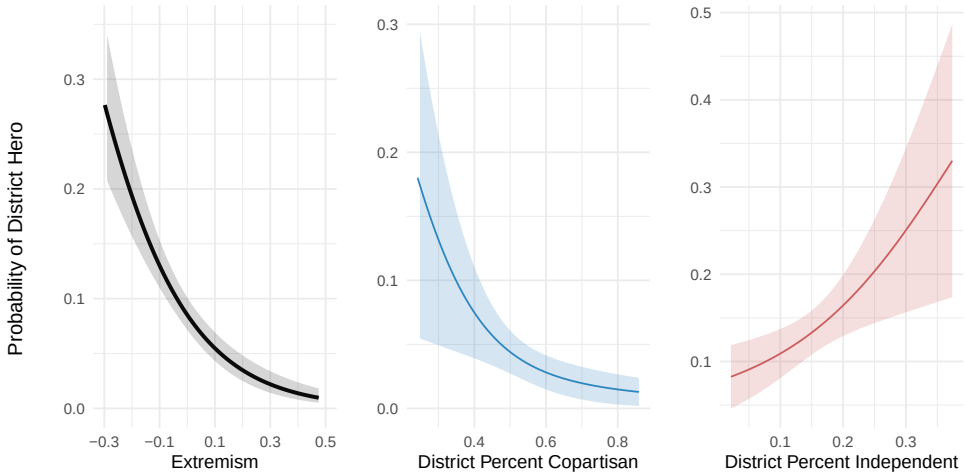



Figure 4.15: Displays the predicted probability with 95% confidence intervals a representative (left), Democrat (center,blue), and Republican (right,red) adopts a district hero digital presentation for the observed values of *Extremism* (left), *District Copartisan* (center,blue), and *District Independent* (right,red) holding all other covariates to their mean.

decreases. For Democrats, the share of the lower income constituents is negatively correlated with the first dimension location and the share of higher income constituents is positively correlated with the first dimension and negatively correlated with the second dimension. Democrats representing districts where the need for government assistance is higher are more likely to adopt the district hero presentation style, emphasizing their district, credit-claiming, and policy. Moreover, the Democratic Party considers lower- and middle- class Americans as key constituency groups, and the data shows that Democratic lawmakers are responsive to the policy needs of these groups through their digital presentations.

While I do not find a relationship between district income and the district hero presentation among Republican representatives, we do see that Republicans from lower-income districts are more likely to be policy wonks. As seen in Figure 4.12, Republicans' predicted probability of adopting a policy wonk presentation increases from .286 to .532 as the share of low income constituents increases from 10% to 75%. The different strategic responses between Democrats and Republicans for district income is again likely a function of party brand and platform characteristics. The Republican Party platform advocates for less government spending and opposes many federal programs targeting lower or middle class citizens. Republicans from these districts are not building their presentations around federal government resources helping their constituents, but instead focus on

Figure 4.16: Predicted Probability of District Hero For Democratic Representatives with 95% Confidence Intervals

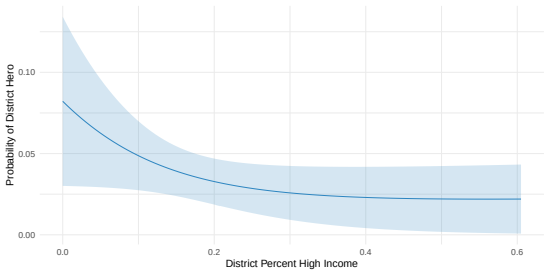



Figure 4.16: Displays the predicted probability with 95% confidence intervals a Democratic representative adopts a district hero digital presentation for the observed values of *High Income* holding all other covariates to their mean.

Figure 4.17: Predicted Probability of Party Loyalist For Democrats with 95% Confidence Intervals

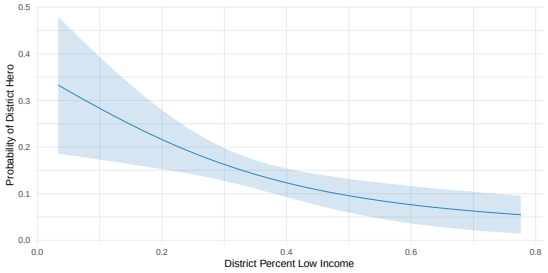



Figure 4.17: Displays the predicted probability with 95% confidence intervals a Democratic representative adopts a part loyalist digital presentation for the observed values of *Low Income* holding all other covariates to their mean.

policy in general. Republicans often frame government spending as inhibiting economic prosperity, therefore when appealing to lower and middle class voters they might instead focus on the repeal or elimination of federal programs, such as the Affordable Care Act. If Republicans from lower-income districts are policy wonks, then it is safe to assume they are not necessarily advocating for greater government programs to alleviate need. While Democrats representing similar constituencies can highlight the policy benefits within their districts.

### 4.4.4 Personal Advertiser

Finally, we turn our focus to the personal advertiser presentation style. We once again see a strong relationship between ideological extremism and the probability a member adopts a particular home style, in this case ideological moderates are more likely to adopt personal advertiser presentations. As shown in Figure 4.18, the most ideological extreme members have a .201 predicted probability of being a personal adviser, and interestingly the most moderate members comes well over that at a .484 predicted probability. Members with extreme or partisan voting records will not project a non-partisan, low-policy presentation style attributed to a personal advertiser, as it does not support how they want to be seen as a representative. Ideological moderates can avoid polarizing policies by centering advertising messages about themselves or simply disseminating information for constituents in their presentations.

Figure 4.18: Predicted Probability of Personal Advertiser with 95% Confidence Intervals

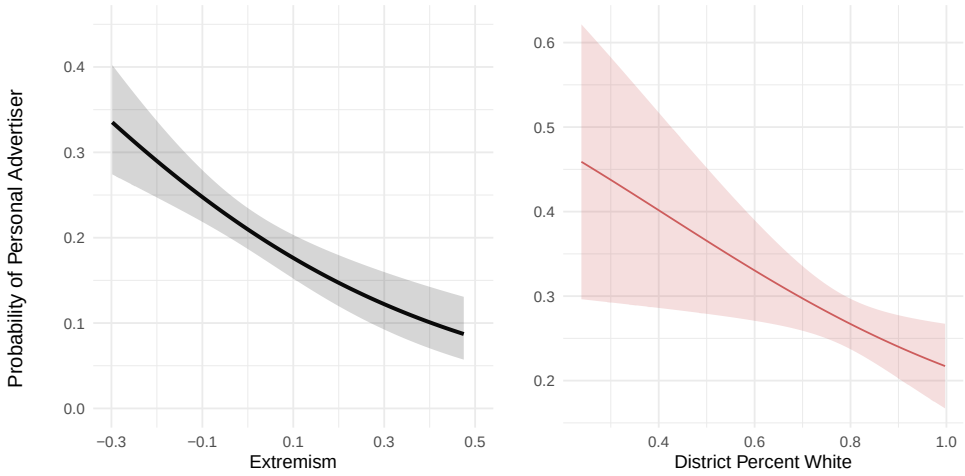



Figure 4.18: Displays the predicted probability with 95% confidence intervals a representative (left) and a Republican (right,red) adopts a personal advertiser digital presentation for the observed values of *Extremism* (left) and *White District* (right,red) holding all other covariates to their mean.

More effective lawmakers are also slightly less likely to adopt both personal advertiser and district hero presentations, with differences emerging between parties. Effective Republicans are less likely to adopt personal advertiser presentations, while effective Democrats are less likely to adopt district hero presentations. Holding all other variables at their mean, the lowest performing Republican lawmaker has a .304 predicted probability of adopting a personal advertiser presentation, while the most effective lawmaker has a .235 predicted probability. Effective Democrats have a .214 predicted probability of being a district hero, while the least effective Democrat has a predictive probability of .328. Both effective Democrats and Republicans are more likely to present as policy wonks and party loyalist, but the least effective Democrats and Republicans gravitate towards different presentations. There is no strong existing explanation from existing literature that explains this finding. I would suspect this is a result of Republicans relying less on Twitter for their presentations of self than Democrats. Ineffective Republicans are not taking advantage of their legislative power nor Twitter in adopting online presentations, so they adopt a personal advertiser presentation, which requires the least effort and has the lowest risk. Because Democrats are more likely in general to be active Twitter users, ineffective Democrats are more likely to create more deliberate district hero presentations and emphasize their district and service to the district as a substitute for legislative accomplishment.

As shown in Table 9.8, it does not appear that members from misaligned districts, who are

therefore electorally insecure, will adopt a personal advertiser presentation. The data suggests that district share of copartisans or independents does not have an effect on the adoption of the personal advertiser presentation. We also see that as Republicans districts become more white and homogeneous, they are less likely to adopt personal advertiser presentations. Republicans representing entirely white districts are over 20 percentage points less likely to adopt a personal advertiser presentation on Twitter. To the extent racial homogeneity indicates greater political homogeneity in Republican districts, perhaps this negative relationship demonstrates the neutral and safe nature of this presentation style, where members representing constituents with similar beliefs and politics have the ability to adopt other styles to appeal to constituents without risking electoral support.

In this section, we established several trends among how members of Congress decide to present themselves to their constituents. Representatives' digital presentations of self is largely a function of who they represent: members representing aligned and more homogeneous consistencies are more likely to adopt party loyalist and policy wonk presentations, while those representing misaligned and more heterogeneous constituents are more likely to adopt district hero and personal advertiser presentations. The appeals associated with each presentation are designed to appeal to the constituents they represent and reinforce their image and behaviors within Congress. Ideologically extreme and minority party members are more likely to adopt party loyalist presentations, and effective lawmakers are more likely to be policy wonks. The analysis in this chapter suggests that presentation of self is in fact a representational activity where members are responsive to their district copartisanship, race, and income. However, the growing share of representatives choosing to adopt party loyalist presentations suggest that presentation of self is not simply about who they represent, but is also a strategic choice in an increasingly polarized political climate. The following section will explore this development in more detail.

### 4.5 The Shift Towards Party Loyalist Digital Presentation of Self

Representatives seek to build a consistent and predictable presentation of self. "A successful home style is very much a matter of reinforcement – of stylistic elements that mesh with one another and of stylistic continuity over time [...] their presentations are consistent and durable; they are repetitive and reinforcing. And deliberately so" (Fenno 1978, 125). The member's spatial location varies, on average, by .03 for the first dimension and .006 for the second dimension – indicating that most members slightly shift congress-to-congress. Of course, a member's digital presentation is not entirely consistent over time. This is partly a function of the fact members are estimated separately by congress, so by design each member has a unique estimate for each time period served. While a more direct test of Fenno's (1978) theory would focus instead on characterizing a single presentation for each member that is fixed across time, here we are studying the digital presentations for

members using an emerging technology that was first introduced at the start of my data. Members are adapting to Twitter and changing their online presentations in response to a changing political environment, and we want to see how members are changing across this twelve-year period. And in particular, explore why members are increasingly adopting party loyalist digital presentations of self over time.

Table 4.5 shows the relationship, using OLS regression, between a member's cluster assignment in the previous congress and their current cluster assignment. The likelihood of being a given presentation in the current congress has the strongest correlation with belonging to that same presentation in the previous congress. In addition, we see what presentations members are likely to move towards. District heroes are most likely to continue to be district heroes and are less likely to become policy wonks or party loyalists. And policy wonks are most likely to continue as policy wonks or adopt a party loyalist or personal advertiser digital presentation. Personal advertisers are almost as likely to become policy wonks as they are to continue as personal advertisers, as evidence by the constant term in model one. This leads to evidence that on Twitter, the personal advertiser presentation is often a feature of members not taking full advantage of the messaging opportunities of the platform and while over time they're increasing their emphasis on policy, position-taking, and credit-claiming. Early work on how members of Congress use Twitter found that members used the platform to disseminate information about themselves, such as links to blog post or news articles, and report on daily activities, precisely the types of messages advertising encompasses (Golbeck, Grimes and Rogers 2010). As Twitter has become an integrated component of representatives' communication strategies, they are increasing the use of Twitter for political and policy messages rather than just advertising. However, as mentioned previously, these personal advertisers are still unlikely to drastically change course and adopt partisan or district focused presentations.

There does appear to be greater stability among members adopting the party loyalist presentation: the relationship between previous and current status as a party loyalist is the largest correlation across all models. There are two explanations for this result. First, there is something inherently sticky about presenting yourself as a highly partisan individual. Partisanship is an accessible and stable frame of reference for constituents, so once constituents see their member as a partisan they are unlikely to drop this perception even if the member changes their behavior. And the coefficient for lagged party loyalists is negative in each of the other three models, so party loyalists rarely adopt other presentation styles. Moreover, those who want to avoid party labels to continue to appeal to opposing partisan constituents are unlikely to become a party loyalist. We see in Table 4.5 that there is not a relationship between district heroes becoming party loyalists and the constant term, which captures the propensity of personal advertisers becoming party loyalists, is the least likely future presentation among these members. Second, as seen in Figure 4.20, members of

Table 4.5: OLS Regression of Lagged Presentation on Current Presentation

| | *Dependent variable:* | | | |
|---|---|---|---|---|
| | Policy Wonk | District Hero | Party Loyalist | Personal Advertiser |
| | (1) | (2) | (3) | (4) |
| Lagged Policy Wonk | 0.238*** | −0.035* | 0.125*** | |
| | (0.029) | (0.019) | (0.023) | |
| Lagged District Hero | −0.099** | 0.372*** | −0.010 | 0.065* |
| | (0.044) | (0.028) | (0.035) | (0.037) |
| Lagged Party Loyalist | −0.056 | −0.094*** | 0.610*** | −0.131*** |
| | (0.038) | (0.024) | (0.031) | (0.032) |
| Lagged Personal Advertiser | | | | 0.328*** |
| | | | | (0.025) |
| Constant | 0.309*** | 0.108*** | 0.095*** | 0.159*** |
| | (0.022) | (0.014) | (0.017) | (0.017) |
| Observations | 1,413 | 1,413 | 1,413 | 1,413 |
| Adjusted $R^2$ | 0.076 | 0.156 | 0.235 | 0.155 |
| *Note:* | | | | *p<0.1; **p<0.05; ***p<0.01 |

Congress have collectively become party loyalist over time. Members have adapted to Twitter and Twitter has increasingly become a platform for party messaging, not simply for representative messaging. This is consistent with the discussion in chapter 3 which showed the increasing importance parties placed on party messages and position taking via Twitter beginning with the 115$^{\text{th}}$ Congress.

Figure 4.19 plots the trajectory of Representatives Jim Jordan (R-OH) and Adam Schiff's (D-CA) presentations over time. They have both have moved increasingly towards and squarely within, the party loyalist cluster. Rep. Schiff in the 111$^{\text{th}}$ adopts a personal advertiser presentation and from the 112$^{\text{th}}$-114$^{\text{th}}$ Congress (2010-2016) he is defined as a policy wonk. But starting in the 115$^{\text{th}}$ Congress, and crucially during Donald Trump's Presidency, he is a party loyalist. As Chair of the House Intelligence Committee, he was the lead investigator in the impeachment inquiry and trial against President Trump – his highly visible role as the face of the impeachment affected his digital presentation of self. Rep. Jordan has a similar story: from the 111$^{\text{th}}$ to the 114$^{\text{th}}$ Congress (2009-2016) he is defined as a policy wonk, and similar to Rep. Schiff, starting with the 115$^{\text{th}}$ Congress, he is a party loyalist. And as a member of the House Judiciary Committee, the second committee tasked with the question over impeaching the President, he had an outsized role in the public hearings over the inquiry. Both Reps. Schiff and Jordan were adopting more partisan digital presentations over time, but their unique institutional positions propelled them further in this direction.

Figure 4.19: Spatial Location and Cluster Assignment of Representatives Jordan and Schiff's Digital Presentations of Self

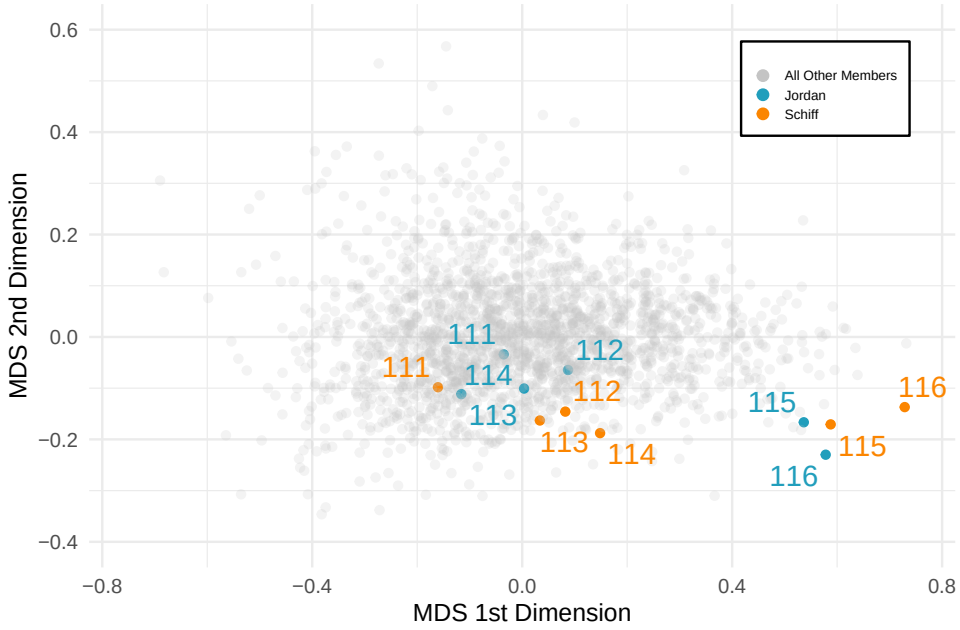



Figure 4.19: Displays the multidimensional scaling locations for Reps. Jim Jordan and Adam Schiff's digital presentations of self in each congress from the 111$^{th}$-116$^{th}$ Congress.

In Figure 4.20, we can see this general pattern of adopting a more partisan digital presentation in the aggregate: A greater share of members have become party loyalists over time. From the 111$^{th}$ to the 114$^{th}$ Congress (2009-2016) about 10% of members were party loyalists, but increased to 30% in 115$^{th}$ Congress and 35% in the 116$^{th}$ Congress. This is perhaps driven by freshman legislators, whom are more likely to come to Congress already proficient with Twitter, adopting party loyalist digital presentations in their first term. In the 113$^{th}$ Congress only 4 of the 84 freshman representatives adopted a party loyalist presentation, but in the 116$^{th}$ Congress over 20% adopted this presentation style. We also see a drastic move away from personal advertiser presentations after the 114$^{th}$ Congress. In Figure 4.21 30-45% of members adopted this digital home style from the 111$^{th}$ through the 114$^{th}$ Congress (2009-2016), but personal advertisers dropped to 20% of presentations in the 115$^{th}$ and then 5% in the 116$^{th}$. As discussed previously, this change most likely represented members embracing the power of Twitter for more serious policy-oriented messaging. Policy wonks consistently comprise 30-50% of all presentations, with many personal advertisers members adopting the more policy-oriented presentation over time. In Table 4.5 we see many policy wonks, whom

Figure 4.20: Locations of Digital Presentations by Congress

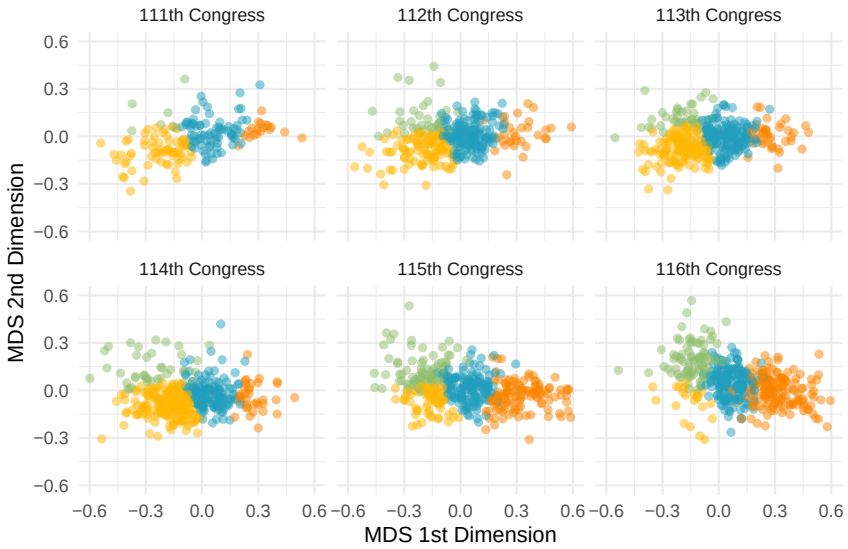
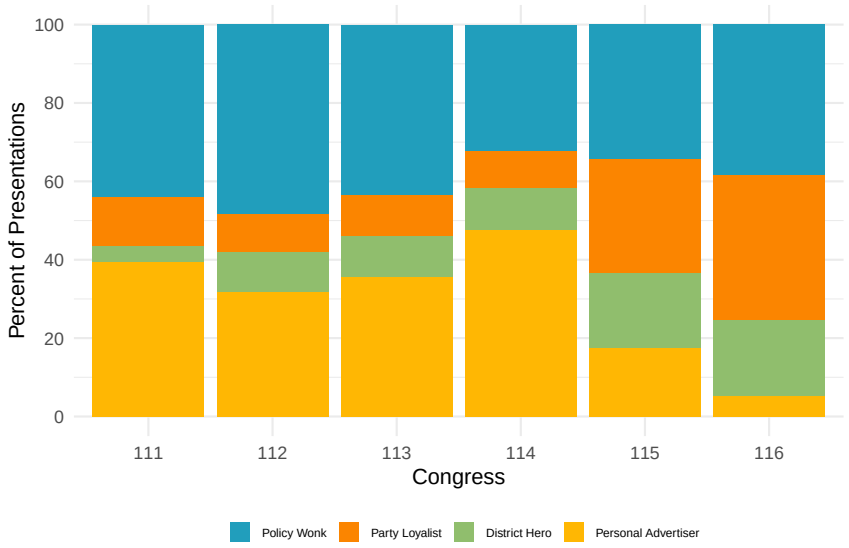



Figure 4.20: Displays the cluster assignment and multidimensional scaling locations for representatives' digital presentations of self in each congress from the 111$^{th}$-116$^{th}$ Congress. Personal advertiser (yellow), district hero (green), policy wonk (blue), and party loyalist (orange).

are seeking the internal party benefits and online popularity and its benefits, adopting policy loyalists presentations over time. District heroes initially make up only 5% of presentations in the 111$^{th}$, but has become the home for members seeking to avoid the partisan politics of today and maintain their independence by sticking to the district. By the 116$^{th}$ Congress about 20% of members are district heroes.

What explains the shift towards party loyalist presentations over time? In the previous section, we saw that the share of district identifying with the member's party or as political independents is related to the likelihood that the member adopts a party loyalist presentation. However, we observe very little change in the share of district copartisans and political independents from 2009-2020. The average member represents a constituency that is between 47.3% to 49.8% copartisan, and while this is increasing over time, the shift is small and not larger than the margin of error of the survey. Furthermore, if we examine district changes among representatives who change their presentation to a party loyalist compared to those who continue to adopt either a policy wonk, district hero, or personal advertiser presentation, we see no significant relationship between changes in

Figure 4.21: Distribution of Digital Presentations of Self by Congress, 111$^{th}$ - 116$^{th}$ Congress




Proportion of representatives (where the observation is the representative-congress) who adopted each digital presentation of self.

district partisanship and the likelihood a member becomes a party loyalist.[17] Among representatives who change their presentation style to a party loyalist, the share of their districts on average only become .004 more copartisan and .0005 less pure independents, and there are similarly small changes among stable party loyalist and all non-party loyalists. There are only so many ways to draw congressional districts and while voters might be more geographically sorted by their party, these changes are largely occurring at the margins and therefore not responsible for the increasing number of party loyalists on Twitter.

Table 4.6: Twitter Use and Engagement By Digital Presentation of Self, 115$^{th}$ - 116$^{th}$ Congress

| | Tweets | | Followers | | Retweets | | Likes | | Replies | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | Median | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| Party Loyalist | 2,905 | 2,021 | 291,004 | 59,400 | 656 | 304 | 895 | 16 | 97.5 | 9.44 |
| Policy Wonk | 2,139 | 1,418 | 97,371 | 34,053 | 236 | 70.6 | 216 | 7 | 24.2 | 6.17 |
| District Hero | 1,413 | 1,063 | 63,630 | 27,660 | 57.7 | 19.9 | 61.9 | 7 | 9.71 | 6.24 |
| Personal Advertiser | 1,465 | 1,053 | 66,601 | 28,108 | 140 | 28.9 | 77 | 6 | 16.1 | 6.12 |

Another possibility is that as Twitter has become an important tool for political messaging,

[17] see Table 9.9 in Appendix 9.3.

representatives and parties have realized the benefits of using the platform for partisan and policy messaging. Because Twitter users are more interested in politics and more ideologically extreme than the average American (Bekafigo and McBride 2013; Wojcik and Hughes 2019; Barberá and Rivero 2015), partisan messaging and national politics should be more popular on the site. If this is the case, then members with party loyalists presentations should be more active Twitter users, have more followers, and have more user interactions than other presentations. Table 4.6 shows the mean and median number of tweets, Twitter followers, Retweets, likes, and replies for each presentation of self. Party loyalist not only tweet more on average than any other presentation, but they have far more followers. The average party loyalist has over a quarter of a million Twitter followers, while policy wonks have on average 97,371 followers and district heroes and personal advertisers have, on average, approximately 60,000 followers. Party loyalists' tweets – which place a greater emphasis on partisan position-taking and national politics – are also Retweeted, liked, and replied to more often than any other presentation. Table 4.7 shows that even after controlling for the number of Twitter followers, partisan tweets are estimated to receive 173 more Retweets and position-taking tweets are estimated to receive 143 more Retweets. In short, Twitter itself incentives members of Congress to tweet partisan and position-taking messages.

Table 4.7: Correlates of Number of Retweets

| | *Dependent Variable:* |
|---|---|
| | Number of Retweets |
| Position-Taking | 143.399*** |
| | (9.237) |
| Credit-Claiming | 113.403*** |
| | (9.446) |
| Policy | −164.821*** |
| | (7.826) |
| Partisan | 173.029*** |
| | (8.994) |
| District | −72.150*** |
| | (9.263) |
| Log(Followers) | 151.777*** |
| | (2.572) |
| Congress Fixed Effects | YES |
| Constant | −1,586.222*** |
| | (36.508) |
| Observations | 3,396,886 |
| Adjusted $R^2$ | 0.003 |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 |

Not only do Twitter users themselves reward party loyalists, but the offline political context encourages their highly partisan behavior. With close competition over majority status, parties manipulate the congressional agenda (Cox and McCubbins 2005; Lee 2009) and design partisan messaging (Sinclair 2006; Lee 2016) to amplify the differences between the two parties in order to win majority status. Parties want to effectively communicate these party messages to the public and if Twitter users reward these types of messages through increased user interactions, then party leaders will push members to tweet party messages. As discussed in chapters 2 and 3, Democrats first extended their party messaging strategy to Twitter following the 2016 election, increasingly tweet-

ing partisan and position-taking messages. And party leaders are more likely to be party loyalist compared to rank-and-file members. Representatives seeking to gain majority status and influence within the chamber through their messaging ability, party loyalty, and online popularity will have strong incentives to adopt party loyalist digital presentations of self. Social media simply became an extension of the partisan competition observed offline. To what extent social media itself is driving more partisan focused digital presentations of self is outside the scope of this dissertation, but what we can say is that the growing polarization of our political institutions and intense partisan competition incentivizes members to adopt party loyalist presentations on Twitter.

We can conclude that the shift towards more partisan behavior online is, first, a result of the maturing of Twitter as an integrated component of members' communication strategy. Twitter is a place where political journalists and politically-involved constituents congregate: these individuals are invested in partisan politics and political hobbyism, and members know that partisan messages gain more attention from these users than non-partisan messages. Representatives seeking political and Twitter fame in its own right, will be best served by adopting a party loyalist presentation than a district hero or personal advertiser presentation. And as Twitter has been become an important political platform, fewer representatives are using the platform solely to post advertising messages, and increasingly use the site for party messaging to influence the image of the party and promote their legislative agenda to voters. Second, political parties have taken greater efforts to organize online messaging. Parties now regularly send its members suggested tweets to push the party messages which are designed to highlight the differences between the parties, therefore containing partisan messages. With majority status in close competition every two years, parties want to coordinate party messaging to highlight their party and disparage the opposing party and use social media platforms to communicate those messages to as many voters as possible. Third, it is also worth mentioning the timing of the growth of party loyalists. The election of Donald Trump shifted the national conversation during these four years beyond the traditional left-right policy debates. Politics centered around the health of democratic institutions, his impeachment, his comments against minorities, and his general conduct. Many of the issues members felt compelled to address via Twitter weren't about policy, but about Trump himself.

### 4.6 Discussion

This chapter established that members of Congress adopt four types of presentation of self: a party loyalist, policy wonk, district hero, or personal advertiser. In section 4.3 we found that representatives' digital presentations of self are distinguished by the extent they emphasize policy rather than advertising, and their emphasis on their congressional district as opposed to partisan politics and position-taking. Party loyalist are unique in their strong emphasis on partisan position-taking and

national politics, while policy wonks stand out in their national focus, with equal emphasis on both position-taking and credit-claiming. District heroes are defined by the centrality of district messages to their presentations. Personal advertisers, while an increasingly uncommon choice among representatives today, are unique in their emphasis on non-polarizing advertising messages.

Section 4.4 showed that the digital presentation members adopt is a function of the constituents they represent. Members representing aligned districts are more likely to adopt party loyalist or policy wonk digital presentations, and members from misaligned districts are more likely to adopt district hero digital presentations. We also see consistent and expected relationships between ideological extremism and digital presentations. With more ideologically extreme members presenting themselves as party loyalists or policy wonks and moderate members instead presenting themselves as district heroes or personal advertisers.

We also learned in section 4.5 that over time a greater share of representatives are adopting party loyalist presentations. We concluded that this trend is likely a result of the members adapting to Twitter as a platform and parties increased coordination around tweeting party messages, rather than a result of district changes. The decline of personal advertiser – who tend to be low-volume tweeters and most often use the platform to tweet media appearances, internship opportunities, and pictures of themselves and their families – indicates that more members are intentionally using Twitter for political messaging and presenting themselves and their policy ideas. If representatives are also increasingly party loyalists offline, then this perhaps suggests a more fundamental shift in how members are presenting themselves and representing their constituents. Such a claim is of course beyond the scope of this dissertation, but we can say that party messaging on social media is on the rise as more members see it in their interest to present themselves as strong party loyalists online.

When presenting themselves to their districts, members are also presenting the legislative process and policy agenda of Congress. Parties are able to build their party brand and distinguish themselves from the opposing party using legislation that divides the two parties (Cox and McCubbins 2005; Lee 2009), so one potential consequence of the growing number of party loyalists on Twitter is the congressional agenda presented to the public is more partisan than it is in reality. The following chapter will examine what legislation party loyalists, policy wonks, district heroes, and personal advertisers tweet about and how the legislative process is being delivered to Americans via Twitter and in general, social media.

## Chapter 5

### Party Politics, Presentation of Self, and Legislative Tweeting

This dissertation has explored the types of messages members of Congress tweet and the presentations of self they create online through these messages. Messaging is not only important for representatives seeking to win the electoral support and approval of their constituents, but it also influences constituents' perceptions of the congressional agenda and policymaking. Congress is often thought of as a highly partisan institution riddled by gridlock and intense polarization. This widespread belief is touted by journalists and academics alike, publishing work with titles like "The Broken Branch" (Mann and Ornstein 2008) and "Why is Congress so Dumb?".[1] In April 2022 only 21% of Americans approved of the way Congress was handling its job.[2] In fact, as Politico humorously pointed out, both traffic jams and root canals are more popular than Congress.[3] However, the widespread belief that Congress is a dysfunctional and ineffective institution is in part a misconception. Some scholars have pointed out that Congress's productivity appears to be declining as a result of divided government and congressional polarization (Binder 2003; Mann and Ornstein 2008; Grant and Kelly 2008). Others have argued that the volume of legislation passed does not account for the size and complexity of legislation (Clinton and Lapinski 2006), and they find little evidence for declining productivity (Mayhew 2005; Howell, Adler, Cameron and Riemann 2000; Casas, Denny and Wilkerson 2020). A partial explanation for this misconception lies in how members of Congress collectively present legislation and the congressional agenda to the public.

Consider two pieces of legislation from the 116$^{\text{th}}$ Congress: the Green New Deal and the Competitive Health Insurance Reform Act. The Green New Deal is a potentially ambitious policy idea, but in its current form is a vague policy proposal to address climate change and job creation through federal spending. The bill was submitted by the Twitter-famous Representative Alexandria Ocasio-Cortez (D-NY) and was cosponsored by 26 Democrats with no Republican support. The partisan and controversial bill has received a great deal of news coverage and has become a flash-point of partisan politics. But the actual legislation, H.R. 5185, was never voted out of committee and had virtually no chance of success[4] – unless you consider Senate Majority Leader Mitch McConnell (R-KY) sponsoring a Senate version of the bill to force a vote as a political stunt.[5] While the Green

[1] Rep. Bill Pascrell (D-NJ) authored "Why is Congress so Dumb" for the Washington Post: `https://www.washingtonpost.com/news/posteverything/wp/2019/01/11/feature/why-is-congress-so-dumb/`

[2] `https://news.gallup.com/poll/1600/congress-public.aspx`

[3] `https://www.politico.com/gallery/13-things-more-popular-than-congress?slide=1`

[4] `https://www.congress.gov/bill/116th-congress/house-bill/5185/text`

[5] `https://www.nbcnews.com/politics/congress/senate-fails-advance-green-new-deal-democrats-protest-mcconnell-sham-n987506`

New Deal died in committee, Congress was also working on the Competitive Health Insurance Reform Act. This bill restores the application of Federal antitrust laws to the business of health insurance to protect competition and consumers, which would lower health care costs for millions of Americans. The legislation was introduced to the House as H.R. 1418 by Representative Peter DeFazio (D-NY) and was cosponsored by 51 other legislators, including 25 Republicans. The bill passed the House through a voice vote, passed the Senate by unanimous consent, and was signed into law by President Trump in January 2021.[6] This successful and substantially important bill received very little news coverage, and I would guess that while many Americans have heard of Rep. Ocasio-Cortez's Green New Deal very few are aware of Rep. DeFazio's Competitive Health Insurance Reform Act.

Figure 5.1: Examples of the Green New Deal and Competitive Health Insurance Reform Act in Representatives' Tweets


During the 116$^{th}$ Congress, representatives tweeted about the Green New Deal 2,669 times, in contrast there was only *one* tweet regarding the Competitive Health Reform Act. Figure 5.1 displays, on the left, a tweet about the Green New Deal from the bill's sponsor Rep. Ocasio-Cortez and, on the right, the only tweet posted about the Competitive Health Insurance Reform Act from one of the bill's Republican cosponsors Representative Steve Womack (R-AR). As it currently stands, the Green New Deal is mostly symbolic and has little chance of receiving bipartisan support. On the other hand, the Competitive Health Insurance Reform Act is a substantially important piece of legislation that passed with widespread support from members of both parties. Members of Congress propose thousands of bills each Congress, a small percentage of which go on to become law, and an even smaller number become salient components of the wider political discourse. Why

[6] `https://www.congress.gov/bill/116th-congress/house-bill/1418/actions`

do members of Congress tweet about some legislation, like the Green New Deal, and not others, like the Competitive Health Insurance Reform Act? How do representatives present Congress and its legislative agenda? And how do members' institutional positions and digital presentations of self relate to the legislation they choose to tweet about?

Existing theories of lawmaking, explaining how members vote and what legislation is given a floor vote, often depend on how useful a bill is for campaigning. Members are concerned with the reputation of their political party, or the party brand, among voters. Maintaining a positive party brand is a key concern among party leaders and can help sway independent voters in close elections. Previous work has argued that party brands are supported by passing successful legislation (Cox and McCubbins 2005; Cox and McCubbins 2007) and partisan legislation (Lee 2009). If this is the case, then this incentive would distort the lawmaking process presented to the public. Schattschneider (1942) argued that "the impulse of the parties [. . .] to clothe themselves in a dogmatic and argumentative garment of high public purpose is so strong that a wholly misleading picture of the process is likely to be conveyed by the mere words of party propagandists" (129-130). Moreover, these claims, that some legislation is more electorally useful than others, has largely gone untested. By examining what legislation members of Congress tweet, we can assess what legislation members themselves deem to be beneficial for securing reelection and majority status. And then evaluate how these electoral incentives ultimately contribute to how lawmaking is presented to the public through social media.

This chapter expands our understanding of how members of Congress present legislation to their constituents and engage with the legislative process through social media. By examining each mention of legislation on representatives' Twitter timelines from the $111^{\text{th}}$ through the $116^{\text{th}}$ Congress (2009-2020), I find that representatives are more likely to tweet about legislation if it is partisan and passes the chamber. Consistent with previous work, majority party members use Twitter to amplify partisan bills that clarify the differences between the parties and to claim credit for passing legislation through the House. Those in the minority party use Twitter to act as the opposition party and largely tweet against the majority party's legislation. And we find expected differences in the legislation members tweet depending on their digital presentation of self. All presentations prioritize partisan bills, but party loyalists more often highlight bills they voted against and often use explicit partisan rhetoric when tweeting about legislation. Given the increasing number of party loyalist over time, this further exacerbates the degree of partisan conflict.

This chapter begins with a review of existing theories on how members of Congress explain their Washington activities to their district and the electoral value of legislation. Next, I will discuss the methodology used to identify legislative mentions in the three million tweets posted by representa-

tives from 2009 through 2020. With this task completed, I then examine how the legislative agenda presented on Twitter compares to the legislative agenda in Congress. Next, I explore how legislative tweeting varies between the majority and minority party, and between members with different digital presentations of self. Throughout this chapter, I address how electoral incentives lead to a legislative agenda on Twitter that presents a Congress that is more partisan and dysfunctional than it actually is.

### 5.1 Legislation and Messaging

Members of Congress are broadly interested in serving three goals: re-election, influence over policy, and power within their chamber (Fenno 1978). Among those, a member's preeminent goal is securing reelection (Mayhew 1974). In order to be reelected, members of Congress have to demonstrate to their constituents that they are representing and advancing their interests in Congress. To avoid potentially chaotic and unpredictable legislative outcomes of an unorganized Congress, legislators form parties to organize the legislative process and form durable coalitions to advance their policy interests (Aldrich 1995). Besides this practical benefit, parties facilitate the collective electoral gain for its party members. One way parties support its members' reelection is through the party brand (Cox and McCubbins 2005, 2007). A party brand provides voters information about their policy positions and non-ideological valence qualities (Stokes 1963; Kiewiet and McCubbins 1991; Snyder Jr and Ting 2002; Butler and Powell 2014). Voters' most salient political identity is their party identification, so party leaders want to pass legislation that creates a favorable image of their party to reinforce and appeal to this identity. Given the House's majoritarian rules, the majority party is able to control what legislation is voted on and ultimately passes. Majority status provides greater influence over legislation voted on which drives policy outcomes, and therefore greater control over the political fortunes of representatives. As a result, members in the same party have a collective interest in being in the majority party (Aldrich 1995; Cox and McCubbins 2005; Lee 2009). Parties control the legislative process to provide electorally beneficial position-taking and credit-claiming opportunities for its members, which helps both individual members campaign for reelection and the party campaign for majority status. The party brand serves both the individual re-election interests of members as well as the collective goal of majority status.

The policy component of the party brand is created through the roll call votes and legislation passed by the party. Cox and McCubbins's (2005) work focused on how the majority party structures the legislative process to benefit their party's brand. In their view, the party brand is created through successful legislation with all members of that party voting in favor of the bill. The majority party uses its agenda-setting to prevent roll call votes where its party is "rolled", or when the majority party votes against a bill that still passes. Moreover, bills that pass with the near

full support of the majority party *and* divides the minority party, depriving the minority party the chance to use the bill to define their party's brand, are the most useful for creating a strong party brand. This theory predicts that majority party leaders, who control what bills are allowed a floor vote, only allow bills that will pass and will do so with the full support of the party.

Any legislation that divides the two parties is electorally useful for members. Lee (2009) argues that "party conflict is necessary for party messaging" and any roll call vote that divides the two parties is electorally valuable for both the winning and losing side (45). Majority party members can use partisan legislation, regardless if it passes or fails or becomes law, to define its party policy brand. And the minority party, rather than highlight their policy successes achieved through bipartisan coalitions, will campaign on partisan bills even if their party is on the losing side. Legislative failure can be just as valuable as legislative success. So long as the parties are voting against each other, these votes allow each party to differentiate itself. A glorious defeat is better for defining the party than a successful compromise. In this view, the party brand is created not just through policy accomplishment, but through positioning that divides the parties. To accomplish this and clearly define where their party stands, both majority and minority party members are expected to tweet about partisan legislation. Given the majority's agenda-setting power, we should observe the majority party tweeting partisan legislation they support and the minority party tweeting partisan legislation they oppose.

$H_1$: *The majority party should be more likely to tweet about partisan legislation they cosponsored or voted for; the minority party should be more likely to tweet about partisan legislation they did not cosponsor or voted against.*

Party brands include both a policy component and a valance component (Stokes 1963). While partisan legislation communicates the party's policy preferences, the valance component includes the reputation of legislative accomplishment and good governance (Butler and Powell 2014). Adler and Wilkerson (2013) show that representatives believe that voters judge them by Congress's ability to enact laws that deal with the policy problems facing Congress. Representatives, particularly those in the majority party, are held accountable for the legislative accomplishments of Congress (Jones and McDermott 2010) and their party's record of legislative success (Butler and Powell 2014; Lebo, McGlynn and Koger 2007; Woon and Pope 2008). The party's record of legislative accomplishments includes the passage of bills in the chamber and the enactment of bills into law. If a party's reputation with voters is a function of legislative *accomplishment*, then failed votes or losing a vote hurts the electoral value of the party brand. Parties should then prioritize successful legislation on Twitter.

$H_2$: *Representatives should be more likely to tweet about successful legislation*

Representatives can use Twitter not only to promote legislation for their own reelection and to support the party brand, but can also take advantage of Twitter's platform to build public support (or opposition) for legislation. Presidents have long been recognized with this power to build legislative support by "going public" (Kernell 2006; Canes-Wrone 2010). The president is able to use the bully-pulpit to rally public support for a bill, generally through positive media coverage, which in turn puts pressure on Congress to pass the bill in question. Other work suggests that members of Congress have this same ability. Constituents do not have stable preferences on most legislation being considered by Congress, but they do have potential preferences. Good lawmakers have to imagine and anticipate their constituents' preferences (Arnold 1990), but they can also help shape these preferences through their rhetoric. Since changes in the media environment beginning in the 1980s, congressional parties are able to influence the public agenda in a way that competes with the President (Sinclair 2006). Parties in Congress regularly coordinate messaging in order to influence media coverage and the lawmaking process (Sellers 2009). In modern politics, members of Congress have an unprecedented ability to shape the work Congress does through media coverage and mobilizing constituency opinion. Not only is there increased news coverage of Congress with organizations like Politico and Roll Call, but members can directly lobby the public for the legislative initiatives through social media. Even if voters are not directly observing members' Twitter messages, members can still be influential agenda-setters, as Twitter can indirectly influence the legislative agenda via traditional news media (Conway, Kenski and Wang 2015; Shapiro and Hemphill 2017). Since journalists likely follow their accounts, the Twitter accounts of members of Congress have been found to influence the policy content that appears in traditional news media's coverage (Shapiro and Hemphill 2017).Given the accessibility of Twitter, this power is not confined to party leaders but extends to particularly internet-savvy rank-and-file members (case in point, Rep. Ocasio-Cortez's (D-NY) Green New Deal).

Minority party members, with less control over the congressional agenda, should be more likely to tweet about legislation before a roll call vote in order to exert influence over policy outcomes. Majority parties, particularly party leaders, exercise out sized control over the congressional agenda (Aldrich and Rohde 2000; Cox and McCubbins 2005, 2007), so minority party members will turn to non-legislative means for agenda-setting, especially utilizing unconstrained messaging opportunities (Green-Pedersen and Mortensen 2010). For example, one-minute speeches are used more by minority party members than majority because it's one of the few places they can influence the agenda within Congress (Green 2015). I expect that minority party members, who have less influence over legislation outcomes, to be more likely to tweet about legislation during the agenda setting phase.

$H_3$: *Minority party members should be more likely to tweet about legislation before it passes*

Moreover, because the majority party controls what legislation is voted on and ultimately passes the House, we should expect that the majority party has more opportunity to post legislative tweets in general. And if the majority party has more opportunity to claim credit for successful legislation and has to demonstrate their ability to successfully act as the majority party for voters, then they should post more tweets after a roll call vote than the minority party.

$H_4$: *The majority party should be post more legislative tweets and post more legislative tweets after a roll call vote.*

Understanding how members of Congress use social media to present lawmaking to their constituents is important for several reasons: First, this paper explores how members of Congress adapt to new media tools and how they use online messaging to enhance re-election and policy influence. Second, Americans continue to argue that Congress is too polarized and lawmaking is too partisan; however, the majority of legislation passed today is through bipartisan voting coalitions. This work helps explain this discrepancy by showing how members prefer to tweet about partisan and controversial legislation over bipartisan legislation. Before exploring how representatives use Twitter to promote legislation, the following section will review the methodology used to identify legislative tweets.

### 5.2 Tweeting Legislation

To systematically assess what legislation representatives are tweeting about and why, I again rely on my collection of 3.2 million tweets from the 111$^{\text{th}}$ Congress though the conclusion of the 116$^{\text{th}}$ Congress (2009-2020). In chapter 3, tweets were identified, in part, by if they contained policy language. In this chapter, I further restrict my analysis to tweets referencing a bill number (ex. H.R. 3590), the bill title (ex. Affordable Care Act) and finally, in limited circumstances a bill nickname or acronym (ex. Obamacare, ACA). Focusing on tweets that explicitly mention legislation, which admittedly accounts for a small proportion of overall tweets, allows us to directly connect a tweet message to the lawmaking process.

Recall from chapter 2 all bill numbers were transformed during pre-processing to be formatted uniformly, so bill numbers were easily identified in the text of tweets using string detection.[7] Bill numbers were pulled from the text of tweets for all bills starting with the following: HR, HJRES, S, SJRES. Because bill numbers recycle each congress, I assume that anytime a member mentions a bill number, it is referring to the bill introduced in that congress. The search excludes resolutions

[7] I used the function `str_detect` from Tidyverse package `stringr` (Wickham, Averick, Bryan, Chang, McGowan, François, Grolemund, Hayes, Henry, Hester, Kuhn, Pedersen, Miller, Bache, Müller, Ooms, Robinson, Seidel, Spinu, Takahashi, Vaughan, Wilke, Woo and Yutani 2019).

(bills starting with HRES, HCONRES, SRES, or SCONRES). Because these bills, while potentially procedurally important, are largely concerning the operations of the House and Senate and are never presented to the President to become law and therefore excluded.[8] In addition, resolutions make up a very small proportion of the overall number of legislative tweets ($< 1\%$) and 25.35% of all roll call votes.

Bill titles were collected in two ways: first, I pulled the official title and corresponding bill information for all House and Senate bills introduced between the $111^{\text{th}}$ and $116^{\text{th}}$ Congress (2009-2020) using the ProPublica API.[9] If identical bill titles were submitted to both the House and Senate, the Senate bill was retained only if the Senate bill reached the House (after passing the Senate) and the House bill was never voted on, otherwise the House bill was used. Second, since official bill titles can be quite lengthy and are not always used to refer to the bill in question, I used collocation analysis to find commonly occurring capitalized phrases 2-6 words long and ended with the word "Act." This identifies commonly tweeted legislation referenced by a name other than it's official bill title as well as legislation introduced in previous congresses. This process resulted in a list of 1,034 bill names that were manually coded with the appropriate bill number and Congress in which the bill was introduced. Often a bill with the same name is introduced in multiple congresses or in both chambers in a single Congress. For example, the Dream Act, an immigration reform bill, has been introduced in nearly every congress since first introduced in 2001. In these instances, I first looked to see if a bill with that name was introduced during the congress in which the tweet was posted. If the bill was submitted to both the House and Senate, the Senate bill number was coded only if the Senate bill reached the House (after passing the Senate) and the House bill was never voted on, otherwise the House bill number was coded. If the bill was not introduced during that congress, I assume the tweet is referring to the most recent version of that bill. Combining these two lists of bill titles, excluding articles (e.g. a, an, the, of) and years (e.g. 2016), bill titles were identified in representatives' tweets using string detection and then the associated bill number was recorded.

Finally, members of Congress also frequently refer to bills by acronyms and nicknames, for example "The Affordable Care Act", "ACA", and "Obamacare" all refer to the same bill. Given the large volume of legislation proposed to the House, it is not feasible to manually code all bill nicknames and acronyms. Identifying commonly used phrases ending with "Act" captures many of these nicknames as well as instances where members condense the bill title to use in a hashtag, for example "#affordablecare act". To ensure I correctly identified as many legislation tweets as possible, I created a list of significant legislation and manually coded the nicknames and acronyms for these bills. This has the benefit of ensuring I captured key legislation that members of Congress are

[8] `https://www.house.gov/the-house-explained/the-legislative-process/bills-resolutions`
[9] `https://projects.propublica.org/api-docs/congress-api/`

most likely to tweet about. Significant legislation was obtained from two sources. First, I included the list of important enactments, including those that failed, from David Mayhew and collected the bill number for each enactment on his list.[10] After the 113$^{th}$ Congress Mayhew stopped listing important but failed legislation. For the 114$^{th}$-116$^{th}$ Congress (2015-2020) I followed his methodology and read journalists' biannual write-ups on Congress and recorded any significant legislation that ultimately failed to pass the House. Second, I used *Congressional Quarterly*'s key vote tables for each year and collected the bill associated with each key vote.[11] In most cases, these bills were already included on David Mayhew's list, confirming that these bills were among the most important legislative from that congress. With this list of 146 pieces of significant legislation, I then created a list of any known nicknames or acronyms used to colloquially refer to these bills and identified any bill mentions in the tweet text using string detection.

Table 5.1: Number of Tweets That Mention Legislation Compared to Number of Representatives' Tweets by Congress

| Congress | Tweets Sent | Legislative Tweets |
|---|---|---|
| 111$^{th}$ Congress | 68,067 | 2,248 (3.3%) |
| 112$^{th}$ Congress | 303,369 | 15,158 (5.00%) |
| 113$^{th}$ Congress | 493,630 | 40,880 (8.28%) |
| 114$^{th}$ Congress | 548,653 | 25,343 (4.62%) |
| 115$^{th}$ Congress | 771,269 | 44,453 (5.76%) |
| 116$^{th}$ Congress | 1,043,923 | 63,352 (6.07%) |

In twelve years, representatives referenced 7,640 unique pieces of legislation 199,705 times on Twitter.[12] Table 5.1 shows the total number of tweets sent by House members and the number and percentage of those tweets that are legislative tweets (i.e. tweets that reference specific legislation) in each congress. As members of Congress have increased their tweeting frequency, the number of legislative tweets has also increased, as seen in Figure 5.2. For example, In 2010 representatives collectively posted on average 64 legislative tweets a month, and in 20220 they posted on average 1,463 legislative tweets a month. The rate of legislating tweeting has increased as well. In the 111$^{th}$ Congress, 3.3% of tweets mentioned legislation, and in the 116$^{th}$ Congress the rate of legislative tweeting nearly doubled to 6.07%. As members of Congress have incorporated social media messaging into their professional responsibilities, they have gotten increasingly savvy on Twitter, posting more tweets about specific bills to their followers.

[10] `https://campuspress.yale.edu/davidmayhew/datasets-divided-we-govern/`

[11] `https://library.cqpress.com/cqalmanac/toc.php?mode=cqalmanac-appendix&level=2&values=CQ+Key+Votes+Tables`

[12] In some instances, representatives referenced multiple pieces of legislation in a single tweet. There are 191,434 tweets that reference legislation.

Figure 5.2: Number of Monthly Legislative Tweets, 2009 - 2020

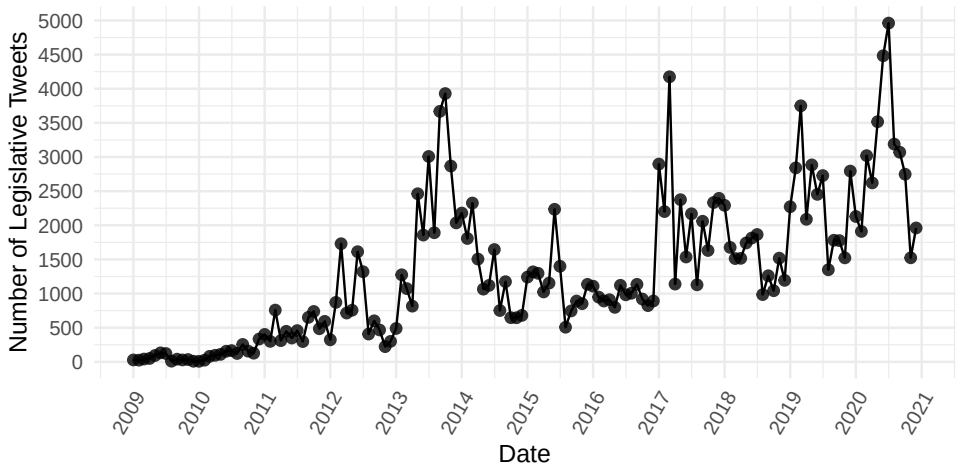



Figure 5.2: Displays the number of monthly legislative tweets from 2009-2020.

Once again, the increase in legislative tweeting is partly driven by Democrats' behavior on Twitter. As discussed in the chapter 3, after the 114$^{th}$ the Democratic Party increasingly prioritized and coordinated online messaging in order to further party goals, and Democratic lawmakers increased the number of position-taking, policy, and partisan tweets they posted. Moreover, in the 116$^{th}$ Congress, Democrats regained majority status for the first time since the 111$^{th}$ Congress. As seen in Figure 5.2, this resulted in the majority party Democrats simply sending more tweets in general and more legislative tweets during the 116$^{th}$ Congress. While Democrats in more recent years posted a larger number of both tweets and legislative tweets than Republicans, the share of legislative tweets is not drastically different between the parties, except Republicans in 2013. From July 2013 through February 2014 well over 10% of Republicans tweets mentioned legislation, and almost all of these tweets referenced the Affordable Care Act. The major provisions of the law went into effect at the start of 2014 and the government online exchanges to sign up for the new healthcare plans opened in October 2013. However, millions of Americans were unable to sign up after the website crashed repeatedly over several months. The debacle lead the House to conduct a series of congressional hearings investigating the roll-out and pass the Keep Your Health Plan Act in November 2013.[13] Republicans were quick to tweet about the policy implementation failure, and in November 2013 23% of Republicans' tweets mentioned the ACA.

[13] https://thehill.com/blogs/blog-briefing-room/news/190485-timeline-of-botched-implementation-of-obamacare/

Figure 5.3: Number of Monthly Legislative Tweets and Percent of Legislative Tweets by Party, 2009-2020

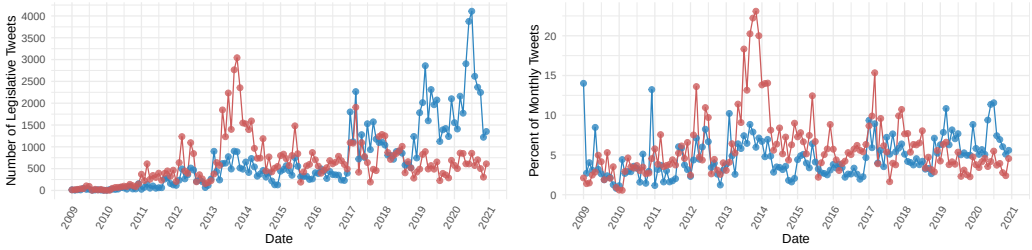



Figure 5.3: Displays the number (left) and percentage (right) of monthly tweets that mentioned legislation for Republicans (red) and Democrats (blue) from 2009-2020.

In general, how frequently parties tweet legislation is related to majority status. Figure 5.3 shows that the majority party post a greater share of legislative tweet than the minority party, offering initial support for $H_4$. Democrats were the majority party in the $111^{\text{th}}$ Congress (2009-2010) and the $116^{\text{th}}$ (2019-2020) Congresses, and Republicans were the majority party from the $112^{\text{th}}$ through the $115^{\text{th}}$ Congresses (2011-2018). 6.5% of the majority party's monthly tweets and 4.0% of the minority party's monthly tweets, on average, are legislative tweets, and the differences are statistically significant at the .01 confidence level.

While at first glance the overall proportion of tweets that mention legislation appears to be small, as previously mentioned, the majority (62.25%) of tweets are still about policy. These legislative tweets are a sample of policy tweets that we are able to relate directly to the policymaking process. Previous work by (Russell 2021*b*) found that the policy priorities Senators expressed on Twitter are representative of the policy areas of the bills they sponsor in Congress. So even if legislative tweeting is relatively infrequent, it is still capturing the types of policies members are tweeting and working on in Congress. If legislative tweets are accurately capturing the lawmaking process, then we should see legislative tweeting corresponding to key legislative events. For example, the spike in legislative tweeting in 2020, as seen in Figure 5.2, captures tweets related to legislation responding to the COVID-19 Pandemic. The Coronavirus Aid, Relief, and Economic Security Act or CARES Act (H.R. 748) was tweeted over 5,000 times by members encouraging people to apply for benefits, notifying them how they would receive their stimulus checks, and directing them to federal resources. We also observe a spike in legislative tweets in late 2017 when the Tax Cut and Jobs Act (H.R. 1) passed the House and was signed into law, mostly driven by Republicans. Figure 5.4 displays the number of daily tweets sent referencing the Tax Cut and Jobs Act and the timing of the key legislative events related to the bill. Tweets about the bill correspond to November $2^{\text{nd}}$,

when the bill was introduced, November 16$^{th}$, when it passed the House and finally, December 19$^{th}$, when differences between the House and Senate versions of the bill were agreed to by both chambers clearing the way for the president's signature.[14] The Republican Party prioritized passing this partisan bill while their party controlled both chambers of Congress and the presidency, allowing members to campaign on it during the 2018 midterms. While the total number of legislative tweets are small relative to the total number of tweets, these tweets are accurately capturing what legislation members of Congress want their constituents to know about and corresponds to the legislative process.

Figure 5.4: Number of Daily Tweets about the Tax Cut and Jobs Act, October 17, 2017 - January 1, 2018

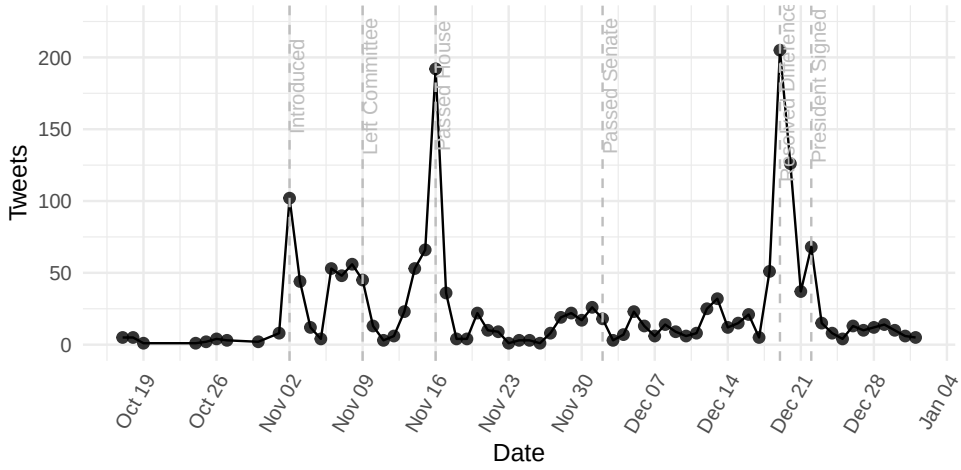



Figure 5.4: Displays the number of daily tweets that mentioned the Tax Cut and Jobs Act from October 17, 2017 to January 1, 2018.

To further evaluate the success of this methodology, we can examine the types of tweets legislation appears in. Over 90% of tweets that mention legislation were correctly coded as a policy tweet – proof that our classification of legislative and policy tweets is largely accurate. The relatively few "mislabelled" tweets are a result of the keyword assisted topic model. Topic models, like the one used to identify policy tweets, are probabilistic and use patterns in the words appearing in tweets to group similar tweets. Nearly all the legislative tweets mislabelled as non-policy are identified as advertising tweets. Of all legislative tweets, 52.19% are position-taking tweets, and 38.27% are credit-claiming tweets, and 9.56% are advertising tweets. The legislative tweets labelled as non-

[14] `https://www.congress.gov/bill/115th-congress/house-bill/1/actions?q=%7B%22search%22%3A%22Tax+Cut+and+Jobs+Act%22%7D&r=19&s=3`

policy tweets are mostly publicizing links to member's statements or town hall events addressing the bill, and therefore are labelled by the topic model as non-policy advertising tweets.

Figure 5.5: Percent of Legislative Tweets by Message Type, 111$^{th}$ - 116$^{th}$ Congress

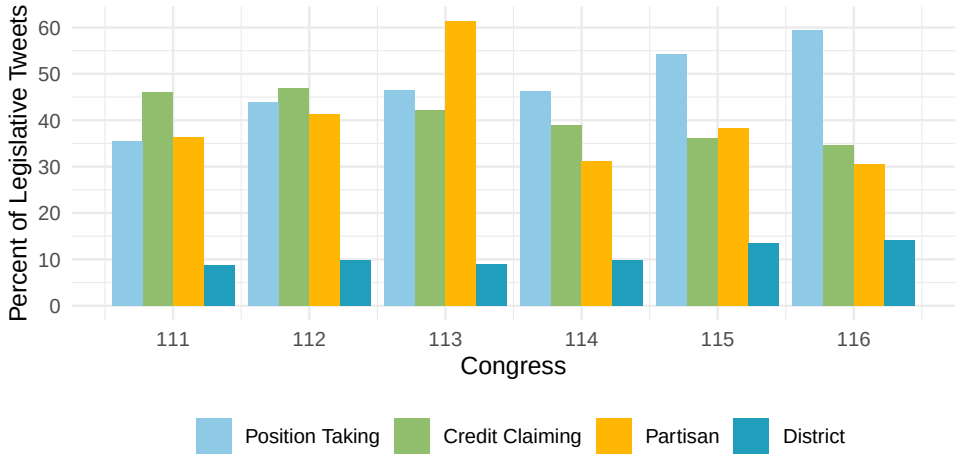



Figure 5.5: Displays the percent of legislative tweets that are classified as credit-claiming, position-taking, partisan, or district messages by congress. Tweet messages are not mutually exclusive, so the summed percent of these messages can be greater than 100%.

Figure 5.5 displays the percent of legislative tweets also identified as a credit-claiming, position-taking, partisan, or district tweet. Over time, a greater share of legislative tweets were done through position-taking messages, while the share of legislative tweets though credit-claiming messages declined. In the 111$^{th}$ Congress, 35.4% of legislative tweets were also position-taking tweets, and in the 116$^{th}$ Congress this increased to 59.3%. About 20% of all representatives' tweets contain partisan messages, but between 30-40% of legislative tweets contain partisan messages. This is primarily a result of Republicans branding the Affordable Care Act as "Obamacare", explicitly connecting the name of the legislation to the President and therefore partisan politics. Partisan legislation tweets are the most prevalent during the 113$^{th}$ Congress, where 61.5% of legislative tweets were partisan, when Republicans frequently tweeted about the implementation and attempted repeal of the ACA.

In total, we identified nearly 200,000 tweets where the member referenced a specific bill. While legislative tweets comprise a small proportion of representatives' tweets, we see that legislative tweeting corresponds to legislative process of highly salient legislation. Moreover, we established that legislative tweets appear most often in policy, position-taking, and credit-claiming tweets – providing further evidence that the method used to classify the message type of tweets in chapter 3

was successful. The following section will compare how the legislative agenda articulated on Twitter compares with the legislative agenda in Congress.

### 5.2.1 The Legislative Agenda on Twitter

In the last 20 years, the House of Representatives considered over 6,000 bills in each congress. Of the 44,078 bills considered by the House from 2009 to 2020 – including bills that either originated in the House or moved to the House after being passed by the Senate – 7,640 appeared on Twitter. This section will explore how the tweeted legislative agenda compares to the actual legislative agenda in terms of bill progression, cosponsorship, and roll call coalitions.

Table 10.3 displays the final progression of all legislation that the US House of Representatives considered and compares it to tweeted legislation. A bill's stage in the legislative process was determined using data on all legislative actions pertaining to a specific bill obtained from `congress.gov`.[15] Bills submitted by members are first assigned to committees for study and markup. The majority of bills (84.9%) are never voted out of committee. In most cases, these bills are submitted by the sponsor and rarely receive any action in committee, such as a hearing or committee vote. The lack of serious congressional attention to these bills is reflected on Twitter – 15.2% of legislative tweets reference bills that failed to progress past the committee stage.

Table 5.2: Progression of Congressional Legislation and Tweeted Legislation

| | In Committee | House Floor | In Senate | Law | Vetoed | Total |
|---|---|---|---|---|---|---|
| All Legislation | 37,434 | 1,601 | 2,945 | 2,079 | 19 | 44,078 |
| | (84.9%) | (3.63%) | (6.68%) | (4.72%) | (.04%) | |
| Tweeted Legislation | 30,375 | 5,395 | 58,508 | 105,382 | 45 | 199,705 |
| | (15.2%) | (2.70%) | (29.3%) | (52.8%) | (.02%) | |

Note: *In Committee* includes legislation that does not proceed past the committee stage; *House Floor* includes legislation that was voted out of committee and either does not pass the House or was never voted on by the House, as well as legislation received from the Senate and not assigned to a committee. *In Senate* includes legislation passed by the House and not passed by the Senate or legislation in conference committee. *Law* includes all legislation that became public law. *Vetoed* includes all legislation vetoed by the president where Congress did not override the veto. Tweeted legislation includes bills originating in previous congresses.

A small proportion of both legislation and legislative tweets are characterized as bills that are voted out of committee but never progress out of the House: bills that either do not receive a floor vote, do not pass the House, or pass the House but are not forwarded on to the Senate. These bills

[15] Data from `congress.gov` was pulled using the ProPublica Congress API ( `https://projects.propublica.org/api-docs/congress-api/`).

are less than 5% of the congressional agenda and less than 5% of legislative tweets. And members of Congress almost never mentioned legislation that fails on the House floor. Among the tweeted legislation that receives a roll call vote, 99.6% of tweets mentioned legislation that passed the House. And this reflects the legislative process generally. Because the majority party generally does not allow a vote that will fail, 97.5% of all bills that receive a roll call vote pass the chamber. Nearly all legislative tweets on bills that only progress to the House floor are bills that are never voted on, rather than legislation that does not pass. Not only because failed roll call votes are rare events in general, but when they do occur, members are not publicizing these failed votes.

On Twitter, members of Congress tend to focus on legislation that passes the House.[16] 82.1% of all tweeted legislation passed the House – over half (52.8%) of which became public law and the remaining 29.3% died in the Senate. In a constitutional system of separated lawmaking authority, representatives are still likely to tweet about legislation that only passes the House. For example, recall from Figure 5.4 representatives equally tweeted about the Tax Cut and Jobs Act on the day it passed the House and on the day differences between the Senate and House versions of the bill were resolved, clearing the way for the president's signature. While most of the tweets are posted after these bills passed the House, 19.3% were posted before the bill passed. Members of Congress and parties have limited resources and time to pass legislation, so successfully passing a bill requires effort to get the bill to be deemed a priority by those with agenda setting power and to get others to vote for the bill. It could also be the case that representatives' tweets tend to focus on legislation that appears to be gaining momentum, and they believe will pass the House. While we cannot say if members tweet about legislation they believe will eventually pass or if tweeting itself influences the likelihood the bill passes, we do see that successful legislation dominates the conversation on Twitter. And once the bill passes the House, they continue to tweet about the bill as it makes its way through the Senate and becomes law.

Very infrequently are bills vetoed by the president, from 2009-2020 presidents have only vetoed 20 total bills, and only once did Congress successfully override a president's veto. While one might suspect that rare events that pit Congress against the president – like the president vetoing a bill – would induce greater public comment from members of Congress, this is not the case. Representatives referenced vetoed legislation in less than 1% of legislative tweets, and instead focus on legislation that passed the chamber and became public law.

As mentioned earlier, members are using Twitter to post messages that enhance their reelection and promote their party's brand, focusing on successful legislation rather than the majority of legislation that dies in Committee. In this case, it is reasonable that representatives' tweets are not

[16] This includes tweets that were posted *before* the bill was passed by the House.

broadly reflective of the legislative process. While 82.1% of tweeted legislation passes the House, only 11.4% of all legislation passes the House and about half are signed into law. However, the preponderance of successful legislation is passed through bipartisan coalitions. If representatives were equally tweeting about all successful legislation, then Congress would be presented as a productive and responsive institution. Of course, this is not the case. Next, we examine the cosponsorship and roll call coalitions of tweeted legislation and how this compares to all the legislation introduced and voted on by the House.

In addition to how far in the legislative process a bill progresses, legislation can be characterized by the members who choose to cosponsor a bill. Each House bill is introduced by one representative, and then other members have the opportunity to signal their support by cosponsoring the bill. Bill cosponsorship is a low-cost form of position-taking to constituents and signaling to other lawmakers (Kessler and Krehbiel 1996; Koger 2003). Table 5.3 shows the average number of cosponsors and the prevalence of cosponsorship coalitions of all House bills and tweeted bills. Previous work has found that the average House member cosponsors only 3.4% of all bills (Fowler 2006) and the average House bill was cosponsored by 16 Representatives, excluding the bill sponsor tweeted bills have far more cosponsors on average. Tweeted legislation has on average 76 cosponsors, and while 24.2% of all bills have no cosponsors, only 5.40% of tweeted legislation has zero cosponsors. Representatives tweet about legislation that has greater cosponsor support and therefore is deemed important by other legislators.

Table 5.3: Consponsorship Coalitions of Congressional Legislation and Tweeted Legislation

| | Mean Cosponsors | None | Partisan | Bipartisan |
|---|---|---|---|---|
| All Legislation | 16.0 | 10,357 | 24,193 | 8,325 |
| | | (24.2%) | (56.4%) | (19.4%) |
| Tweeted Legislation | 76.2 | 9,664 | 140,006 | 28,416 |
| | | (5.40%) | (78.2%) | (15.9%) |

Note: Partisan cosponsorship coalitions are those where over 75% of cosponsors were of the same party, and bipartisan cosponsorship coalitions are those where less than 75% of cosponsors were of the same party, including the party of the bill's sponsor. *Tweeted Legislation* includes only House bills, including those originating in previous congresses.

We can also consider if bills are cosponsored by members of only one party or both parties. Bills with heterogeneous cosponsors serve as a credible signal to other legislators of the desirability and viability of the bill (Kessler and Krehbiel 1996). Partisan cosponsored bills produce partisan roll call coalitions and vice versa (Harbridge 2015). The majority of legislative tweets reference legislation where at least 75% of cosponsors are from the same party. 78.2% of tweeted bills have

partisan cosponsor coalitions, compared to 56.4% of all House bills. And less than 20% of House legislation is cosponsored by members of both parties, and 15.9% of tweeted legislation is cosponsored by members of both parties. If bipartisan cosponsorship is indicative of a bill's viability in the chamber, representatives are tweeting less about bills endorsed by members of both parties and therefore have greater chance of future success. Instead, representatives prefer to tweet more about legislation with homogeneous cosponsorship.

Table 5.4 shows the share of bills and tweeted bills, conditional on receiving a recorded roll call vote, by their roll call coalition.[17] Most bills are only voted on once, but if a bill was voted on multiple times, then it was classified by the vote deciding final passage of the bill.[18] Approximately 2,000 of the 44,000 bills that moved through the House, or 3.3% of all bills, receive a roll call vote. And not all bills that pass the house receives a roll call vote. The House passed the majority of legislation through a voice vote: the process where the presiding officer states the question up for a vote and members shout either "yea" or "nay" in unison, and the louder response is recorded as the outcome without tallying members' specific votes. Because parties have incentives to create partisan conflict through roll call votes to define their party brand (Lee 2009), voice votes are commonly used to quietly pass bipartisan legislation (Harbridge 2015). In her work, Harbridge (2015) found that on average 76% of bills that passed the House through voice votes had bipartisan support. 59.1% of all bills that passed the House from the $111^{\text{th}}$-$116^{\text{th}}$ Congress (2009-2020) are done through a voice vote rather than a recorded roll call vote. While most legislation passes through voice votes, only 5.94% of legislative tweets reference legislation that passed via a voice vote. If voice votes are used to conceal bipartisanship and how members ultimately voted, then *not* tweeting about these bills keeps these bills hidden from the public.

Of legislation that is voted on with a recorded roll call vote, the bill passes the House 97.5% of the time and most pass through a bipartisan roll call coalition. A bipartisan roll call coalition are votes where at least 80% of both parties voted together, as well as the few instances where a vote internally divides both parties.[19] Bipartisan coalitions also include unanimous coalitions where 100% of representatives voted in favor of the bill. Most legislation that is voted on by the House receives broad support from both parties: 34.3% of bills are voted on by bipartisan coalitions and 22% are voted on by unanimous coalitions. If we include legislation passed through voice votes, which we assume are bipartisan, 82.77% of bills that pass the House are passed with support from both parties. However, this is not what we see on Twitter. Only 12.6% of tweeted legislation was voted on by a bipartisan or unanimous coalition of representatives. So while most legislation is

[17] Table 10.2 in Appendix 10.1 displays the coding rules for defining roll call coalitions.

[18] 95.78% of bills voted on in the House only received one floor vote.

[19] Cross party coalitions are votes where a majority of neither party votes for a bill, formally between 20% and 80% of both parties vote together, and these coalitions appear for only 22 bills.

voted on with support from both parties, most tweeted legislation is supported by a single party.

Partisan roll call coalitions are those where at least 80% of one party votes against at least 80% of the other party, such that only one party supports passing the bill. Over 75% of tweeted bills were voted on by partisan coalitions, and representatives from the majority party are more likely to tweet about partisan legislation. Among legislative tweets where the bill mentioned received a roll call vote, 57.4% of the majority party's tweets and 42.9% of the minority party's tweets referenced partisan bills. In contrast, only 27.9% of all voted-on legislation has the support of only one party, and if we include voice votes this drops to 11.5% of legislation. The amplification of partisan legislation on Twitter supports $H_1$ which argues that partisan bills are more effective at defining the differences between the parties for voters, allowing members to campaign on these positions and reinforce the party brand. If members are more likely to tweet about partisan legislation in order to further their electoral goals, this misrepresents how partisan the House is when passing legislation.

Table 5.4: House Roll Call Coalitions of Congressional Legislation and Tweeted Legislation

| | Partisan | Split Party | Bipartisan | Unanimous | Total |
|---|---|---|---|---|---|
| All Legislation | 591 | 321 | 727 | 467 | 2,118 |
| | (27.9%) | (15.2%) | (34.3%) | (22.0%) | |
| Tweeted Legislation | 111,104 | 15,309 | 16,355 | 1,903 | 144,671 |
| | (76.8%) | (10.6%) | (11.3%) | (1.32%) | |

Note: *All Legislation* includes all bills where there was a recorded roll call vote by the House. *Tweeted Legislation* includes each tweet where the bill mentioned received a recorded roll call vote, and includes bills originating in previous congresses.

Finally, there are circumstances where a bill coalition unites one party while dividing the opposing party. Party splitting coalitions are those where one party votes together while the votes of the opposite party are divided between opposing and supporting the bill. Formally, these are roll call coalitions where at least 80% of one party voted together with between 20% and 80% of the other party. For example, when Democrats are unified and Republicans are split, on average 99% of Democrats vote together with 52.5% of Republicans; when Republicans are unified and Democrats are split, on average 99.5% of Republicans vote with 61.4% of Democrats. These coalitions are neither fully partisan nor fully bipartisan and manage to "split" the support of only one party. Split party coalitions are seen for 15.2% of the bills voted on by the House from 2009-2020. Recall that Cox and McCubbins (2005) argue that these party splitting coalitions are often designed by the majority party to give their party the opportunity to campaign on a successful bill while depriving the opposing party of the opportunity to campaign on the bill. The majority party, given their

control over the legislative agenda, is able to prevent votes that would split their party's support of the bill: when Democrats were in the majority at least 80% of Democrats voted together on over 98% of roll call votes, and when Republicans were in the majority at least 80% of Republicans voted together on 91.3% to 97.9% of roll call votes. Because these coalitions are particularly useful for the majority party brand, they should be more likely to appear on Twitter. However, it does not appear to be the case that representatives are amplifying bills with party splitting coalitions on Twitter. Of the tweets that referenced voted-on bills, only 10.6% mention a bill that splits one political party. The minority party actually tweets *more* about party splitting bills than the majority. Of tweeted legislation that received a roll call vote, 8.75% of the majority party's and 15.65% of the minority party's tweets reference bills voted on by split party coalitions.

Figure 5.6 shows the distribution of the types of roll call votes for all voted-on legislation and all tweeted voted-on legislation for each congress. We see that the legislation representatives tweeted was far more likely to be partisan than the actual legislation voted on by that congress. Across each of these six Congresses, representatives posted more tweets about legislation that could be used to define their party's brand, either through partisan or partisan splitting bills. However, lawmaking during this time can largely be characterized as a bipartisan effort. For instance, during the 111$^{\text{th}}$ Congress 79% of representatives' legislative tweets referenced partisan legislation, whereas only 9.6% of legislation was voted on by a partisan voting coalition.

If representatives are mostly tweeting about successful and partisan legislation, what specific legislation are they tweeting about the most? Representatives of the 111$^{\text{th}}$ Congress tweeted about the Affordable Care Act (H.R. 3590) more than any other bill – nearly 40% of legislative tweets during this Congress mentioned the ACA. The law was the primary achievement of the Obama Administration and was passed without a single yea vote from the Republican Party. Representatives continued to frequently tweet about the ACA, particularly Republicans, and from 2010-2017 over 30% of representatives' tweets mention the law. In fact, the Affordable Care Act was the most tweeted legislation from the 111$^{\text{th}}$ through the 115$^{\text{th}}$ Congress (2009-2018). We can assume that many of these tweets are referencing the various Republican attempts to repeal the ACA while they controlled the House from 2010-2017, including over 50 separate votes by the House to either amend or repeal the ACA.[20] If the tweet only mentions repealing Obamacare and not the title or bill number of the legislation designed to repeal the law, then these tweets are coded as mentioning the ACA and not the current bill to repeal it. Later in this chapter, we will classify tweets referencing the Affordable Care Act after the 111$^{\text{th}}$ Congress as the relevant legislation designed to repeal it. Both the ACA and all repeal efforts were highly partisan bills, with the only notable difference being that the ACA was signed into law, although many of the bills intended to repeal the ACA

[20] `https://time.com/4712725/ahca-house-repeal-votes-obamacare/`

Figure 5.6: Distribution of House Roll Call Coalitions of Congressional Legislation and Tweeted Legislation by Congress, 111$^{th}$ - 116$^{th}$ Congress

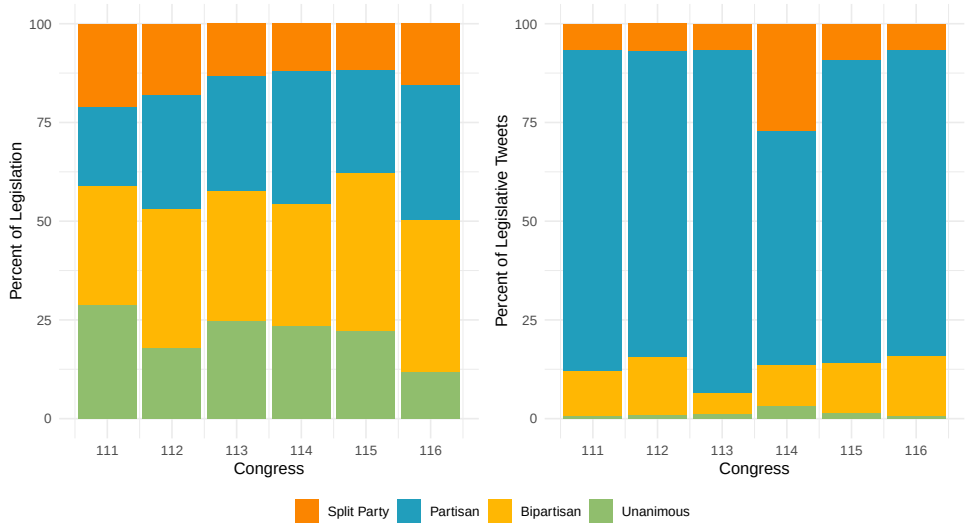



Figure 5.6: Displays the share of legislation (left) and tweeted legislation (right) that receives a recorded roll call vote that was voted on by either a unanimous, bipartisan, partisan, or split party coalition.

passed the House.

Other highly tweeted legislation includes, from the 112$^{th}$ Congress, the Jumpstart Our Business Startups Act (H.R. 3603), a bipartisan bill signed into law in early 2012, and the REINS Act (S. 299), a partisan bill that never passed the Senate. Tweets during the 113$^{th}$ Congress frequently mentioned the Violence Against Women Reauthorization Act (S. 47), No Taxpayer Funding for Abortion Act (H.R. 7), and Student Success Act (H.R. 5) – all of which passed the House with only one party voting in favor of the bill. While the overwhelming majority of legislative tweets reference partisan legislation, during the 114$^{th}$ Congress 30.6% of post-roll call legislative tweets mentioned bills voted on through a split party coalition. Most of these tweets are about the Every Student Succeeds Act (S. 1177), legislation that reformed federal education policy and replaced the No Child Left Behind Act. Under the coding scheme, this was considered a split party bill with 85% of Democrats and 73% of Republicans voting for the bill. Members of the 115$^{th}$ Congress continued to emphasize partisan legislation on Twitter, with the Tax Cut and Jobs Act (H.R. 1) appearing over 5,500 times. The American Health Care Act (H.R. 1628) and FISA Amendments Reauthorization Act (S. 139) were also partisan and highly tweeted legislation during this Congress. During 116$^{th}$ Congress, Twitter was dominated by legislation related to the COVID-19 Pandemic:

the bipartisan CARES Act (H.R. 748) and the failed Heroes Act (H.R. 6800) were the most tweeted bills during this Congress. The next three most tweeted bills were all Democratic Party priorities that failed to pass the Senate and received virtually no Republican Party support: For the People Act (H.R. 1), the Bipartisan Background Checks Act (H.R. 8), and the George Floyd Justice in Policing Act (H.R. 1720). High profile, partisan, and party priority bills dominate the conversation on Twitter during this time period.

In conclusion, what legislation members tweet about is not representative of the actual House legislative agenda. 72.7% of legislative tweets reference a bill that received a roll call vote, and 79.1% of these tweets reference legislation that passed the House. Bills with partisan voting coalitions are far more prevalent on Twitter than bills with bipartisan or unanimous coalitions, when actual lawmaking reflects the opposite. And a similar pattern is observed with cosponsorship. Bills that are cosponsored by more members of Congress and by members of one party are tweeted about more often. The evidence in this section suggests that representatives are not just using Twitter to tweet about salient and often important legislation, but are using Twitter to further party goals by tweeting bills that differentiate the party's policy positions. The following section employs a series of OLS regression to explore differences between how the majority and minority party uses Twitter for legislative messaging.

### 5.3 The Dynamics of Legislative Tweeting

In the previous section, we saw how tweeted legislation is not representative of the legislative agenda of Congress. If the amplification of partisan legislation on Twitter is in the pursuit of party goals and if lawmaking is constrained by majority status, then we should observe differences in legislative tweeting between the majority and minority party. Before we examine how the characteristics of legislation influence how often the majority and minority party tweet about it, we will first examine the extent members use Twitter to report on legislative actions versus influence the legislative process by tweeting about bills during the agenda setting phase. I hypothesized that the minority party should be more likely to tweet about legislation before it is formally voted on by the House in order to influence the legislative agenda ($H_3$). If the minority party wants to tweet about legislation their party supports and the majority party opposes, bills unlikely to receive a roll call, then any Twitter messaging for these bills will always be before a never-scheduled roll call vote. Moreover, if the minority party wants to influence the public's perception of the majority party's legislative agenda in order to hurt the bill's likelihood of passage, then they will want to do so before the bill passes the House. In contrast, we hypothesized that the majority party should post more legislative tweets in general and more tweets after the bill is voted on by the House ($H_4$). Because the majority party controls what legislation is voted out of committee, receives a floor vote, and passes the

House, the majority party has more opportunities to tweet about successful legislation that they voted to support.

As a result of their greater control over the legislative agenda and their governing responsibility, does the majority party post more legislative tweets than the minority party? I find support for $H_4$: overall, the majority party post nearly twice as many legislative tweets as the minority party. And this result generally holds across each congress. Figure 5.7 displays the total number of legislative tweets posted by the majority and minority parties in each congress from 2009-2020. In the $112^{\text{th}}$, $113^{\text{th}}$, $114^{\text{th}}$, and $116^{\text{th}}$ Congress the majority posted more legislative tweets than the minority. The differences are particularly stark in the $116^{\text{th}}$ Congress when Democrats were both the majority and had increased their tweeting activity in general, posting over 30,000 more legislative tweets than Republicans. The only exception is the $115^{\text{th}}$ Congress, where Democrats, in the minority, posted more legislative tweets than the Republicans. However, if we account for the total number of tweets sent by both parties, the majority party consistently tweets a larger percentage of legislative tweets. On average, 6.6% of the majority party's tweets are legislative tweets, while only 4.1% of the minority party's tweets are legislative tweets.

Figure 5.7: Number of Legislative Tweets by Majority Party Status, $111^{\text{th}}$ - $116^{\text{th}}$ Congress

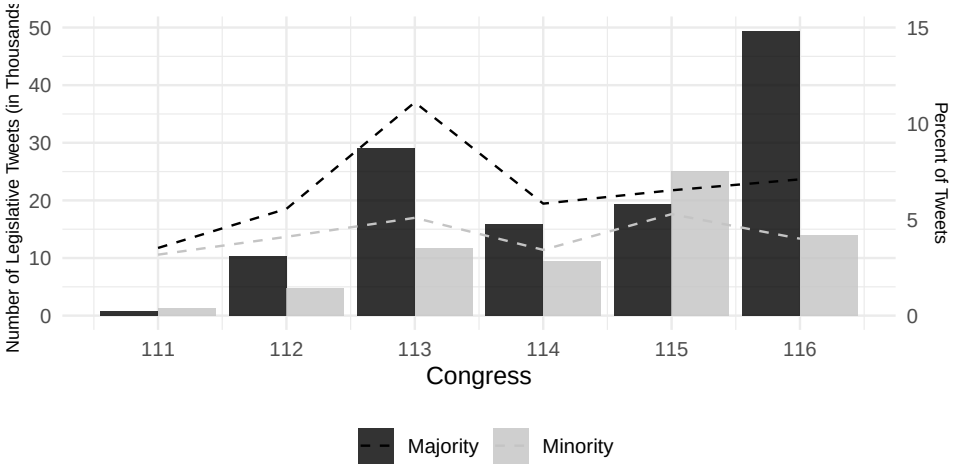



Figure 5.7: Displays the total number of legislative tweets posted by the majority party and minority party in each congress (bars correspond to the left axis), and the dotted line tracks legislative tweets as a percent of total tweets posted (lines correspond to the right axis).

Figure 5.8 shows the total number of legislative tweets sent by the majority and minority party and when, post- or pre-roll call vote, in the legislative process the tweets were sent. Here, we only

examine legislative tweets posted about bills introduced during that congress – therefore excluding instances where representatives are messaging about legislation their party supported or opposed in previous congresses. I find support for $H_3$ and $H_4$. The majority party not only post more legislative tweets in general, but over half of legislative tweets from the majority party are posted *after* the bill is voted on by the House. In nearly all these post-roll call legislative tweets the bill passed the House. The majority party is primarily using Twitter to claim credit for successful legislation, and 41.7% of majority party tweets posted after a roll call vote were also identified as credit claiming tweets. Interestingly, over 85% of the majority's post-roll call legislative tweets are done with positive sentiment – suggesting that members are mostly celebrating legislation they helped pass. And their pre-roll call legislative tweets are just as positive. When tweeting about the current legislative process, the majority party is primarily focused on promoting their own policy proposals, both before and after the bill passes the House, and generally avoids criticizing minority party supported policies.

Figure 5.8: Distribution of Timing of Legislative Tweets by Majority Party Status, 111$^{\text{th}}$ - 116$^{\text{th}}$ Congress

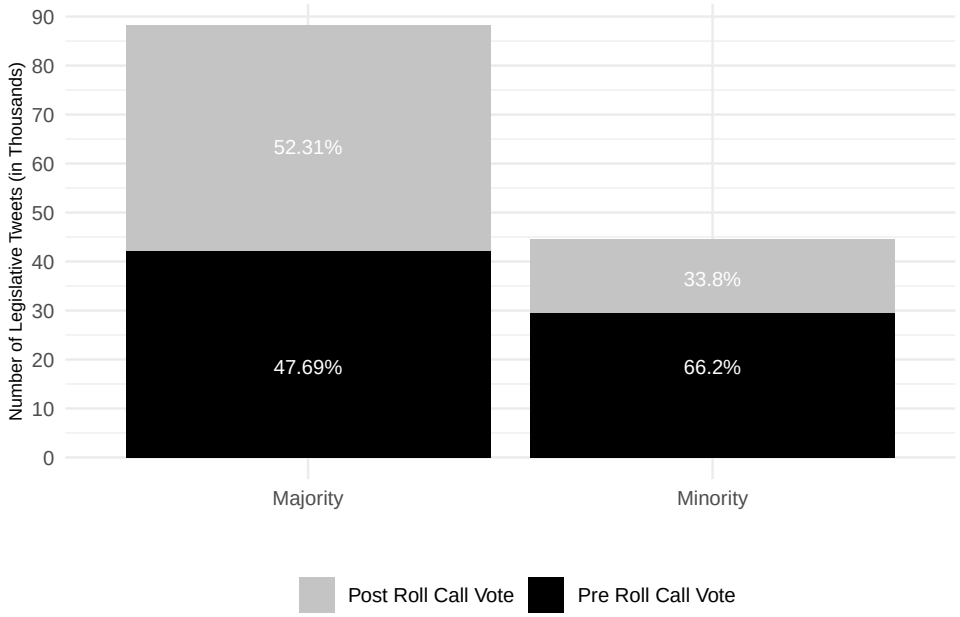



Figure 5.8: Displays the total number of legislative tweets posted before and after a bill receives a roll call vote, if at all, by majority party status. Figure excludes legislative tweets on bills from previous congresses.

The minority party, unable to advance their party's legislation to a floor vote, primarily tweets

about legislation before it is voted on by the House. 66.2% of the minority party's legislative tweets are posted prior to a roll call vote and 33.8% are posted after the roll call vote. This is consistent with strong majority party control over the legislative agenda in the House where the minority party relies on unconstrained messaging opportunities on Twitter for agenda setting. To further illustrate what legislation members of Congress chose to promote in their online messages and why, I apply a series of ordinary least-squares regression (OLS) models that examines the relationship between bill characteristics and legislative tweeting by the majority and minority party.[21] To avoid any post-treatment bias, legislative tweets posted before and, if applicable, after a roll call vote are analyzed separately. The first model examines the number of times a bill appears in the majority/minority party's tweets *before* it receives a roll call vote, if any. The second model examines the number of times a bill appears in the majority/minority party's tweets *after* if receives a roll call vote. The goal of this section is to assess how the partisan composition of legislative support and the success of the bill is correlated with how frequently members tweet about it. To tease out the differences between how majority and minority party members engage in legislative messaging on Twitter, we estimated each model separately for majority and minority party members.

### 5.3.1 Pre-Roll Call Legislative Tweeting

First, we will examine legislative tweets prior to receiving a roll call vote. Recall that the minority party is more likely to post legislative tweets during the agenda setting phase (i.e. before a bill is voted on by the House), but we are interested in if the minority party is tweeting negative or positive agenda setting messages. In other words, is the minority tweeting against the majority party's policies to hurt their chance of success, or tweeting in favor of bills their party supports? During the agenda setting phase does the majority party tweet about legislation supported only by their by party, or do they also tweet about bipartisan legislation that has a greater chance of success? Each bill, either originating in the House or arriving at the House after passing the Senate, is coded for how many times, if at all, it appears in a party's tweets prior to the bill receiving a roll call vote.

I then include a series of dependent variables intended to capture the party support of each bill considered by the House. In section 5.2 we saw that representatives tend to tweet more about high-profile and their party's priority legislation. To assess this claim, the model includes indicator variables for bills reserved for the Speaker of the House (*Speaker Bill*) and bills reserved for the minority leader (*Minority Leader Bill*).[22] The first 10 bill numbers are reserved for the Speaker

[21] Both models restrict legislative tweets to those referencing legislation submitted after the 111$^{th}$ Congress. 5,837 tweets were dropped.

[22] There are ten reserved bill numbers that are never introduced and are subsequently dropped from the data.

and the next 10 are reserved for the Minority Leader.[23]. These reserved bills tend to be used by party leaders for important party initiatives. For example, the For The People Act (H.R. 1, 116$^{\text{th}}$ Congress), Keystone XL Pipeline Act (H.R. 3, 114$^{\text{th}}$ Congress), Killing the Job-Killing Health Care Law Act (H.R. 2, 112$^{\text{th}}$ Congress), and Raise the Wage Act (H.R. 15, 115$^{\text{th}}$ Congress) were all submitted under these reserved bill numbers.

The second set of covariates captures the number and partisanship of a bill's cosponsors. *Cosponsors* is a continuous variable capturing the number of cosponsors, equaling 0 if the bill has no cosponsors. *Copartisan Sponsor* is an indicator variable capturing if the tweeter shares a party with the bill's sponsor. As discussed previously, bills with *Partisan Cosponsorship* are those where over 75% of cosponsors are of the same party. To assess if members are more or less likely to tweet about partisan cosponsored bills that are supported by their own party, I include an interaction of *Copartisan Sponsor* and *Partisan Cosponsorship*.

Finally, because the dependent variable is a count variable, I include several variables to account for variation in the propensity and opportunity to tweet. Starting in the 115$^{\text{th}}$ Congress, Democrats began posting more tweets than Republicans, so we include an indicator variable for the *Republican* party. In addition, because members have more opportunity to tweet about legislation that was introduced earlier in the congress, I control for the number of days remaining in the congress from the bill's introduction date. As with previous work throughout this dissertation, I include congress fixed effects. Formally, for $N$ bills indexed by $i = 1, ..., N$ and $T$ congresses indexed by $t = 1, ..., T$, I estimate the following regression model where $Y_{it}$ is the count of tweets posted about a bill by each party:

$$\begin{aligned} Y_{it} = \beta_0 + \beta_1 Speaker\ Bill_{it} + \beta_2 Majority\ Leader\ Bill_{it} + \beta_3 Cosponsors_{it} + \beta_4 Copartisan\ Sponsor_{it} + \\ \beta_5 Partisan\ Cosponsorship_{it} + \beta_6 Copartisan\ Sponsor_{it} * Partisan\ Cosponsorship_{it} + \\ \beta_7 Republican_{it} + \beta_8 Remaining\ Congress\ Days_{it} + \alpha_t \end{aligned} \tag{5.1}$$

Table 5.5 displays the results from regression model 5.1, estimated for both the majority and minority party. I expect that parties should be more likely to tweet about legislation that are a policy priority of the party: the policies the party want their members to run on in the following election and voters to associate with their party brand. The Speaker's bills, the bills that are high priorities of the majority party, are predicted to be tweeted by majority party members 144.98

[23]The practice of reserving bill numbers 11-20 for the minority leader started in the 112$^{\text{th}}$ Congress:`https://www.govinfo.gov/content/pkg/GPO-HPRACTICE-112/html/GPO-HPRACTICE-112.htm`

times more than all other bills. For example, Democrats in the majority used these first ten bills reserved to the speaker to introduce and pass the American Recovery and Reinvestment Act (H.R. 1, 111$^{th}$ Congress), For the People Act (H.R. 1, 116$^{th}$ Congress), and the American Dream and Promise Act (H.R. 6, 116$^{th}$ Congress). The Republican Party, while in the majority, has also used these reserved bills to advance their priorities including the Repealing the Job-Killing Health Care Law Act (H.R. 2 112$^{th}$ Congress), the Keystone XL Pipeline Act (H.R. 3 114$^{th}$ Congress), and the Financial CHOICE Act of 2017 (H.R. 10, 115$^{th}$ Congress). But these majority party priorities are not only tweeted by majority party members, the minority party is estimated to post 36.04 more tweets about the speaker's bills all else equal.

One possibility is that minority party members are tweeting in opposition to the majority party's bills in order to criticize the policy and distinguish their own party's policy agenda from the majority's. 36 of the 57 speaker's bills were cosponsored by over 75% of majority party members – and of the 43 bills that received a roll call vote 75% passed with partisan coalitions. And the minority party posted, on average, 35.69 more tweets about speaker's bills cosponsored only by the majority party than the Speaker's bills cosponsored by members of both parties. If we look at the average sentiment of tweets referencing the speaker's bills, 45.7% of the minority party's tweets and 82.37% of the majority party's tweets about these bills are done with positive sentiment. For example, in the 116$^{th}$ Congress Democrats sent nearly 1,500 tweets mobilizing against the Tax Cut and Jobs Act (H.R. 1), 40% of which were posted before the bill passed the House. While they tweet against the majority party's key legislative initiatives, they are equally likely to tweet about bills reserved for the minority leader. The minority party is estimated to post 37.31 more tweets about the minority leader's bills, all else equal. Minority party representatives are just as focused on their own policy ideas as they are tarnishing the majority party's policies.

The minority party uses Twitter to convince voters that the policy agenda of the majority party is not in their interest and that their party's legislative platform would be more beneficial if given majority status. They do this by messaging against the majority party's key legislative initiatives and tweeting in support of their party's policy priorities that are unlikely to receive a roll call vote.[24] The majority party, in contrast, has to demonstrate to voters that their party's legislation is in their interest and avoid tweeting about the minority leader's legislation. The bills reserved for party leaders are tweeted frequently from members of both parties because they exhibit the two qualities that together more or less ensures the bill becomes a salient component of politics: they are substantially important and almost always partisan. These results offer initial support for $H_1$, which argues that representatives are more likely to tweet about partisan bills that divides the two parties.

[24]None of the bills reserved for the Minority Leader were voted on during this time period.

Table 5.5: Correlates of Pre-Roll Call Legislative Tweets by Majority Status

| | *Dependent Variable:* | |
|---|---|---|
| | Tweets | |
| | Majority | Minority |
| | (1) | (2) |
| Speaker Bill | 144.976*** | 36.024*** |
| | (2.759) | (3.031) |
| Minority Leader Bill | 0.654 | 37.306*** |
| | (4.038) | (4.436) |
| Number of Cosponsors | 0.035*** | 0.032*** |
| | (0.003) | (0.003) |
| Copartisan Sponsor | 0.347 | −0.042 |
| | (0.272) | (0.299) |
| Partisan Cosponsor Coalition | −0.421 | −0.225 |
| | (0.278) | (0.256) |
| Copartisan Sponsor*Partisan Cosponsor Coalition | 0.832** | 0.658* |
| | (0.362) | (0.397) |
| Republican | 0.924*** | −1.100*** |
| | (0.308) | (0.338) |
| Remaining Congress Days | 0.0001 | 0.0002 |
| | (0.0004) | (0.0005) |
| Congress Fixed Effects | YES | YES |
| Constant | −0.994*** | 0.587* |
| | (0.355) | (0.346) |
| Observations | 44,076 | 44,080 |
| Adjusted $R^2$ | 0.067 | 0.009 |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 | |

Consistent with this view, representatives in both parties are more likely to tweet about legislation that is both sponsored by and cosponsored by members of their own party. Bills with partisan cosponsorship, providing members an opportunity to frame a bill as a party bill and clarify the differences between the parties, are more likely to be tweeted by all members of Congress. The Majority party post .83 more tweets and minority party post .66 more tweets about legislation that is sponsored and cosponsored by members of their own party. Because roughly a quarter of all legislation does not receive any cosponsors, coefficient sizes are small but nonetheless are in the expected direction if parties use partisan legislation to define their party brands ($H_1$). However, as shown in Table 5.5, results show that prior to roll call vote representatives largely refrain from criticizing partisan bills supported by the opposing party. This suggests that, outside of the key party legislative priorities, representatives are using Twitter during the agenda setting process to advocate for their party's bills.

Examining representatives' legislative tweets before a bill receives a roll call offers support for hypothesis $H_1$: both majority and minority party are more likely to tweet about partisan legislation, as indicated by the members who cosponsor it. In addition, if the majority party runs on legislative accomplishment, then we should observe the majority party largely tweeting about partisan legislation their party supports. I find support for this prospective during the agenda setting process. The majority party, all else equal, are more likely to tweet about partisan legislation cosponsored by their party and are not found to tweet more about partisan legislation cosponsored by the minority party. In contrast, the minority party, at least with respect to party leadership's bills, are just as likely to tweet about their party's bills as they are to tweet about the Speaker's bills. To further assess if the parties campaign on their party's accomplishments rather than just partisan conflict, I examine majority versus minority party legislative tweeting after a roll call vote.

### 5.3.2 Post-Roll Call Legislative Tweets

This section will present analysis of the legislation that the majority and minority parties tweet about after it is voted on by the house. As such, we restrict our attention to the 72,804 legislative tweets posted after a bill was first voted on by the House. The dependent variable is the number of tweets posted by the Democratic and Republican Party about each of the 5,148 bills that were voted on by the House, including voice votes, from 2009-2021. In section 5.2 we discussed how the Affordable Care Act was the most tweeted about legislation across the time period, accounting for about 30% of all legislative tweets from 2009-2020. However, the legislative battle over the ACA was not just about the original passage of the law, but about the myriad of legislative attempts to repeal the law. This poses a methodological challenge: because many of these tweets are about the Republican Party's legislation to repeal the ACA, if we count all ACA related tweets as tweets about the original ACA then we potentially misconstrue the nature of post-roll call legislative tweeting. For example, when Republicans are in the majority we will see them primarily tweeting about legislation not supported by their own party; and we will see Democrats, while in the minority, primarily tweeting about legislation supported and passed by their own party. Given that the majority party's agenda setting power, nearly all partisan roll call votes are those where the majority votes in favor of the bill. So counting all tweets mentioning the ACA as related to the original vote for the passage of the law, and not the legislation designed to repeal it, will substantially change the preceding results. One possibility is to restrict our focus only to legislative tweets about current legislation (i.e. bills submitted during the current congress), however, this would bias results and ignore one of the most consequential legislative battles that defined politics for much of this period.

With that concern in mind, we can reasonably assume that tweets posted after the $111^{\text{th}}$

Congress, when the ACA was passed, are actually referring to the Republicans' repeal efforts, I recoded the legislative tweets mentioning the ACA as mentioning the most consequential bill intended to repeal it.[25] Table 5.6 shows the most consequential repeal bills specific to the ACA during that Congress. Luckily, if representatives are tweeting about the ACA or a Republican bill to repeal it, all of these bills are partisan bills that passed the House, with the only key difference being that the ACA became law. For this reason, re-coding these tweets does not substantially change any previous results, nor does it affect the integrity of the results shown below. This approach only affect if the parties are tweeting partisan legislation they voted for or voted against, but not if they are voting for partisan legislation in general. Therefore, specific to this analysis, re-coding of the tweets created a more accurate and clear reflection of the legislative politics surrounding the ACA bill. Appendix 10.3 presents regression results for all post-roll call legislative tweets without re-coding ACA tweets and for only post-roll call legislative tweets on bills introduced during the current Congress, and results are not substantially different: in each model we see that both the majority and minority parties are significantly more likely to tweet about partisan and successful legislation.

Table 5.6: Re-coding Affordable Care Act Tweets

| Congress | Bill Name | Bill Number | Republicans Yea % | Democrats Yea % | Passed House |
|---|---|---|---|---|---|
| $111^{th}$ | Patient Protection and Affordable Care Act | H.R. 3590 | 0% | 85.56% | YES |
| $112^{th}$ | Repealing the Job-Killing Health Care Law Act | H.R. 2 | 100% | 1.5% | YES |
| $113^{th}$ | To Repeal the Patient Protection and Affordable Care Act and Health Care-Related Provisions in the Health Care and Education Reconciliation Act of 2010. | H.R. 45 | 100% | 1.01% | YES |
| $114^{th}$ | Restoring Americans' Healthcare Freedom Reconciliation Act of 2015 | H.R. 3762 | 98.77% | .5% | YES |
| $115^{th}$ | American Health Care Act of 2017 | H.R. 1628 | 91.56% | 0% | YES |

With the dependent variable established, I include a series of independent variables to capture the partisan support and success of each bill voted on by the House. To capture legislation that is a policy priority of the majority party, I again include an indicator variable for bills reserved for the Speaker of the House (*Speaker Bill*). Since none of the minority leader's bills received a roll call vote, *Minority Leader Bill* is excluded from the model. Next, I include variables that capture the resulting roll call coalition of each bill. Recall that partisan roll call votes are where 80% of one party votes for a bill and at least 80% of the other party votes against a bill. To assess if members are tweeting in support or in opposition of partisan bills, I further identified partisan coalitions if

[25]There was no major Republican repeal effort in the $116^{th}$ Congress, so these ACA tweets are coded as referring to the original law.

over 80% of the tweeting party voted for the bill (*Partisan Support*), or if over 80% of the tweeting party voted against the bill (*Partisan Oppose*). Because the majority party by definition has a greater number of votes and controls what legislation gets a floor vote, 98.6% of partisan roll call votes see the majority party voting together in support of the bill and the minority party voting together against the bill. However, since the minority party is still able to tweet messages about partisan legislation their party passed in previous congresses when they were the majority party, including both of these variables is important for assessing how members of Congress tweet about legislation. Recall from section 5.2.1 that split party roll call votes are those where at least 80% of one party's members voted in favor of a bill and the other party's members were "split" such that between 20% to 80% of the opposing party voted for the bill. According to Cox and McCubbins (2005), the majority party should campaign on legislation that divides the support of the opposite party. To test this hypothesis, I include an indicator variable for when the roll call vote splits the opposite party's votes (*Split Opposing Party*). And because the party should be unable to campaign on legislation where their party is split or "rolled", the model includes an indicator variable for when the roll call vote splits their party's votes (*Split Party*). Finally, I include an indicator variable for when the resulting roll call vote was a *Bipartisan* coalition, when over 80% of both parties voted together on the bill.[26]

Because the majority party rarely allows a floor vote that won't succeed, 97.5% of all bills that receive a roll call vote pass the House. But of course, less than half of the passed bills go on to become law. I distinguish between legislation that becomes public law and legislation that only passes the House. To test if the parties are more likely to post legislative tweets that actually becomes law, I include an indicator variable if the bill becomes law (*Became Law*). To see if representatives also tweet about legislation that passes the House, but does not pass the Senate or become law, I include an indicator variable for *Only Passed House*. In part, the goal here is to see if representatives, particularly the majority party, define legislative success within their own chamber or if they only find it valuable to tweet about legislation that becomes law.

Finally, as with model 5.1, I include several variables to account for the variation in representatives' propensity and opportunity to post legislative tweets. This includes an indicator variable for the *Republican* party. In addition, because members have more opportunity to tweet about legislation that was voted on earlier in the congress, I control for the number of days remaining in each congress after the bill's first roll call date (*Days After RC*). To account for the general increase in tweeting over time, all models include congress fixed effects. Formally, for $N$ bills indexed by $i = 1, ..., N$ and $T$ congresses indexed by $t = 1, ..., T$, I estimate the following regression model where $Y_{it}$ is the count of tweets posted after the bill was voted on by each party:

[26]The reference category in this case is bills passed through voice votes.

$$Y_{it} = \beta_0 + \beta_1 Speaker\ Bill_{it} + \beta_2 Partisan\ Support_{it} + \beta_3 Partisan\ Oppose_{it} + \beta_4 Split\ Opposing\ Party_{it} + \beta_5 Split\ Party_{it} + \beta_6 Bipartisan_{it} + \beta_7 Only\ Passed\ House_{it} + \beta_8 Law_{it} + \beta_9 Republican_{it} + \beta_{10} Days\ After\ RC_{it} + \alpha_t \tag{5.2}$$

Table 5.7 displays the results from Model 5.2 estimated separately for the majority and minority parties. Consistent with regression results in Table 5.5, bills reserved for the Speaker, which typically comprise the majority party's key legislative goals for that Congress, are more likely to be tweeted by both the majority and minority party after they are voted on by the House. The majority party is estimated to post 272 more tweets for the Speaker's bills after they are voted on by the House. 43 of 61 Speaker bills are voted on and passed by the House, and 32 passed the House without minority party support. These bills are often the majority party's policy priorities, and as a result are often substantially important and typically partisan legislation. These are the policies the majority party wants voters to associate with their party brand, and they use Twitter to promote these bills and demonstrate their policy priorities to voters. The minority party is estimated to post 48.02 more tweets about the Speaker's bills, all else equal. The minority party, as the opposition party, turns to Twitter to run against the majority party's key legislative accomplishments and defines their own party in opposition to these policies.

Theories of majority party politics suggest that the majority party will campaign on partisan legislation that divides the two parties *and* that their party can claim credit for (Cox and McCubbins 2005), while the minority party will campaign on any partisan legislation that divides the two parties, including legislation their party votes against (Lee 2009). Figure 5.9 displays the distribution of majority and minority party post roll call legislative tweets by the degree their party voted in favor of the bill. We see that between 70.0% and 93.9% of the majority party's post-roll call legislative tweets reference legislation that over 80% of their party supported.[27] In addition, the majority almost never tweets partisan legislation that their party was unified in opposing, posting as few as 0 and as many as 24 total tweets. Regression results from Table 5.7 indicate that the majority party post 39.4 more tweets about partisan bills their party voted in favor of, and we find no statistically significant relationship for partisan bills that their party voted against.

And we find similar results for the minority party. The minority party also emphasizes partisan legislation, but because they are unable to advance legislation their party supports, they are more likely to tweet bills that their party collectively opposed. In four of the six congresses, over 75% of

[27]This includes both partisan roll call votes and party splitting votes where the other party's votes are divided.

Figure 5.9: Distribution of Party Support of Post Roll Call Legislative Tweets by Majority Party Status, $111^{th}$ - $116^{th}$ Congress


Figure 5.9: Affordable Care Act tweets were recoded according to Table 5.6. Bipartisan bills: $\geq$ 80% of both parties voted yea/nay. Party unified support bills: $\geq$ 80% of party voted yea. Party unified oppose bills: $\geq$ 80% of party voted nay. Party divided bills: $<$ 80% and $>$ 20% of party voted yea.

the minority party's post-roll call legislative tweets mentioned legislation where over 80% of their party voted against the bill. The minority party is estimated to post 8.4 more tweets about partisan bills where their party voted against the majority party. Only in the $114^{th}$ did the minority party, the Democratic Party, frequently tweet about legislation their party voted in favor of. The minority party in an effort to regain majority control is more likely to tweet about bills their party voted against, rather than highlight legislation their party helped pass. We see that both the majority and minority party heavily emphasize partisan legislation on Twitter, offering strong support for $H_1$. Differences between the parties emerge with respect to their party's ability to collectively pass legislation their party supports – when they have the votes to do so they tweet bills they voted for, and when they don't they largely tweet bills they voted against.

Cox and McCubbins (2005) argue that party splitting bills should only divide the *minority* party, and these bills should be particularly useful for majority party members to campaign on because it deprives the minority party from holding a single position on the bill. However, we find little support for this prospective in Table 10.5. While legislation that divides the minority party is estimated to be tweeted 15.37 more times by the majority party, the minority party is estimated to post 44.72 more tweets about legislation that divides the majority party. In fact, both parties

Table 5.7: Correlates of Post-Roll Call Legislative tweets by Majority Status

| | *Dependent Variable:* | |
|---|---|---|
| | Tweets | |
| | Majority | Minority |
| | (1) | (2) |
| Speaker Bill | 272.090*** | 48.024*** |
| | (18.206) | (5.991) |
| Partisan Support | 39.398*** | 7.682 |
| | (5.653) | (13.031) |
| Partisan Oppose | 26.339 | 8.402*** |
| | (39.603) | (1.862) |
| Split Opposing Party | 15.367** | 44.723*** |
| | (7.404) | (5.094) |
| Split Party | 31.034** | 6.698*** |
| | (15.479) | (2.440) |
| Bipartisan | 8.961** | 2.947** |
| | (4.094) | (1.347) |
| Only Passed House | 25.298* | 7.714* |
| | (14.044) | (4.621) |
| Law | 30.896** | 11.843** |
| | (14.247) | (4.689) |
| Republican | 6.626 | −2.526 |
| | (5.392) | (1.775) |
| Days After RC | −0.001 | 0.004 |
| | (0.008) | (0.003) |
| Congress Fixed Effects | YES | YES |
| Constant | −34.852** | −9.553** |
| | (14.733) | (4.829) |
| Observations | 4,925 | 4,923 |
| Adjusted $R^2$ | 0.066 | 0.037 |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 | |

are also predicted to tweet *more* about bills their party's votes were split on. The majority party is estimated to post 31.03 more tweets on bills where their party's votes were rolled – more tweets than they are estimated to post for bills that divided the minority party. Similarly, the minority party post 7 more tweets about bills that divided their party's votes. Why would the legislators tweet about legislation that divides their own party and how does the minority party find opportunity to tweet about legislation that divides the majority party?

Of the legislation voted on by the House, 15.2% are split party coalitions where one party votes together with a substantial number but less than 80% of votes from the opposing party. Consistent with Cox and McCubbins's (2005) theory, the majority party is more successful at splitting minority party votes. Democrats, while in the majority, split Republican votes on 7% of roll call votes and their party's votes were split only five times in four years; Republicans, while in the majority, split Democrats support on 5% of roll call, but their party's votes were split comparatively more often on 2% of roll call votes (between 5 and 17 votes). The Democratic Party, while in the minority, from the 112$^{\text{th}}$ through the 115$^{\text{th}}$ Congress (2011-2018) was able to pass legislation they supported with a near majority of the Republican Party, while the far-right wing of the Republican Party voted against the bill. For example, Democrats tweeted over 1,200 times and Republicans tweeted over 800 times about the Every Student Succeeds Act (S. 1177) during the 114$^{\text{th}}$ Congress. In Figure 5.9 we see the largest share of majority party tweets referencing bills where their party was divided and the largest share of minority party tweets referencing bills where their party was unified. We see all 181 Democrats and 178 Republicans voted for the bill, while 64 of the most ideologically

extreme Republicans voted against it.[28] The ideological extreme and uncompromising nature of Tea Party Republicans gave a more politically unified Democratic Party an opportunity to work with the remaining members of the Republican Party to vote on legislation together, giving Democrats the opportunity to campaign on these bills. And if we run model 5.2 separately by party, the positive and significant effect for *Split Opposing Party* is only found among Democrats, and not Republicans, while in the minority.[29] Despite the majority party's ability to largely prevent party splitting votes, we do not find strong evidence that the majority party is more likely to campaign on legislation that divides the minority party.

In contrast to the legislation that appears on Twitter, nearly 90% of bills that pass the House are passed with broad support from both parties. While we expect that legislation that divides the two parties should be more useful for building the party brand and clarifying what the party stands for, there might also be incentives to campaign on bipartisan legislation. Voters often report in surveys that they prefer their representatives and Congress to be more bipartisan. For example, in an April 2021 CNN poll, 87% of respondents said they see attempts at bipartisanship in Congress as a "good thing".[30] In addition, the party brand includes a valance component supported by demonstrating effective governance and compromise. Since bipartisan legislation is easier to pass both the House and Senate, where super-majorities are required to pass legislation, then the majority might want to highlight successful bipartisan legislation to show voters they are an effective majority party and are able to work across the aisle. Similarly, bipartisan legislation provides the only opportunity for the minority party to claim credit for bills they helped pass. There is some support for this: on average, 19.3% of the majority party's tweets and 16.2% of the minority party's tweets reference legislation that is passed through bipartisan coalitions. Regression results indicate that bills voted on by bipartisan coalitions are estimated to be tweeted 9 more times by the majority party and 2.9 more times by the minority party compared to legislation passed through a voice vote. But representatives have far more opportunity to tweet about bills passed via bipartisan coalitions, and the coefficient for partisan legislation is 4-times larger than the coefficient for bipartisan legislation.

Previous work on how voters perceive positive bipartisan messages from candidates found that because of the larger partisan political environment, voters tend to view these messages as insincere (Sweetser and Tedesco 2014). In addition, promoting bipartisanship might only be an effective campaign message for some voters. Voters with strong party attachments are less supportive of bipartisan behavior from their elected officials, while weak partisan and independent voters are more supportive (Harbridge and Malhotra 2011). Work by (Harbridge, Malhotra and Harrison 2014)

[28] 3 Republicans and 7 Democrats abstained from voting: `https://voteview.com/rollcall/RH1140662`

[29] see Table 10.10 in Appendix 10.3.

[30] CNN. CNN Poll, Question 5. 31118385.00033. SSRS. Cornell University, Ithaca, NY: Roper Center for Public Opinion Research, 2021.

found that even when voters report preferring bipartisan legislation, it does not outweigh their partisan preferences when evaluating legislation. Both parties find it in their electoral interest to tweet partisan legislation – even when their party opposes it – than highlight the overwhelming majority of legislation that is supported by both parties. Of course, while there are more successful bipartisan bills, parties can still demonstrate their success at legislating through successful partisan bills.

I expect that parties should tweet more about successful legislation, either the bills that pass the House or are enacted into law ($H_2$). In the House of Representatives, the majority party has greater control over what bills receive a floor vote and pass the House, giving them greater opportunity to tweet about successful legislation. In addition, the majority party is evaluated by voters based on their ability to successfully use majority power to effectively govern. So we should expect that the majority party should be more likely to tweet about legislation that passes the House and legislation that becomes law. Figure 5.10 shows that of the majority party's post roll call legislative tweets, 67.54% referenced legislation that only passed the House and 28.93% referenced legislation that successfully became law. This distribution is similar to what we see in the House regarding legislation moving through the Senate and being signed by the president; of all the bills passed by the House, including Senate bills, 41.2% are signed into law and 58.76% are not.[31] And we find additional evidence in support of this hypothesis in the multivariate setting, the majority party is estimated to post 25.3 more tweets about bills that only pass the House and 31 more tweets about bills that become law all else equal. While they are estimated to post slightly more tweets about bills that become law than they are to tweet about bills that only pass the House, the relatively equal sizes of these coefficients suggest that the majority party is able to frame any bill that passes the House as a majority party success regardless of if it becomes public law.

Like the majority party, the minority party is estimated to post 7.71 more tweets about bills that only pass the House and post 11.84 more tweets about bills that are enacted into law. Given that the minority party post fewer legislative tweets than the majority party, this effect size is substantial. As we see in Figure 5.10, a larger share (34.62%) of minority party's post roll call tweets reference legislation that becomes law compared to the majority party (28.93%). Is the minority party promoting legislation they helped pass, or running against the majority party's bills? Recall, the minority party posts 8.4 more tweets about bills passed through partisan coalitions they oppose, and on average 67.02% of the minority party's post-roll call tweets reference legislation their party opposed. While many of the post roll call legislative tweets are designed to criticize the majority party's policies, on average 27.31% of their tweets are on legislation they voted for. The minority party, in short, does both. In order to win majority status as well as their own reelection, they

[31] Nearly all of these passed House bills that fail to become law die in the Senate, except for the 19 vetoed bills.

Figure 5.10: Distribution of Bill Success of Post Roll Call Legislative Tweets by Majority Party Status, $111^{th}$ - $116^{th}$ Congress

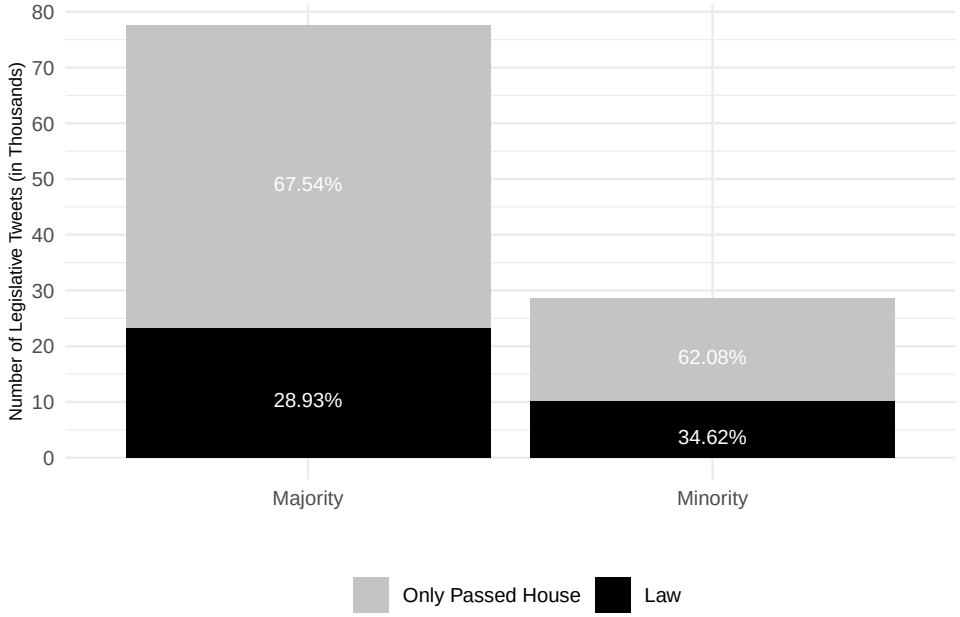



Figure 5.10: The ten tweets (nine from the majority party, and one from the minority) about bills that failed to pass the House are excluded from the graph.

have to simultaneously highlight the bills they helped pass as well as criticize the policies passed by the current majority party.

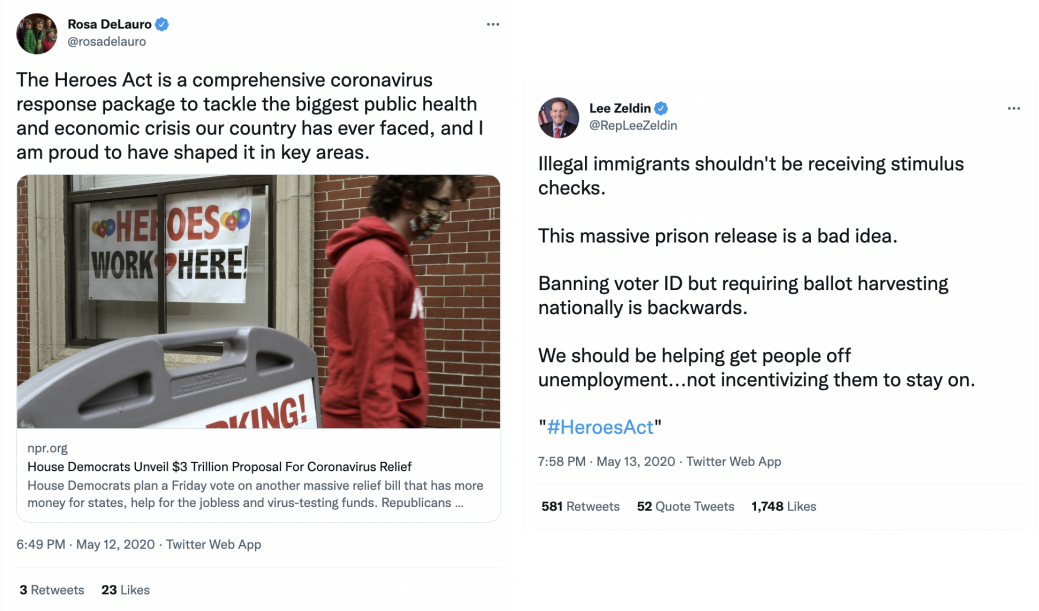
The majority of post-roll call legislative tweets are about bills that only passed the House, and after controlling for other factors the coefficient for *Only Passed House* is similar in effect size as the coefficient for *Law*, especially for the majority party. Generally, we think of successful policies as those that become law and actually go into effect, but these results indicate that members of Congress find it just as electorally useful if not more to campaign on bills they pass but fail to become law. The need to establish the party's brand is partly constrained by the need of the party to demonstrate their success and ability to work together through bipartisan legislation. However, if the majority party finds it just as useful to message on legislation that only passes the House – which can be achieved through partisan roll call votes – as policy success, then this valance component can still be achieved through partisan legislation.

In Figure 5.11 we can see how representatives of both parties can run on partisan legislation, both when they support or oppose the bill, even when it is ultimately unsuccessful via Twitter. Majority party Democrats passed the Heroes Act (H.R. 6800) in May 2020 with only one vote from the Republican Party, and the partisan bill, unable to receive sufficient support to overcome a filibuster, died in the Republican controlled Senate.[32] This did not stop Democrats from running on the bill despite their failure to enact the bill into law. On the left in Figure 5.11, Representative Rosa DeLauro (D-CT), who sponsored the bill, tweeted a message claiming credit for the Heroes Act. The majority party can tweet about partisan legislation that only passes the House to claim credit for the unrealized policy benefits and differentiate their party from the opposition. One might argue that in a constitutional system of separated lawmaking authority, tweeting about recently passed bills can influence the bill's success as it moves to the Senate and White House. In a follow-up tweet, Rep. DeLauro continued "I support this legislation, I look forward to passing it quickly, and I urge my colleagues in the Senate and the White House to act with urgency to protect the health and economic security of all Americans."[33] Despite these messages, Democrats knew when they passed the bill without Republican support that it would fail in the Senate. Senate and House Republicans share a party brand, so once the bill divided the two parties, Senate Republicans were not going to allow the bill to pass their chamber without the full party support from both chambers. Republicans used this opportunity to campaign against the bill. For example, Representative Lee Zeldin (R-NY) offers a range of critiques on various provisions of the Heroes Act. For the minority, any partisan bill that passes the House provides an opportunity to run against it.

The larger implication of these findings is that the congressional agenda presented to the public is far more partisan than Congress actually is. There are strong electoral incentives to highlight where your party stands and why your party should be given majority status instead of the opposing party, and this is done through partisan legislation. The majority party, rather than focus on bills that divide the minority party, focuses on the partisan bills passed by their own party. The minority party, without procedural control to pass their preferred policies, turn to Twitter to run against majority party bills. Despite the fact that nearly 90% of bills pass the house through bipartisan coalitions or voice votes, these policy successes are not useful at defining the parties' brand and campaigning for majority status. While there are incentives to promote successful legislation to enhance the valance component of the party brand, parties support both the position and valance component of their brands by tweeting about partisan legislation that only passes the House. Even though parties do tweet more legislation that is enacted into law, the ability of the majority party to frame passed partisan bills as successful outweighs the incentive to compromise with a minority party. Why compromise when legislation that is passed by the majority is what works when

[32] https://www.congress.gov/bill/116th-congress/house-bill/6800
[33] https://twitter.com/rosadelauro/status/1260356576336130053

Figure 5.11: Examples of the Heroes Act in Representatives' Tweets




campaigning? In short, parties highlight the bills where they differ, making the lawmaking process appear far more partisan and gridlocked than it really it is.

### 5.3.3 Presentations of Self and Legislative Tweeting

In this chapter, we have established that majority status is related to what representatives tweet about. Political parties have incentives within the legislature to structure political conflict that divides the two parties. As a result of these incentives, both majority and minority party members are more likely to tweet legislation cosponsored and voted on by partisan coalitions, presenting the legislative process and achievements as far more partisan and contentious than it is in practice. In the previous two chapters, we defined four types of presentations of self that members of Congress can adopt on Twitter and the types of messages members tweet. In this section, we will examine how members' online presentations of self intersects with their electoral incentives to generate partisan conflict. While these results are largely descriptive, they serve to further characterize the tweeting behavior of each presentation style, as well as demonstrate how party loyalists further exacerbate the level of partisan conflict on Twitter. I will briefly describe the average legislative tweeting behavior of the members of Congress belonging to each presentation of self, starting with party loyalist.

Figure 5.12: Distribution of Roll Call Coalitions of Post Roll Call Legislative Tweets by Presentation of Self and Majority Status, 111$^{th}$ - 116$^{th}$ Congress

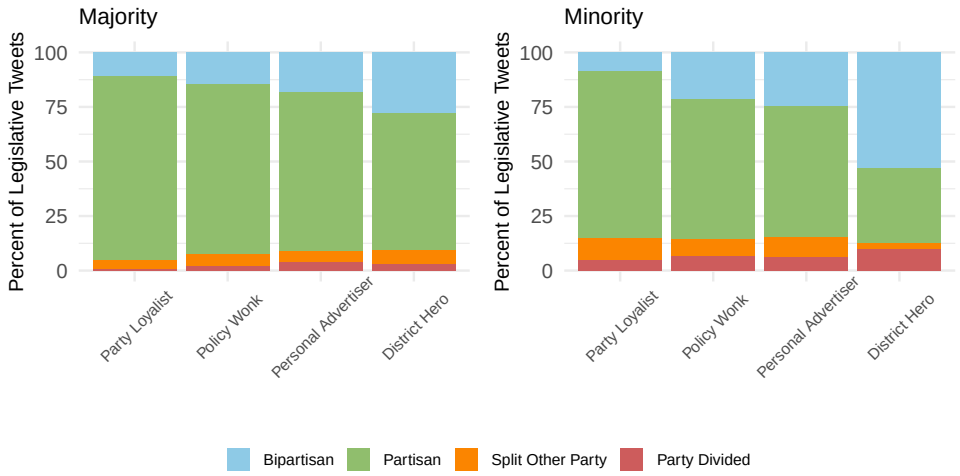



Figure 5.12: Affordable Care Act tweets were recoded according to Table 5.6. Bipartisan coalitions: $\geq$ 80% of both parties voted yea/nay. Partisan coalitions: $\geq$ 80% of party voted yea and other party voted nay. Split other party coalitions: $\geq$ 80% of party voted together and $\geq$ 20% and $\leq$ 80% of other party voted together. Split other party coalitions: $\geq$ 20% and $\leq$ 80% of party voted together and $\geq$ 80% of other party voted together.

Recall in chapter 4 that party loyalist are distinguished by the centrality of partisan and position-taking messages in their online messaging. Party loyalist post a greater share of legislative tweets about bills passed through partisan coalitions than any other presentation. Figure 5.12 displays the share of each presentation's post-roll call legislative tweets by their roll call coalitions when they are in the majority and minority party. On average, 78.91% of party loyalist's post-roll call legislative tweets reference legislation voted on by a partisan coalition, and a Tukey HSD test confirms that party loyalist post a statistically significant larger share of legislative tweets referencing partisan legislation compared to the other three presentations.[34] In addition, party loyalist are also the only presentation that post *fewer* bipartisan bills when they are in the minority party. 8.59% of minority-party party loyalist and 10.67% of majority-party party loyalist's post-roll call legislative tweets reference bipartisan legislation.

Not only do party loyalist tweet the most about partisan legislation, they are also most likely to use partisan messages while tweeting legislation, on average 43.86% of their legislation tweets use partisan language. This is consistent with what we know about members with this presentation style: Their online presentations are built around their role as a partisan representative and are

[34]See Table 10.11 in Appendix 10.3.

more likely to be ideologically extreme and post more partisan tweets than other members. Not only are they tweeting about partisan bills, but they are explicitly framing them as partisan battles, clearly defining both what their party stands for and reemphasizing their partisan attachment in the minds of voters. Party loyalist, by tweeting both the largest share and total number of partisan legislative tweets, demonstrate their loyalty to their party.

Figure 5.13 displays two legislative tweets from party loyalists, Speaker Nancy Pelosi (D-CA) and Representative Chip Roy (R-TX). In both tweets, these party loyalists are framing their messages in a partisan and position-taking manner, making clear where their political party stands against the opposing party. While all members of Congress, regardless of presentation or majority status, emphasize partisan legislation on Twitter, party loyalists are the most likely to do so. In addition, party loyalists are more likely to tweet in general, have more Twitter followers, and frame these messages with partisan language. This serves to further polarizes the messages voters see on Twitter. Voters that utilize Twitter to follow politics are more likely to follow and see tweets from party loyalists, who in turn are most likely to tweet partisan bills and further emphasize party conflict.

Figure 5.13: Examples of Party Loyalists' Legislative Tweets


Because policy wonks are defined by their focus on policy and national politics, I initially expected these members to post more legislative tweet than other presentations. But their legislative tweets as a percent of total tweets is not statistically different from party loyalists or district heroes, as seen in Figure 5.16. Policy wonks, like party loyalists, are distinct from district heroes in their emphasis on partisan legislation. For example, 65.05% of policy wonk's post-roll call legislative tweets reference partisan bills, compared to only 50.85% of district heroes'. In many ways policy wonks' legislative tweeting looks similar to party loyalists. They post legislative tweets at statistically indistinguishable rates, post similar proportions of partisan legislation, and post similar

proportions of legislation that becomes law. But when policy wonks and party loyalist are in the minority party, they take a different approach with legislative tweeting.

Policy wonks tweet about partisan legislation at a slightly lower rate than party loyalists. We see in Figure 5.12 that 78.06% of majority party policy wonks and 84.89% of majority-party party loyalist's legislative tweets reference partisan bills – 6.83 percentage points lower than party loyalist. However, in the minority party, 76.5% of party loyalist's and 64.3% of policy wonks' legislative tweets reference partisan legislation – a 12.2 percentage point difference. While party loyalist reduce their rate of tweeting bipartisan legislation when they are in the minority party, we see an increase from policy wonks. 21.28% of policy wonk's post-roll call legislative tweets reference bipartisan legislation when they are in the minority party, compared to 14.6% when they are in the majority. Moreover, minority party policy wonks post a higher percentage of legislative tweets about bills that become law. The average policy wonk post 6.39 percentage points more tweets about laws than the average party loyalists when they are in the minority party.[35] Both policy wonks and party loyalist are alike in their focus on national and partisan politics, but policy wonks seek to present themselves as policy focused and successful legislators. Majority status in the House enables members and their party to control the legislative agenda and pass more legislation their party supports. As such, policy wonks take full advantage of majority status, posting more legislative tweets about partisan legislation. In addition, when they are in the minority, they more often tweet bipartisan legislation to present themselves as policy-oriented and highlight the relatively low number of bills that become laws.

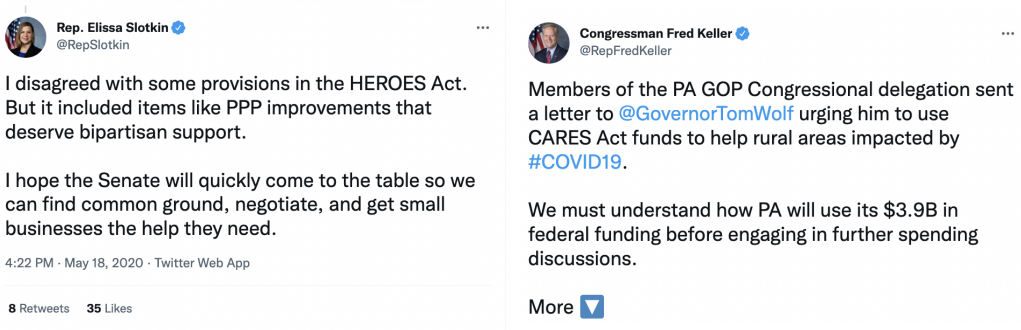
Furthermore, policy wonks, regardless of majority status, post more tweets about partisan legislation they voted in favor of compared to party loyalists. While in contrast, party loyalists post more tweets about partisan legislation they voted against.[36] The average policy wonk references partisan legislation they supported in 39.67% and partisan legislation they opposed is 25.38% of their post-roll call legislation tweets. In contrast, The average party loyalist references partisan legislation they supported in 30.98% and partisan legislation they opposed is 40.54% of their post-roll call legislation tweets. Both policy wonks and party loyalist tweet more partisan legislation than district heroes and personal advertisers. But, policy wonks are unique from party loyalist by their greater emphasis on legislation they support and legislation that becomes law. Consistent with the image we built of the policy wonk in the previous chapter, members with this presentation are more focused on legislative success, policy outcomes, and national politics than other presentations and their presentations are reflected in how they present legislation to their constituents.

[35] Results from both a t-test and Tukey HSD test on the difference in mean value between these two presentations returns P-values $> .05$.

[36] Results from both a t-test and Tukey HSD test on the difference in mean value between these two presentations returns P-values $> .05$.

Figure 5.14 displays two legislative tweets from policy wonks, one from the majority party, Representative Elissa Slotkin (D-MI), and one from the minority party, Representative Fred Keller (R-VA). Rep. Slotkin tweets about the recently passed Heroes Act and notes both her opposition to some provisions and her belief that the bill will help Americans during the COVID-19 pandemic. Both her tweet and Speaker Pelosi's in Figure 5.13 celebrate the passage of the bill and urge the Senate to support its further progress, but they do so in starkly different ways. The Heroes Act passed with only one Republican vote, and while Speaker Pelosi's tweet makes clear the partisan conflict over the legislation, Rep. Slotkin's calls for "common ground" and "bipartisan support." Comparing these tweets regarding the same bill from representatives within the same party demonstrates how each of them strategically crafts messages to serve both the party's goals, but also their desired presentation of self. Rep. Fred Keller's legislative tweet also discusses a COVID-19 related bill, the bipartisan CARES Act.[37] Keller is claiming credit for the 3.9$ billion dollars in federal funding secured for his state and demonstrating his commitment to ensuring the proper implementation of the legislation. In short, both Reps. Slotkin and Keller's tweets are what we would expect from policy wonks.

Figure 5.14: Examples of Policy Wonks' Legislative Tweets

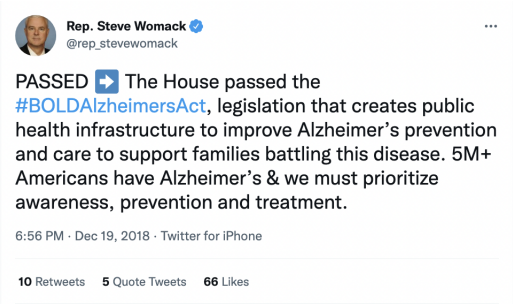



Moderate and electorally vulnerable members of Congress are most likely to adopt the district hero digital presentation of self, largely as a strategy to avoid controversial and partisan politics. Consistent with this electoral strategy, they also are the most likely to tweet bipartisan legislation, particularly when they are in the minority. On average, 33.80% of minority party district heroes and 19.24% of majority party district heroes' post-roll call legislative tweets reference bipartisan legislation. Looking at Figure 5.12, over 80% of minority-party party loyalist's tweets reference partisan legislation, while less than 50% of minority party district hero's tweets do the same. Sim-

[37] A picture of the referenced letter was excluded from the tweet to reduce the size of the image. The full tweet can be found here:`https://twitter.com/RepFredKeller/status/1253690860836970497`

ilarly, district heroes are statistically distinguishable from each presentation by their smaller share of tweets about partisan legislation.[38] Consistent with their overall tweeting behavior, they are less likely to tweet partisan bills, just as they are less likely to use partisan rhetoric. Although while in the majority they still have party and electoral pressure to promote party priorities, they do so to a lesser extent than any other presentation and take the opportunity while in the minority party to highlight their bipartisan efforts in Congress.

Figure 5.15: Example of a District Hero's Legislative Tweet




In addition to their avoidance of partisan and national politics, district heroes are also more likely to engage in credit-claiming than other presentations. They build their presentations around the policy benefits and service to the district, and post a greater share of tweets about legislation they sponsored and legislation that became law.[39] The average district hero referenced public laws in 48.5% of their post-roll call legislative tweets, more so than any other presentation. Knowing that each bill is sponsored by only one representative, we see a relatively small share of tweets that are actually posted by the author of the bill. But district heroes do this more than other presentations, the average district hero tweets a bill they sponsored in 3.41% of their legislative tweets compared to 2.47% of policy wonks' and 1.68% of party loyalists' legislative tweets. Figure 5.15 shows a typical tweet from district hero representative Steve Womack (R-AR), one of the more moderate members of the Republican Party, claiming credit for S. 2076. The bill passed the House with bipartisan support, 361 representatives voting in favor and only 3 representatives voting against it, before being signed into law by President Trump.[40] Of course, the moderating effect district heroes might have on the legislative agenda presented on Twitter is limited. In general, district heroes post fewer tweets and fewer legislative tweets than party loyalist and policy wonks. For example, the average party loyalist post 132, the average policy wonk post 84, and the average district hero post 63 legislative tweets per congress. So while these three presentations on average

[38] See Table 10.11 in Appendix 10.3.

[39] Results from both a t-test and Tukey HSD test on the difference in mean value between these two presentations returns P-values $> .05$.

[40] `https://www.congress.gov/bill/115th-congress/senate-bill/2076`

engage in the same *rates* of legislative tweeting, the overall lower *level* of legislative tweeting by district heroes diminishes their overall influence on what legislation is tweeted by members of Congress.

Figure 5.16: Tukey HSD Test of Estimated Difference Between Presentations' Percent of Legislative Tweets with 95% Confidence Intervals


Figure 5.16: Displays the difference in the average percent of legislative tweets between each pair of presentations with 95% confidence intervals from a Tukey HSD test.

Personal advertisers are defined by their lack of policy focus and lower levels of Twitter activity, and they are the least likely to post legislative tweets. The average personal advertiser post only 63 legislative tweets per congress, representing only 4.2% of their total tweets. Figure 5.16 shows the estimated difference in means between each presentation of self and the percent of their total tweets that reference legislation. Personal advertisers, when compared to other presentation styles, are shown to be statistically different regarding their rate of legislative tweeting. When they do post legislative tweets, they exhibit similar behavior as policy wonks. Personal advertiser mostly post about partisan legislation, and when they are in the minority party, they tweet more about bipartisan legislation and public laws. Recall from chapter 4 that personal advertisers are using Twitter less to communicate with and present themselves to their constituents, and more to direct Twitter users to other member activities like media appearances and public statements. And many of their legislative tweets fit this description. For example, Representative Raúl Labrador (R-ID) tweeted (or more likely a member of his staff tweeted), "Full statement on Congressman Labrador's 'no' vote on HR 8 can be found by clicking the link."[41] While other members frame legislation in ways that match their overall presentations of self, personal advertisers tend to simply inform

[41] `https://twitter.com/Raul_Labrador/status/286334866767888385`

followers of their legislative actions.

In conclusion, what legislation members tweet about is not only a function of majority status, but also of their presentations of self. As we would expect given prior results, all presentations tweet more about bills passed through partisan coalitions than bipartisan or party splitting coalitions. Even representatives who purposefully adopt non-partisan presentations still have party incentives to tweet partisan legislation. Crucially, the emphasis each presentation style places on partisan bills is consistent with their desired presentations. For instance, party loyalists not only tweet more about partisan legislation, but do so while using partisan rhetoric. Parties voting against one another is not inherently a bad thing – members in opposite parties can have genuine and substantial policy differences – but presenting these policy differences in hyper-partisan rhetoric serves to only further polarize American politics. If members of Congress increasingly adopt party loyalist presentations of self and if high levels of party competition incentives campaigning on partisan bills, then the lawmaking process presented to voters will continue to be heavily distorted.

### 5.4 Discussion

The goal of this chapter was to improve our understanding of how members of Congress present legislation to their constituents and engage with the legislative process through social media. By identifying nearly 200,000 tweets where representatives mentioned specific legislation, we are able to connect online messaging to the legislative process. Consistent with existing theories of majority party politics, we confirmed that members of Congress are more likely to tweet about partisan and party priority legislation, both before and after legislation is voted on. By examining legislators' tweets on bills before they receive a roll call vote, we can assess the pool of available bills that could be used for campaigning. Even when setting aside the majority party leadership's ability and willingness to structure roll call votes around partisan conflict, members of Congress still tweet more about partisan cosponsored bills than bipartisan cosponsored bills. Parties want to promote partisan legislation that highlights the differences between the parties, and members of Congress use these bills to campaign for Congress and for majority status. Schattschneider (1942) argues that "the impulse of the parties [. . .] to clothe themselves in a dogmatic and argumentative garment of high public purpose is so strong that a wholly misleading picture of the process is likely to be conveyed by the mere words of party propagandists" (129-130). The electoral incentives to promote partisan conflict are not without cost, not only does this distort the public's perception of the lawmaking process, but it damages the approval rating of Congress (Ramirez 2009).

In addition, we find evidence that representatives find it in their interest to campaign on legislation that passes the House, regardless if the bill ever becomes law and the policy benefits are

realized. On one hand, representatives can use unrealized policies to show voters they are working on legislation that improves their lives. On the other, if representatives can win reelection on bills their party can pass without minority support but later fails to pass the Senate where the filibuster requires bipartisan support, then this incentives the House to expend resources on doomed partisan legislation that is great for campaigning but does nothing to change policy.

Finally, this chapter examined how members' personal electoral interest in crafting their presentations of self intersects with their party's electoral interest in majority status. Party loyalist, policy wonks, district heroes, and personal advertisers all use Twitter to promote partisan legislation. Even if individual members wish to present themselves as independent, non-partisan, and serious legislators, intense party competition and polarization propels all members to engage in party brand building to some extent. If representatives continue to behave as party propagandists adopting party loyalists presentations, we can fully expect that the legislative process and politics in general will increasingly be hyper-partisan in nature, resulting in a zero-sum "us versus them" battle. With that, this concludes chapter 5 of this dissertation, and the following and final chapter will offer continued discussion about the larger implications of member's behavior on Twitter.

# Chapter 6

# Conclusion

## 6.1 How Representatives Present Themselves in The Digital Age

Presentation of self is an important component of representation because it is how members of Congress communicate with their constituents. The primary objective of this project was to answer the following question: How do members of Congress present themselves in the digital age? In this dissertation, we have established that Twitter is an increasingly important platform for members of Congress to present themselves to their constituents. We demonstrated that members of Congress strategically adopt a digital presentation of self that reflects both the districts they represent and their institutional positions and behaviors within Congress.

Representatives' digital presentations of self can be described as either a party loyalist, policy wonk, district hero, or personal advertiser. We learned that representatives from aligned or homogeneous districts are more likely to adopt a party loyalist or policy wonk presentation of self. These representatives, who can secure reelection largely through the support of copartisan voters, build their presentations around national policy and position-taking. Party loyalists are distinct in emphasizing the importance of the party brand and partisan rhetoric in their presentations. Consistent with their strong partisan behavior within Congress, representatives with ideologically extreme voting records and are in party leadership are more likely to adopt the party loyalist presentation. In addition to their frequent use of polarizing rhetoric, party loyalists are also the most likely to tweet about partisan legislation and legislation their party voted against, especially when they are in the minority party. Other aligned representatives adopt a policy wonk presentation, where they build an image of a policy focused and effective legislator. Policy wonks are unique in their strong emphasis on credit-claiming and legislative accomplishments. When presenting the legislative process to their constituents, they prefer to publicize legislation their party supported and that become public law.

Representatives from misaligned and heterogeneous districts are more likely to adopt a district hero or personal advertiser presentation of self. We found that representatives from districts with fewer copartisan voters and with ideologically moderate voting records frequently tweet district, credit-claiming, and advertising messages. We also found that representatives, particularly Democrats, who represent lower-income districts are more likely to adopt district hero presentations. Those that choose to adopt the district hero presentation stay clear of partisan politics and instead build an image of a district-focused representative. Consequently, these district heroes are the most

likely to tweet about bipartisan legislation and bills they personally sponsored. Members representing minority-majority districts and those with poor records of legislative accomplishment are more likely to adopt a personal advertiser presentation. Personal advertisers avoid controversy by avoiding policy and partisan politics, and instead use Twitter to advertise themselves. Given their general avoidance of public policy, personal advertisers are the least likely to tweet about legislation.

In this dissertation, we also showed that members' Twitter messages are related to their institutional positions. Members of Congress design their online messages not only to enhance their own electoral prospects through their presentations of self, but tweet messages designed to help their party's brand and compete for majority control of government. For example, we demonstrated that Representatives in the minority party or in the opposite party of the president are more likely to tweet partisan and position-taking messages. Minority party legislators use Twitter to run against majority party bills, tweeting about partisan legislation their party opposes. Those in the majority party or the president's party are more likely to tweet credit-claiming, district, and advertising messages. Given their agenda setting power, majority party legislators can campaign on partisan legislation their party supports. In addition, our analysis found that the majority party can use legislation that *only* passes the House to demonstrate their ability to effectively govern.

Finally, we documented the increasing number of representatives choosing to present themselves as party loyalists. Social media itself might be partly to blame. Party loyalists post the most tweets, have the most followers, and receive the most user interactions on their tweets. Twitter's user base rewards these representatives, so if Twitter fame is an avenue for electoral success, influence, or money then representatives will want to be party loyalists. In addition, representatives have strong partisan and electoral incentives to adopt party loyalist presentations of self. As partisan competition over party control of government has intensified, political parties have taken greater efforts to organize online messaging and encourage members to post messages designed to highlight the differences between the two parties. In addition, partisan gerrymandering and partisan sorting has led to less competitive general elections and more competitive primary elections. When representatives need to appeal to the most ideologically extreme and strongest partisan voters in order to win reelection, they are more likely to adopt highly partisan and polarizing presentations of self. If representatives are increasingly party loyalists offline, then this perhaps suggests a more fundamental shift in how members are presenting themselves and representing their constituents.

### 6.2 Areas For Future Research

This dissertation is a necessary starting point for future studies on presentation of self, as such additional research is needed to further study the topic. First, this dissertation argued that the

primary way members of Congress represent their constituents is through their presentations of self. We demonstrated that a member's presentation of self is reflective of the people they represent, but several questions are left unanswered. To what extent does presentation of self affect how their constituents evaluate and in turn vote for their representatives? What types of voters does each presentation style appeal to, and with what effect?

Second, how does the increasing number and outsized online presence of party loyalists affect how Americans see Congress and politics? For every tweet from Representatives Elissa Slotkin, Brian Fitzpatrick, or Kurt Schrader Americans will see hundreds more from representatives Jim Jordan or Alexandria Ocasio-Cortez either on Twitter or when they turn on the news. If Americans think of these party loyalists when they think of Congress, does this affect their political efficacy, trust in institutions, and their evaluations of Congress? I have suggested that this trend serves to further polarize the public's perception of Congress's policy agenda and politics generally as a partisan war-zone focused more on the party winning than working together to find policy solutions. For example, if representatives largely tweet about partisan bills even though the overwhelming majority of legislation passes the House through large bipartisan coalitions, then voters will see Congress as an ineffective and unrepresentative institution stuck in a perpetual cycle of gridlock. In addition, perhaps the partisan incentives to divide the two parties, both in Congress and online, reinforces the partisan identity of voters, further exacerbating affective polarization in the mass public. In short, additional research is needed to study the collective effects of party loyalists.

Third, in this dissertation we documented the increasing importance and power of Twitter in politics. How does members' Twitter behavior and digital presentations of self affect their careers both in Congress, and after they leave? For instance, we saw that party loyalists have a greater success on Twitter and are more likely to be party leaders. Do party loyalists, and the online popularity they receive, translate into greater political or agenda setting power? Are certain presentation styles more likely to attract more media coverage? More campaign donations? We studied the electoral effects on presentation of self, however, we know that members care about other things besides winning election. Understanding the other factors that might incentivize members to adopt one presentation style over another can further clarify how members of Congress present themselves to their constituents and why.

Presentation of self is an important concept for future scholars to study. It is the lens through which we can observe, study, and better understand our representatives. To better understand how members of Congress represent their constituents, it will be crucial that we continue to study and understand how they present themselves.

# Chapter 7

# Chapter 2 Appendix

## 7.1 Additional Data on Representatives' Twitter Activity

Table 7.1: Representatives Without Twitter Accounts

| | | |
|---|---|---|
| Thomas Petri (R-WI) | William L. Owens (D-NY) | John Campbell (R-CA) |
| Dave Camp (R-MI) | Robert E. Andrews (D-NJ) | Melvin L. Watt (D-NC) |
| C. W. Bill Young (R-FL) | Rodney Alexander (R-LA) | Jo Bonner (R-AL) |
| Pete Stark (D-CA) | Jean Schmidt (R-OH) | Steven R. Rothman (D-NJ) |
| Laura Richardson (D-CA) | Denny Rehberg (R-MT) | Todd Russell Platts (R-PA) |
| John W. Olver (D-MA) | Sue Wilkins Myrick (R-NC) | Brad Miller (D-NC) |
| Donald A. Manzullo (R-IL) | Steven C. LaTourette (R-OH) | Dale E. Kildee (D-MI) |
| Norman D. Dicks (D-PA) | Mark S. Critz (D-PA) | Jerry F. Costello (D-IL) |
| Ben Chandler (D-KY) | Russ Carnahan (D-MO) | Dan Boren (D-OK) |
| W. Todd Akin (R-MO) | Donald Payne (D-NJ) | Christopher Lee (R-NY) |
| Jane Harman (D-CA) | Scott Murphy (D-NY) | Charles Wilson (D-OH) |
| Robert Wexler (D-FL) | Todd Tiahrt (R-KS) | Harry Teague (D-NM) |
| John Tanner (D-TN) | John Spratt (D-SC) | Mark Souder (R-IN) |
| Victor Snyder (D-AR) | John Salazar (D-CO) | Earl Pomeroy (D-ND) |
| David Obey (D-WI) | John Murtha (D-PA) | Dennis Moore (D-KS) |
| Alan Mollohan (D-WV) | Walter Minnick (D-ID) | Charles Melancon (D-LA) |
| John McHugh (R-NY) | Eric Massa (D-NY) | James Marshall (D-GA) |
| Suzanne Kosmas (D-FL) | Carolyn Kilpatrick (D-MI) | Steve Kagen (D-WI) |
| Phil Hare (D-IL) | Parker Griffith (R-AL) | Barton Gordon (D-TN) |
| Brad Ellsworth (D-IN) | Vernon Ehlers (R-MI) | Thomas Edwards (D-TX) |
| Steve Driehaus (D-OH) | William Delahunt (D-MA) | Lincoln Davis (D-TN) |
| Christopher Carney (D-PA) | Stephen Buyer (R-IN) | Henry Brown (R-SC) |
| Bobby Bright (D-AL) | Allen Boyd (D-FL) | Robert Berry (D-AR) |
| Melissa Bean (D-IL) | James Barrett (R-SC) | Brian Baird (D-WA) |
| Michael Arcuri (D-NY) | John Adler (D-NJ) | Matt Salmon (R-AZ) |
| Janice Hahn (D-CA) | Mike McIntyre (D-NC) | John Barrow (D-GA) |
| Heath Shuler (D-NC) | Barney Frank (D-MA) | David Dreier (R-CA) |
| Jesse L. Jackson Jr. (D-IL) | Diane Watson (D-CA) | Zach Wamp (R-TN) |
| Ellen Tauscher (D-CA) | Bart Stupak (D-MI) | Hilda Solis (D-CA) |
| John Linder (R-GA) | Patrick Kennedy (D-RI) | Deborah Halvorson (D-IL) |
| Lincoln Diaz-Balart (R-FL) | Kathleen Dahlkemper (D-PA) | Travis Childers (D-MS) |
| Frederick Boucher (D-VA) | John Boccieri (D-OH) | |
| | | **Total: 95** |

Table 7.2: Representatives with Deleted, Protected, or Unused Accounts

| Deleted | Protected | 0 Tweets |
|---|---|---|
| Jefferson Van Drew (R-NJ) | John Abney Culberson (R-TX) | Karen C. Handel (R-GA) |
| Christopher H. Smith (R-NJ) | Virginia Brown-Waite (R-FL) | Frank Kratovil (D-MD) |
| F. James Sensenbrenner, Jr. (R-WI) | Elton Gallegly (R-CA) | Maurice D. Hinchey (D-NY) |
| Bill Flores (R-TX) | Steve Austria (R-OH) | Wally Herger (R-CA) |
| Susan A. Davis (D-CA) | | |
| Duncan Hunter (R-CA) | | |
| Chris Collins (R-NY) | | |
| Tom Marino (R-PA) | | |
| Luke Messer (R-IN) | | |
| Niki Tsongas (D-MA) | | |
| Lynn Jenkins (R-KS) | | |
| Gene Green (D-TX) | | |
| Rodney P. Frelinghuysen (R-NJ) | | |
| Trent Franks (R-AZ) | | |
| Tim Murphy (R-PA) | | |
| Mick Mulvaney (R-SC) | | |
| Mike Pompeo (R-KS) | | |
| Gwen Graham (D-FL) | | |
| Patrick Murphy (D-FL) | | |
| Lynn A. Westmoreland (R-GA) | | |
| Joseph R. Pitts (R-PA) | | |
| Sam Farr (D-CA) | | |
| Charles W. Boustany Jr. (R-LA) | | |
| Larry Kissell (D-NC) | | |
| **Total:24** | **Total:4** | **Total:4** |

Table 7.3: Consistent Low Tweeters (< 100 Tweets per Congress)

| Representative | Congresses on Twitter |
|---|---|
| Leonard Boswell (D-IA) | $111^{th}$-$112^{th}$ |
| Francisco Canseco (R-TX) | $112^{th}$ |
| David Alan Curson (D-MI) | $112^{th}$ |
| Bob Filner (D-CA) | $111^{th}$-$112^{th}$ |
| Jim Gerlach (R-PA) | $111^{th}$ |
| Greg Gianforte (R-MT) | $115^{th}$ -$116^{th}$ |
| Tim Holden (D-PA) | $111^{th}$ |
| Joseph Heck (R-NV) | $113^{th}$ |
| Paul Kanjorski (D-PA) | $111^{th}$ |
| Ron Flein (D-FL) | $111^{th}$ |
| Carolyn McCarthy (D-NY) | $111^{th}$-$112^{th}$ |
| Patrick Murphy (D-PA) | $111^{th}$ |
| Vance McAllister (R-LA) | $113^{th}$ |
| Richard Nugent (R-FL) | $112^{th}$-$114^{th}$ |
| Alan Nennelee (R-MS) | $112^{th}$ |
| Ed Pastor (D-AZ) | $111^{th}$-$113^{th}$ |
| Thomas Perriello (D-VA) | $111^{th}$ |
| George Radanovich (R-CA) | $111^{th}$ |
| Ciro Rodriquez (D-TX) | $111^{th}$ |
| Mike Ross(D-AR) | $112^{th}$ |
| David Reichert (R-WA) | $111^{th}$-$115^{th}$ |
| John Radcliffe (R-TX) | $115^{th}$ |
| John Shadegg (R-AZ) | $111^{th}$ |
| Mark Schauer (D-MI) | $111^{th}$ |
| Robert Schilling (R-IL) | $112^{th}$ |
| Gene Taylor (D-MS) | $111^{th}$ |
| Robert Turner (R-NY) | $112^{th}$ |
| David Wu (D-OR) | $111^{th}$ |
| Mimi Walters (R-CA) | $114^{th}$-$115^{th}$ |
| Kevin Yoder (R-KS) | $111^{th}$-$115^{th}$ |

### 7.2 Additional Data on Senators' Twitter Activity

In this section, I will briefly report summary statistics on senators' Twitter activity. Recall from Chapter 2, I identied a Twitter account for 88.76% of senators serving from 2009-2021 ($111^{th}$-$116^{th}$ Congress). Table 7.4 displays the 17 Senators who never opened a Twitter account while in office. Only 3 Senators have concealed their Twitter activity after leaving the Senate. Kent Conrad (R-ND) and Herb Kohl (D-WI) deleted all of their Tweets, and John Ensign (R-NV) protected his account.

Table 7.4: Senators Without Twitter Accounts

| | | |
|---|---|---|
| Robert Bennett (R-UT) | Jeff Bingaman (D-NM) | Christopher Bond (R-MO) |
| Samuel Brownback (R-KS) | Jim Bunning (R-KY) | Robert Byrd (D-WV) |
| Hillary Clinton (D-NY) | Byron Dorgan (D-ND) | Judd Gregg (R-NH) |
| Carte Goodwin (D-WV) | Mike Johanns (R-NE) | Edward Kennedy (D-MA) |
| Edward Kaufman (D-DE) | Paul Kirk (D-MA) | Ken Salazar (D-CO) |
| George Voinovich (R-OH) | Jim Webb (D-VA) | |
| | | **Total: 17** |

Senators, given the smaller chamber size, collectively post fewer tweets than representatives. Figure 7.1 displays the total number of monthly tweets posted by senators from 2009-2021. Like representatives, senators quickly adopted Twitter and increased their frequency of tweeting over time. In the 111$^{th}$ Congress, senators posted only 15,510 total tweets and by the 116$^{th}$ Congress they posted nearly 400,000 total tweets, posting between 15,000-20,000 tweets each month. However, individual senators are more active than representatives on Twitter. In the 116$^{th}$ Congress the median representative posted about 2,000 tweets and the median senator, as seen in Figure 7.2, posted about 3,00 tweets. Senators are perhaps more active on Twitter in order to effectively reach their larger constituencies or as a result of their more visible and higher ranked office. Similarly, senators tend to have more Twitter followers for the same reasons. The average senator has 533,774 followers, compared to the average representative with 82,624 followers. The larger point here is simply that senator's Twitter activity and user engagement looks very similar to that of representatives. For more detailed research on the Twitter behavior of senators see work by Annelise Russell (2018*a*, 2018b, 2020, 2021a, 2021b).

Figure 7.1: Number of Monthly Senate Tweets, 2009-2021

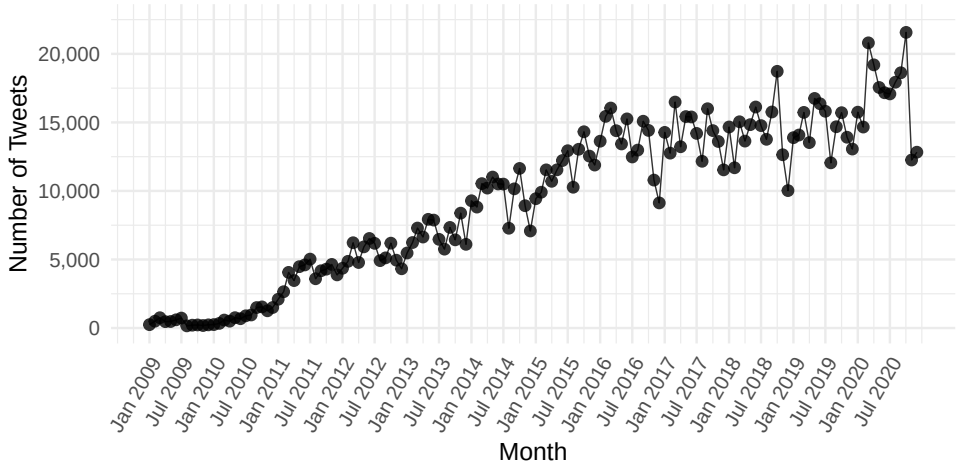



Figure 7.1: Displays the total number of monthly tweets posted by senators from 2009-2020.

Figure 7.2: Boxplot of Number of Senate Tweets by Congress, $111^{th}$ - $116^{th}$ Congress

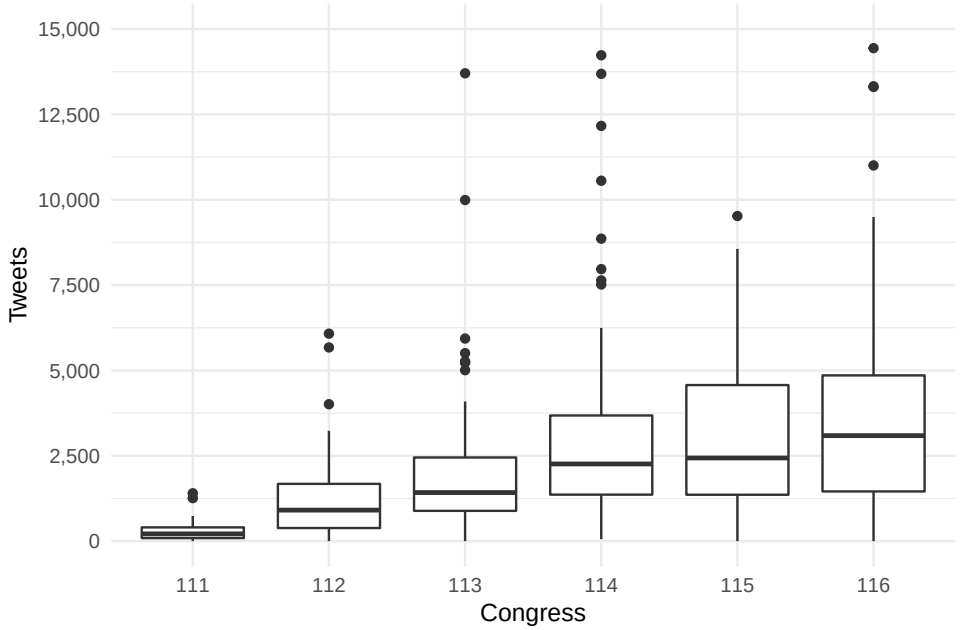



Figure 7.2: Displays the $25^{th}$ percentile, median, $75^{th}$ percentile, and potential outliers of the Tweeting frequency of senators in each congress. Senators who tweeted more than 15,000 times in a single congress were excluded from the figure to better display the number of tweets posted by the majority of senators.

## 7.3 Model Results for Chapter 2

Table 7.5: Predicting Total Tweets Posted by Congress

| | Dependent Variable: Log(Tweets) | | | | | |
|---|---|---|---|---|---|---|
| | ($111^{th}$) | ($112^{th}$) | ($113^{th}$) | ($114^{th}$) | ($115^{th}$) | ($116^{th}$) |
| Democrat | $-0.733^{***}$ | $-0.101$ | $0.607^{***}$ | $0.861^{***}$ | $1.165^{***}$ | $0.865^{***}$ |
| | (0.257) | (0.265) | (0.234) | (0.217) | (0.184) | (0.153) |
| Vote Share | $-1.655$ | 0.232 | 0.360 | $-0.099$ | 0.364 | $1.484^{**}$ |
| | (1.007) | (1.127) | (1.068) | (0.814) | (0.630) | (0.638) |
| Party Leader | $1.356^{***}$ | $1.106^{**}$ | 0.044 | 0.356 | 0.197 | 0.334 |
| | (0.512) | (0.554) | (0.435) | (0.389) | (0.471) | (0.356) |
| Committee Chair | 0.563 | 0.330 | 0.392 | 0.532 | $-0.457$ | 0.091 |
| | (0.602) | (0.575) | (0.532) | (0.476) | (0.404) | (0.314) |
| LES Benchmark | 0.183 | $-0.125$ | 0.044 | $-0.099$ | $0.305^{***}$ | $0.201^{**}$ |
| | (0.152) | (0.161) | (0.140) | (0.132) | (0.118) | (0.087) |
| Extremism | $1.983^{**}$ | 1.291 | 1.343 | 0.428 | $1.387^{**}$ | $1.749^{***}$ |
| | (0.907) | (0.926) | (0.856) | (0.770) | (0.652) | (0.537) |
| Female | 0.022 | 0.085 | $-0.039$ | $-0.068$ | 0.011 | 0.226 |
| | (0.321) | (0.327) | (0.289) | (0.263) | (0.216) | (0.161) |
| Seniority | $-0.002$ | $-0.076^{**}$ | $-0.036$ | $-0.048$ | $-0.032$ | $-0.054^{***}$ |
| | (0.035) | (0.035) | (0.031) | (0.030) | (0.024) | (0.020) |
| Age | $-0.021$ | $-0.012$ | $-0.020$ | $-0.009$ | $-0.017^{*}$ | $-0.024^{***}$ |
| | (0.015) | (0.015) | (0.013) | (0.012) | (0.010) | (0.007) |
| Accounts | $1.442^{***}$ | $1.591^{***}$ | $1.192^{***}$ | $1.055^{***}$ | $0.690^{***}$ | $0.633^{***}$ |
| | (0.186) | (0.192) | (0.180) | (0.168) | (0.165) | (0.137) |
| Constant | $3.090^{***}$ | $3.365^{***}$ | $4.635^{***}$ | $4.827^{***}$ | $5.505^{***}$ | $5.995^{***}$ |
| | (1.060) | (1.072) | (1.001) | (0.923) | (0.761) | (0.587) |
| Observations | 444 | 443 | 444 | 437 | 442 | 438 |
| Adjusted $R^2$ | 0.203 | 0.187 | 0.126 | 0.116 | 0.151 | 0.244 |
| *Note:* | | | | | | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

### 7.4 R Code for Chapter 2

This section reports the R code I used to collect data on the Twitter accounts and tweets from members of Congress. To collect and clean data on Twitter accounts and tweets I used the following packages in `R`: `httr`, `jsonlite`, `Hmisc`, `tidyverse`, `academictwitteR`. The following code block was used to pull Twitter user ids using the collected Twitter handles using the Twitter API users endpoint[1]. The values for the API access tokens are omitted from the code per Twitter API user agreement.

```

for (i in 1:length(unknown.userid$user.id)){

id <- unknown.userid$screen.name[i]
api.url <- paste0("https://api.twitter.com/2/users/by/username/", id) # id needs to
    be user.id

params <- list(
  `user.fields` = 'id,username' # pulling user.id and handle
)

request <- GET(url = api.url,  # accessing API
               add_headers(.headers=headers),
               query = params)

temp <- content(
  request,
  as = 'parsed',
  type = 'application/json',
  simplifyDataFrame = TRUE
)

if (is.null(temp$data$id)) {
  unknown.userid$user.id[i] <- 'deleted'
  next
}

unknown.userid$user.id[i] <- temp$data$id

if (i %in% c(300, 600, 900)) { #pauses for 15 minutes every 300 iterations
  print("15 minute break")
  Sys.sleep(900)
  }
}
```

The following code block was used to pull the Twitter account data using the Twitter API users endpoint.[2]

```

account.details <- rbind(known.userid, unknown.userid, no.account.found) %>%
                   mutate(twitter.name = NA,
```

[1] https://developer.twitter.com/en/docs/twitter-api/v1/accounts-and-users/follow-search-get-users/api-reference/get-users-lookup

[2] https://developer.twitter.com/en/docs/twitter-api/v1/accounts-and-users/follow-search-get-users/api-reference/get-users-lookup

```
                    current.screen.name = NA, #this pulls current screen name
    associated with id
                    created.at = NA,
                    protected = NA, # T/F
                    verified = NA, # T/F
                    followers = NA,
                    following = NA,
                    tweets = NA,
                    link = NA,
                    location = NA,
                    bio = NA)

params <- list(
 `user.fields` = 'name,username,created_at,protected,public_metrics,verified,url,
    location,description' #pulling user.id and handle
)

for (i in 1:length(account.details$user.id)){

if (account.details$status[i] == "deleted"){ #skip known deleted accounts
  next
}

if (i %in% c(300, 600, 900, 1200, 1500, 1800, 2100)) { #pauses for 15 minutes every
    300 iterations
    print("15 minute break")
    Sys.sleep(900)
  }

id <- account.details$user.id[i]

api.url <- paste0("https://api.twitter.com/2/users/", id) #id is user.id

request <- GET(url = api.url,  # accessing API
               add_headers(.headers=headers),
               query = params)

temp <- content(
  request,
  as = 'parsed',
  type = 'application/json',
  simplifyDataFrame = TRUE
)

if (is.null(temp$data)) {
  account.details$status[i] <- "deleted"
  next
}

account.details$status[i] <- "active"
account.details$twitter.name[i] <- temp$data$name
account.details$current.screen.name[i] <- temp$data$username
account.details$created.at[i] <- temp$data$created_at
account.details$protected[i] <- temp$data$protected
account.details$verified[i] <- temp$data$verified
account.details$followers[i] <- temp$data$public_metrics$followers_count
account.details$following[i] <- temp$data$public_metrics$following_count
account.details$tweets[i] <- temp$data$public_metrics$tweet_count
```

```
account.details$link[i] <- temp$data$url
account.details$bio[i] <- temp$data$description
account.details$location[i] <- ifelse(!is.null(temp$data$location), temp$data$
    location, NA)

}
```

The following code block was used to pull and download all the tweets posted from the Twitter accounts from members of Congress using the function `get_user_tweets()` from the `academictwitteR` package, which accesses the Twitter API timeline endpoint.[3] Each Twitter account timelime was saved as an individual JSON file, then I created separate data frames for all Tweets posted during each Congress by chamber.

```

for (i in nrow(accounts)){

  screen.name <- accounts$current.screen.name[i]
  start.time <- st(accounts$start.day[i])
  end.time <- st(accounts$end.day[i])

academictwitteR::get_user_tweets(screen.name, start.time, end.time, bearer_token,
    data_path = path)
print(i)

}
```

[3] https://developer.twitter.com/en/docs/twitter-api/tweets/timelines/introduction

# Chapter 8

# Chapter 3 Appendix

## 8.1 Data & Variables for Chapter 3

Table 8.1: Dependent Variables

| Variable | Description | Range | Mean | Std. Dev. |
|---|---|---|---|---|
| % Position-Taking | Percent of Representative's Tweets in a congress labeled as position-taking | $[0, 1]$ | .317 | .133 |
| % Credit-Claiming | Percent of Representative's Tweets in a congress labeled as credit-claiming | $[0, 1]$ | .276 | .083 |
| % Advertising | Percent of Representative's Tweets in a congress labeled as advertising | $[0, 1]$ | .407 | .143 |
| % Policy | Percent of Representative's Tweets in a congress labeled as policy | $[0, 1]$ | .631 | .109 |
| % Partisan | Percent of Representative's Tweets in a congress containing partisan keywords | | $[0, 1]$ | .126 |
| % District | Percent of Representative's Tweets in a congress containing district keywords | $[0, 1]$ | .198 | .135 |
| Mean Sentiment | Average sentiment score of Tweets sent in a congress | $[-2, 4]$ | .65 | |

Table 8.2: Independent Variables

| Variable | Description | Range | Mean | Std. Dev. |
|---|---|---|---|---|
| Republican[a] | Indicator for if Representative is in the Republican Party | $\{0, 1\}$ | .52 | |
| Majority[a] | Indicator for if Representative is in the majority party | $\{0, 1\}$ | .55 | |
| Co-Party Pres.[c] | Indicator for if Representative is in the same party as the President | $\{0, 1\}$ | .48 | |
| Party Leader[a] | Indicator for if Representative is in party leadership | $\{0, 1\}$ | .056 | |
| Committee Chair[a] | Indicator for if Representative is a committee chair | $\{0, 1\}$ | .05 | |
| Legislative Effectiveness[b] | Categorical variable that equals 0 if member's Legislative Effectiveness Score (LES) falls below their predicted benchmark LES score, equals 1 if member's LES score meets their benchmark LES score, and equals 2 if member's LES score exceeds their benchmark LES score | $\{0, 1, 2\}$ | .877 | .748 |
| Extremism[c] | Ideological distance between Representative and their party median; Extremism for member $i$ is (DW Nominate Party Median − DW Nominate$_i$) $*$ $(-1 * Republican_i)$ | $[-.67, .48]$ | 0 | .137 |
| Age[a] | Age of member at the start of that Congress | $[28, 90]$ | 57.33 | 10.989 |
| Seniority[a] | Number of Congresses Representative has served in | $[1, 30]$ | 5.30 | 4.458 |
| Male[a] | Indicator for if Representative is a male | $\{0, 1\}$ | .8 | |
| Black[a] | Indicator for if Representative is African American | $\{0, 1\}$ | .105 | |
| Latino[a] | Indicator for if Representative is Latino/a | $\{0, 1\}$ | .072 | |
| District Copartisan[d] | Percent of constituents identifying as their Representative's party | $[.11, .78]$ | .374 | .11 |
| District Independent[d] | Percent of constituents identifying as an Independent | $[.02, .39]$ | .149 | .057 |
| District White[d] | Percent of constituents identifying as white | $[0, 1]$ | .699 | .20 |
| Low Income[d] | Percent of constituents earning less than $40,000 a year | $[.03, .87]$ | .368 | .124 |
| High Income[d] | Percent of constituents earning more than $120,000 a year | $[0, .6]$ | .153 | .092 |
| Total Tweets[e] | Total number of Tweets sent by Representative in that congress; in regression models this is variable logged | $[1, 29030]$ | 1420 | 1838 |

*Data Sources:*
[a] Collected from the Center for Effective Lawmaking
[b] Constructed by author based on Center for Effective Lawmaking LES Scores
[c] Constructed by author based on DW-Nominate Scores provided by voteview.com
[d] Constructed by author using Cooperative Congressional Election Study (CCES)
[e] Constructed by author

## 8.2 Keyword Assisted Topic Models

Figure 8.1: Prevalence of Topic Keywords in Random Sample of 150,000 Tweets

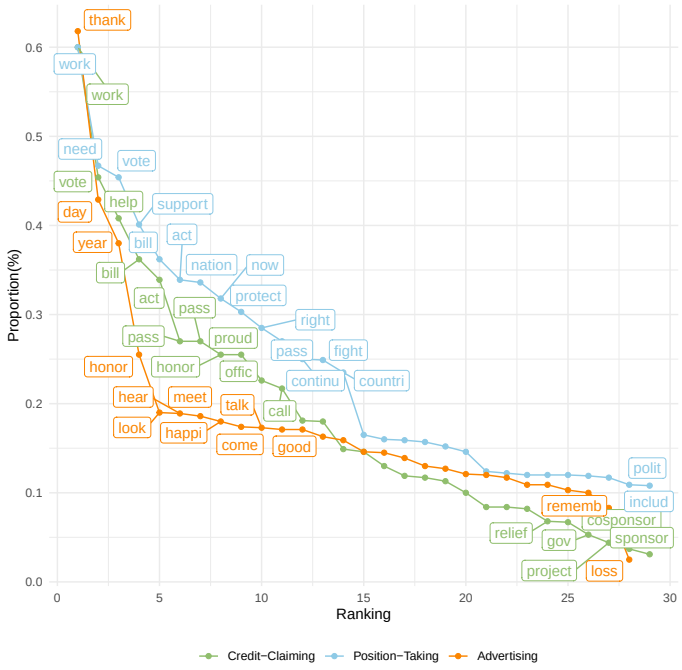



Figure 8.2: Position-Taking, Credit-Claiming, and Advertising KeyATM Model Fit

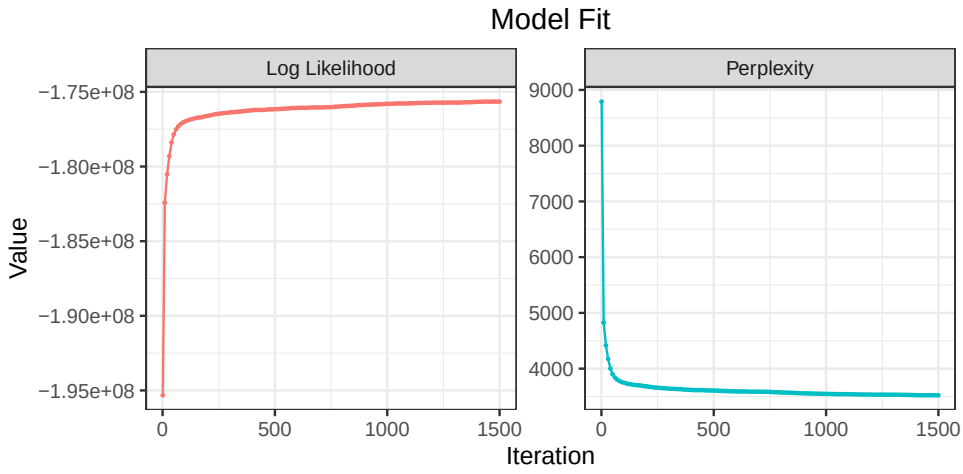


Figure 8.3: Prevalence of Policy Keywords in Random Sample of 150,000 Tweets

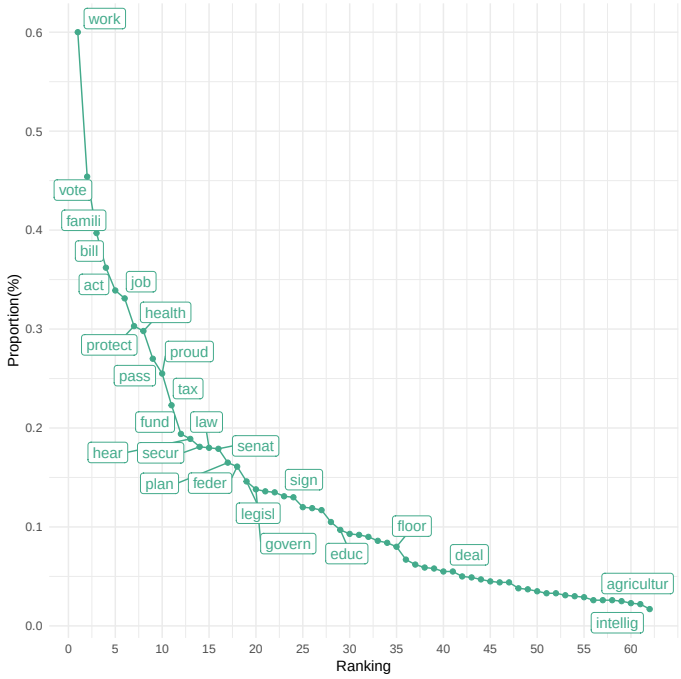



Figure 8.4: Policy KeyATM Model Fit

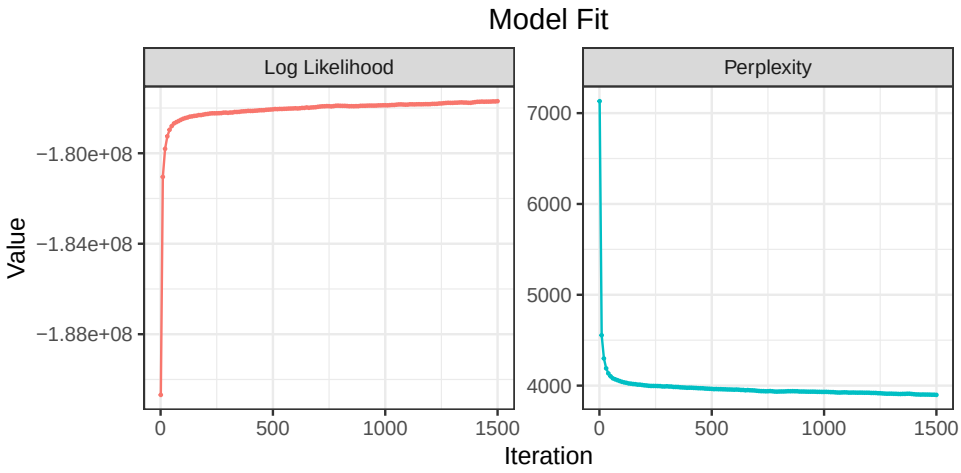


Table 8.3: Number of City Names Included in Keyword Search By State

| | | | | |
|---|---|---|---|---|
| Alabama | Alaska | Arizona | Arkansas | California |
| 47 | 17 | 16 | 49 | 61 |
| Colorado | Connecticut | Delaware | Florida | Georgia |
| 29 | 4 | 6 | 49 | 53 |
| Hawaii | Idaho | Illinois | Indiana | Iowa |
| 2 | 20 | 129 | 57 | 94 |
| Kansas | Kentucky | Louisiana | Maine | Maryland |
| 63 | 42 | 31 | 2 | 18 |
| Massachusetts | Michigan | Minnesota | Mississippi | Missouri |
| 7 | 54 | 85 | 30 | 94 |
| Montana | Nebraska | Nevada | New Hampshire | New Jersey |
| 15 | 53 | 3 | 1 | 33 |
| New Mexico | New York | North Carolina | North Dakota | Ohio |
| 14 | 42 | 56 | 37 | 94 |
| Oklahoma | Oregon | Pennsylvania | Rhode Island | South Carolina |
| 60 | 25 | 100 | 1 | 27 |
| South Dakota | Tennessee | Texas | Utah | Vermont |
| 32 | 35 | 132 | 26 | 2 |
| Virginia | Washington | West Virginia | Wisconsin | Wyoming |
| 27 | 34 | 23 | 60 | 10 |

## 8.3 Model Results for Chapter 3

Table 8.4: Correlates of Message Types, Model 3.1

| | *Dependent Variable:* | | | | | |
|---|---|---|---|---|---|---|
| | % Position | % Partisan | % Policy | % Credit | % District | % Advertising |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Majority | −0.044*** | −0.056*** | −0.013*** | 0.014*** | 0.019*** | 0.028*** |
| | (−0.0001) | (−0.00004) | (−0.0001) | (−0.00002) | (−0.00004) | (−0.00004) |
| Copartisan President | −0.072*** | −0.078*** | −0.038*** | 0.013*** | 0.027*** | 0.057*** |
| | (−0.0001) | (−0.0001) | (−0.0001) | (−0.00003) | (−0.0001) | (−0.0001) |
| Party Leader | 0.037*** | 0.058*** | 0.034*** | −0.017*** | −0.030*** | −0.022*** |
| | (0.00002) | (−0.00003) | (0.0001) | (0.00002) | (0.00005) | (0.00004) |
| Committee Chair | 0.011*** | 0.023*** | 0.014*** | 0.006*** | −0.031*** | −0.016*** |
| | (0.00003) | (0.00003) | (0.0001) | (−0.00001) | (−0.00002) | (−0.00002) |
| Republican | −0.042*** | 0.040*** | −0.032*** | 0.004*** | −0.005*** | 0.037*** |
| | (−0.0001) | (−0.00003) | (−0.0001) | (−0.00004) | (−0.0002) | (−0.0001) |
| Seniority | 0.003*** | 0.002*** | 0.003*** | 0.002*** | −0.003*** | −0.005*** |
| | (−0.00000) | (−0.00000) | (−0.00001) | (−0.00000) | (−0.00001) | (−0.00001) |
| Legislative Effectiveness | −0.0002*** | −0.003*** | 0.0003*** | 0.004*** | −0.003*** | −0.005*** |
| | (0.00000) | (−0.00001) | (0.00002) | (−0.00001) | (−0.00003) | (−0.00001) |
| Extremism | 0.262*** | 0.267*** | 0.055*** | −0.079*** | −0.224*** | −0.192*** |
| | (0.0002) | (0.0002) | (0.0003) | (0.0001) | (0.0003) | (0.0003) |
| Male | −0.005*** | 0.009*** | −0.010*** | 0.008*** | −0.006*** | −0.002*** |
| | (−0.0001) | (−0.00004) | (−0.0001) | (−0.00005) | (−0.0001) | (−0.0001) |
| Black | −0.030*** | −0.042*** | −0.034*** | −0.005*** | 0.019*** | 0.031*** |
| | (−0.0001) | (−0.0001) | (−0.0001) | (−0.0001) | (−0.0001) | (−0.0002) |
| Latino | −0.013*** | −0.020*** | 0.002*** | 0.042*** | −0.010*** | −0.027*** |
| | (−0.0002) | (−0.0001) | (−0.0002) | (−0.0001) | (−0.0002) | (−0.0003) |
| District Copartisan | 0.076*** | 0.053*** | −0.008*** | −0.045*** | −0.107*** | −0.024*** |
| | (−0.001) | (−0.001) | (−0.001) | (−0.0004) | (−0.001) | (−0.001) |
| District Independent | 0.022*** | −0.014*** | −0.034*** | −0.086*** | 0.021*** | 0.073*** |
| | (−0.001) | (−0.0004) | (−0.001) | (−0.001) | (−0.001) | (−0.001) |
| District White | 0.004*** | −0.034*** | 0.069*** | 0.012*** | 0.079*** | −0.011*** |
| | (−0.0003) | (−0.0004) | (−0.0005) | (−0.0002) | (−0.001) | (−0.001) |
| High Income | 0.122*** | 0.0005 | 0.066*** | 0.007*** | −0.169*** | −0.110*** |
| | (−0.0004) | (−0.001) | (−0.0004) | (−0.0003) | (−0.001) | (−0.001) |
| Low Income | 0.023*** | 0.034*** | 0.008*** | −0.035*** | 0.041*** | 0.026*** |
| | (−0.0002) | (−0.0005) | (−0.0004) | (−0.0003) | (−0.0005) | (−0.001) |
| Congress Fixed Effects | YES | YES | YES | YES | YES | YES |
| Observations | 2,248 | 2,248 | 2,248 | 2,248 | 2,248 | 2,248 |
| Adjusted $R^2$ | 0.359 | 0.288 | 0.097 | 0.109 | 0.177 | 0.261 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

Table 8.5: Correlates of Message Types, Model 3.2

| | *Dependent Variable:* | | | | | |
|---|---|---|---|---|---|---|
| | % Position | % Partisan | % Policy | % Credit | % District | % Advertising |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Majority | −0.039*** | −0.050*** | −0.007*** | 0.014*** | 0.016*** | 0.025*** |
| | (0.0002) | (0.0002) | (−0.0001) | (0.0001) | (−0.00001) | (0.0002) |
| Copartisan President | −0.068*** | −0.078*** | −0.028*** | 0.014*** | 0.026*** | 0.053*** |
| | (−0.0003) | (−0.0003) | (−0.0003) | (−0.0002) | (−0.0002) | (−0.001) |
| Party Leader | −0.013*** | −0.004*** | 0.002*** | −0.004*** | −0.006*** | 0.015*** |
| | (0.0004) | (−0.00005) | (0.0001) | (0.0003) | (0.0004) | (0.0005) |
| Committee Chair | 0.031*** | 0.023*** | 0.005*** | −0.009*** | −0.021*** | −0.023*** |
| | (0.0002) | (−0.001) | (−0.0001) | (−0.001) | (−0.0003) | (−0.001) |
| District Copartisan | 0.012*** | 0.045*** | −0.003*** | −0.035*** | 0.009*** | 0.025*** |
| | (−0.001) | (−0.00004) | (−0.001) | (−0.001) | (−0.001) | (−0.003) |
| District Independent | 0.067*** | −0.010*** | −0.047*** | −0.111*** | 0.050*** | 0.046*** |
| | (0.003) | (−0.001) | (−0.001) | (−0.002) | (−0.002) | (0.002) |
| District White | −0.203*** | −0.136*** | −0.065*** | −0.019*** | −0.059*** | 0.238*** |
| | (0.001) | (0.001) | (0.0002) | (−0.001) | (−0.001) | (0.001) |
| High Income | 0.094*** | 0.100*** | 0.057*** | 0.045*** | 0.007*** | −0.143*** |
| | (−0.005) | (−0.002) | (−0.0002) | (−0.002) | (0.001) | (−0.005) |
| Low Income | −0.045*** | −0.046*** | 0.051*** | 0.006** | −0.073*** | 0.047*** |
| | (−0.004) | (−0.001) | (−0.0004) | (−0.002) | (−0.001) | (−0.003) |
| log(Total Tweets) | 0.022*** | 0.016*** | −0.001*** | −0.004*** | −0.006*** | −0.017*** |
| | (−0.0002) | (−0.00004) | (−0.0001) | (−0.001) | (−0.0001) | (−0.001) |
| Member Fixed Effects | YES | YES | YES | YES | YES | YES |
| Observations | 2,249 | 2,249 | 2,249 | 2,249 | 2,249 | 2,249 |
| Adjusted $R^2$ | 0.475 | 0.429 | 0.420 | 0.327 | 0.561 | 0.442 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

Table 8.6: Correlates of Tweet Messages Without Ideological Extremism

| | *Dependent Variables:* | | | | | |
|---|---|---|---|---|---|---|
| | % Position | % Partisan | % Policy | % Credit | % District | % Advertising |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Majority | −0.043*** | −0.055*** | −0.013** | 0.014*** | 0.018*** | 0.027*** |
| | (0.006) | (0.006) | (0.005) | (0.004) | (0.006) | (0.006) |
| Copartisan President | −0.072*** | −0.078*** | −0.038*** | 0.013*** | 0.028*** | 0.057*** |
| | (0.005) | (0.005) | (0.005) | (0.004) | (0.006) | (0.006) |
| Party Leader | 0.045*** | 0.066*** | 0.036*** | −0.019*** | −0.037*** | −0.027** |
| | (0.010) | (0.010) | (0.010) | (0.007) | (0.012) | (0.012) |
| Committee Chair | 0.017 | 0.029** | 0.015 | 0.005 | −0.036*** | −0.020 |
| | (0.012) | (0.012) | (0.011) | (0.008) | (0.013) | (0.013) |
| Republican | −0.023*** | 0.059*** | −0.028*** | −0.002 | −0.021*** | 0.023*** |
| | (0.007) | (0.007) | (0.006) | (0.005) | (0.007) | (0.007) |
| Seniority | 0.003*** | 0.002*** | 0.003*** | 0.002*** | −0.003*** | −0.004*** |
| | (0.001) | (0.001) | (0.001) | (0.0004) | (0.001) | (0.001) |
| Legislative Effectiveness | −0.006* | −0.009*** | −0.001 | 0.006** | 0.002 | −0.001 |
| | (0.003) | (0.003) | (0.003) | (0.002) | (0.004) | (0.004) |
| Male | −0.006 | 0.008 | −0.011* | 0.008* | −0.005 | −0.001 |
| | (0.006) | (0.006) | (0.006) | (0.004) | (0.007) | (0.007) |
| Black | −0.017* | −0.028*** | −0.032*** | −0.009 | 0.007 | 0.022** |
| | (0.010) | (0.010) | (0.009) | (0.007) | (0.011) | (0.011) |
| Latino | −0.020* | −0.027** | 0.001 | 0.044*** | −0.004 | −0.022* |
| | (0.011) | (0.011) | (0.010) | (0.008) | (0.012) | (0.012) |
| District Copartisan | 0.183*** | 0.162*** | 0.014 | −0.078*** | −0.200*** | −0.102*** |
| | (0.029) | (0.029) | (0.028) | (0.021) | (0.033) | (0.033) |
| District Independent | 0.081* | 0.047 | −0.022 | −0.103*** | −0.031 | 0.030 |
| | (0.047) | (0.047) | (0.045) | (0.033) | (0.053) | (0.052) |
| District White | −0.017 | −0.056*** | 0.064*** | 0.018 | 0.098*** | 0.004 |
| | (0.017) | (0.017) | (0.016) | (0.012) | (0.019) | (0.019) |
| High Income | 0.140*** | 0.019 | 0.069* | 0.001 | −0.184*** | −0.123*** |
| | (0.037) | (0.037) | (0.035) | (0.026) | (0.042) | (0.042) |
| Low Income | 0.041 | 0.052* | 0.012 | −0.040** | 0.026 | 0.013 |
| | (0.027) | (0.027) | (0.026) | (0.019) | (0.031) | (0.030) |
| Congress Fixed Effects | YES | YES | YES | YES | YES | YES |
| Observations | 2,249 | 2,249 | 2,249 | 2,249 | 2,249 | 2,249 |
| Adjusted $R^2$ | 0.301 | 0.221 | 0.093 | 0.096 | 0.136 | 0.235 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

Table 8.7: Correlates of Policy Tweets by Congress

| | *Dependent Variable:* | | | | | |
|---|---|---|---|---|---|---|
| | % Policy Tweets | | | | | |
| | $111^{th}$ Congress | $112^{th}$ Congress | $113^{th}$ Congress | $114^{th}$ Congress | $115^{th}$ Congress | $116^{th}$ Congress |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Party Leader | 0.021 | 0.063*** | 0.036** | 0.011 | 0.052** | 0.022 |
| | (0.033) | (0.024) | (0.018) | (0.019) | (0.024) | (0.022) |
| Committee Chair | −0.015 | 0.047 | −0.007 | 0.029 | −0.007 | 0.026 |
| | (0.049) | (0.036) | (0.046) | (0.029) | (0.031) | (0.021) |
| Republican | 0.039 | 0.022 | −0.022 | −0.019 | −0.076*** | −0.079*** |
| | (0.025) | (0.017) | (0.014) | (0.013) | (0.014) | (0.011) |
| Seniority | 0.004* | 0.005*** | 0.002 | 0.003** | 0.002 | 0.001 |
| | (0.002) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) |
| Legislative Effectiveness | 0.003 | −0.013 | 0.005 | 0.001 | 0.007 | −0.0004 |
| | (0.011) | (0.009) | (0.008) | (0.006) | (0.007) | (0.006) |
| Extremism | 0.099 | 0.086 | 0.131*** | 0.046 | −0.0003 | 0.006 |
| | (0.091) | (0.062) | (0.049) | (0.042) | (0.047) | (0.034) |
| Male | 0.031 | −0.008 | −0.011 | −0.029** | −0.026* | −0.003 |
| | (0.022) | (0.016) | (0.016) | (0.012) | (0.014) | (0.010) |
| Black | 0.049 | −0.013 | −0.039* | −0.037** | −0.052*** | −0.051*** |
| | (0.053) | (0.028) | (0.023) | (0.018) | (0.017) | (0.015) |
| Latino | 0.060 | 0.016 | −0.032 | −0.026 | −0.012 | 0.026 |
| | (0.048) | (0.033) | (0.022) | (0.021) | (0.023) | (0.017) |
| District Copartisan | −0.046 | 0.029 | −0.047 | 0.059 | −0.079 | −0.030 |
| | (0.117) | (0.085) | (0.064) | (0.060) | (0.071) | (0.055) |
| District Independent | −0.174 | 0.097 | −0.218** | 0.147* | 0.011 | −0.119 |
| | (0.182) | (0.150) | (0.090) | (0.087) | (0.090) | (0.072) |
| District White | 0.064 | 0.097* | 0.077** | 0.066* | 0.052 | 0.090*** |
| | (0.079) | (0.050) | (0.038) | (0.035) | (0.033) | (0.028) |
| High Income | 0.118 | 0.031 | −0.041 | 0.071 | 0.080 | 0.099 |
| | (0.154) | (0.084) | (0.083) | (0.077) | (0.075) | (0.062) |
| Low Income | −0.081 | 0.018 | −0.063 | 0.017 | 0.039 | 0.043 |
| | (0.128) | (0.074) | (0.063) | (0.061) | (0.046) | (0.060) |
| log(Total Tweets) | −0.006 | −0.011 | −0.013 | −0.003 | 0.005 | −0.014* |
| | (0.013) | (0.008) | (0.012) | (0.006) | (0.013) | (0.007) |
| Constant | 0.594*** | 0.569*** | 0.753*** | 0.516*** | 0.620*** | 0.728*** |
| | (0.120) | (0.118) | (0.104) | (0.075) | (0.105) | (0.076) |
| Observations | 242 | 356 | 398 | 402 | 423 | 427 |
| Adjusted $R^2$ | 0.013 | 0.077 | 0.064 | 0.059 | 0.113 | 0.150 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 8.8: Correlates of Position-Taking Tweets by Congress

| | *Dependent Variable:* | | | | | |
|---|---|---|---|---|---|---|
| | % Position-Taking Tweets | | | | | |
| | 111th Congress | 112th Congress | 113th Congress | 114th Congress | 115th Congress | 116th Congress |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Party Leader | 0.023 | 0.053*** | 0.037** | 0.024 | 0.020 | 0.078*** |
| | (0.027) | (0.019) | (0.015) | (0.018) | (0.022) | (0.027) |
| Committee Chair | −0.053 | 0.039 | −0.017 | 0.022 | −0.019 | 0.056* |
| | (0.038) | (0.026) | (0.025) | (0.023) | (0.025) | (0.030) |
| Republican | 0.042* | −0.009 | 0.001 | −0.022 | −0.129*** | −0.048*** |
| | (0.024) | (0.018) | (0.016) | (0.013) | (0.014) | (0.016) |
| Seniority | 0.002 | 0.004** | 0.002 | 0.005*** | 0.005*** | 0.002 |
| | (0.002) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Legislative Effectiveness | −0.006 | −0.004 | −0.001 | 0.001 | −0.0004 | 0.007 |
| | (0.010) | (0.007) | (0.007) | (0.007) | (0.007) | (0.008) |
| Extremism | 0.239*** | 0.207*** | 0.244*** | 0.264*** | 0.239*** | 0.351*** |
| | (0.077) | (0.043) | (0.043) | (0.042) | (0.042) | (0.050) |
| Male | 0.029 | 0.001 | −0.018 | −0.016 | −0.020 | 0.014 |
| | (0.020) | (0.012) | (0.017) | (0.011) | (0.012) | (0.012) |
| Black | 0.040 | −0.032 | −0.027 | −0.007 | −0.035* | −0.045** |
| | (0.047) | (0.022) | (0.022) | (0.020) | (0.020) | (0.020) |
| Latino | 0.020 | −0.017 | −0.029 | 0.015 | −0.022 | −0.035* |
| | (0.040) | (0.023) | (0.028) | (0.025) | (0.024) | (0.020) |
| District Copartisan | −0.037 | 0.017 | 0.092 | 0.057 | 0.178*** | 0.085 |
| | (0.097) | (0.069) | (0.068) | (0.064) | (0.069) | (0.081) |
| District Independent | −0.130 | 0.099 | −0.085 | 0.099 | 0.059 | 0.074 |
| | (0.163) | (0.141) | (0.117) | (0.093) | (0.091) | (0.105) |
| District White | 0.130* | −0.010 | 0.004 | 0.028 | −0.005 | −0.044 |
| | (0.071) | (0.040) | (0.035) | (0.035) | (0.034) | (0.037) |
| High Income | 0.160 | 0.080 | −0.017 | 0.211** | 0.187*** | 0.139 |
| | (0.145) | (0.072) | (0.088) | (0.082) | (0.071) | (0.087) |
| Low Income | 0.125 | 0.061 | −0.060 | −0.008 | −0.001 | 0.037 |
| | (0.118) | (0.077) | (0.062) | (0.059) | (0.048) | (0.078) |
| log(Total Tweets) | −0.005 | 0.0003 | −0.0001 | 0.003 | 0.023*** | 0.023*** |
| | (0.013) | (0.010) | (0.011) | (0.008) | (0.006) | (0.007) |
| Constant | 0.098 | 0.213** | 0.285** | 0.176** | 0.145** | 0.172** |
| | (0.120) | (0.090) | (0.119) | (0.086) | (0.070) | (0.085) |
| Observations | 242 | 356 | 398 | 402 | 423 | 427 |
| Adjusted $R^2$ | 0.089 | 0.098 | 0.127 | 0.205 | 0.523 | 0.302 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 8.9: Correlates of Partisan Tweets by Congress

| | *Dependent Variable:* | | | | | |
|---|---|---|---|---|---|---|
| | % Partisan Tweets | | | | | |
| | 111th Congress | 112th Congress | 113th Congress | 114th Congress | 115th Congress | 116th Congress |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Party Leader | 0.070** | 0.089*** | 0.042** | 0.044** | 0.051** | 0.084** |
| | (0.031) | (0.024) | (0.017) | (0.019) | (0.021) | (0.033) |
| Committee Chair | 0.022 | −0.017 | −0.011 | 0.091** | −0.007 | 0.055* |
| | (0.022) | (0.025) | (0.031) | (0.040) | (0.024) | (0.033) |
| Republican | 0.105*** | 0.073*** | 0.106*** | 0.018 | −0.081*** | 0.045*** |
| | (0.018) | (0.013) | (0.014) | (0.012) | (0.012) | (0.015) |
| Seniority | −0.0001 | 0.002 | 0.003** | 0.002 | 0.006*** | 0.001 |
| | (0.002) | (0.002) | (0.001) | (0.001) | (0.001) | (0.001) |
| Legislative Effectiveness | −0.015* | −0.018** | 0.002 | 0.006 | 0.0005 | 0.002 |
| | (0.009) | (0.007) | (0.007) | (0.006) | (0.007) | (0.008) |
| Extremism | 0.259*** | 0.279*** | 0.244*** | 0.233*** | 0.263*** | 0.325*** |
| | (0.088) | (0.050) | (0.055) | (0.033) | (0.038) | (0.049) |
| Male | 0.031* | 0.020* | 0.007 | −0.0002 | −0.014 | 0.023* |
| | (0.016) | (0.011) | (0.011) | (0.011) | (0.013) | (0.013) |
| Black | −0.005 | −0.044** | −0.034* | −0.030 | −0.032 | −0.063*** |
| | (0.029) | (0.018) | (0.019) | (0.019) | (0.022) | (0.019) |
| Latino | −0.049** | −0.016 | −0.005 | 0.005 | −0.023 | −0.050*** |
| | (0.024) | (0.025) | (0.020) | (0.023) | (0.022) | (0.019) |
| District Copartisan | −0.255*** | −0.092 | 0.054 | 0.103* | 0.164** | 0.173** |
| | (0.095) | (0.071) | (0.065) | (0.057) | (0.069) | (0.079) |
| District Independent | −0.351** | −0.025 | −0.010 | 0.082 | −0.008 | 0.145 |
| | (0.164) | (0.133) | (0.087) | (0.091) | (0.094) | (0.102) |
| District White | −0.004 | −0.053 | −0.039 | −0.022 | −0.006 | −0.065* |
| | (0.057) | (0.042) | (0.037) | (0.035) | (0.034) | (0.036) |
| High Income | 0.179 | −0.019 | −0.099 | −0.051 | 0.092 | −0.023 |
| | (0.146) | (0.085) | (0.084) | (0.080) | (0.074) | (0.091) |
| Low Income | 0.145 | 0.025 | −0.013 | −0.028 | 0.026 | 0.090 |
| | (0.112) | (0.077) | (0.057) | (0.061) | (0.050) | (0.075) |
| log(Total Tweets) | −0.002 | 0.011* | 0.006 | −0.005 | 0.016*** | 0.014* |
| | (0.012) | (0.006) | (0.011) | (0.007) | (0.004) | (0.007) |
| Constant | 0.173* | 0.143* | 0.076 | 0.129 | 0.033 | −0.003 |
| | (0.104) | (0.081) | (0.082) | (0.085) | (0.061) | (0.089) |
| Observations | 242 | 356 | 398 | 402 | 423 | 427 |
| Adjusted $R^2$ | 0.331 | 0.262 | 0.242 | 0.147 | 0.393 | 0.228 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 8.10: Correlates of Credit-Claiming Tweets by Congress

| | *Dependent Variable:* | | | | | |
|---|---|---|---|---|---|---|
| | % Credit-Claiming Tweets | | | | | |
| | 111th Congress | 112th Congress | 113th Congress | 114th Congress | 115th Congress | 116th Congress |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Party Leader | 0.006 | −0.005 | −0.026*** | −0.027** | 0.014 | −0.047*** |
| | (0.020) | (0.012) | (0.010) | (0.011) | (0.011) | (0.014) |
| Committee Chair | 0.024 | 0.028 | 0.015 | 0.026 | 0.015 | −0.021 |
| | (0.045) | (0.023) | (0.021) | (0.019) | (0.029) | (0.017) |
| Republican | −0.005 | 0.025** | −0.001 | 0.009 | 0.012 | −0.015 |
| | (0.021) | (0.012) | (0.009) | (0.008) | (0.009) | (0.011) |
| Seniority | 0.001 | 0.003** | 0.002** | 0.003*** | 0.001 | 0.0004 |
| | (0.002) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Legislative Effectiveness | 0.008 | −0.004 | −0.001 | 0.008* | 0.014*** | 0.006 |
| | (0.009) | (0.005) | (0.004) | (0.005) | (0.005) | (0.005) |
| Extremism | −0.012 | −0.037 | −0.025 | −0.065** | −0.094*** | −0.180*** |
| | (0.062) | (0.035) | (0.027) | (0.029) | (0.028) | (0.033) |
| Male | 0.025 | 0.005 | 0.005 | 0.001 | 0.012 | 0.003 |
| | (0.020) | (0.011) | (0.008) | (0.008) | (0.007) | (0.007) |
| Black | −0.049 | 0.009 | −0.022* | −0.015 | 0.004 | −0.001 |
| | (0.053) | (0.016) | (0.013) | (0.013) | (0.010) | (0.012) |
| Latino | 0.039 | 0.063*** | 0.026* | 0.024* | 0.049*** | 0.053*** |
| | (0.048) | (0.019) | (0.013) | (0.014) | (0.014) | (0.015) |
| District Copartisan | −0.038 | 0.009 | −0.045 | 0.009 | −0.193*** | 0.004 |
| | (0.114) | (0.046) | (0.037) | (0.036) | (0.049) | (0.045) |
| District Independent | −0.214 | −0.042 | −0.125** | 0.064 | −0.189*** | −0.082 |
| | (0.166) | (0.098) | (0.059) | (0.056) | (0.058) | (0.069) |
| District White | −0.028 | 0.012 | 0.021 | −0.002 | 0.020 | 0.038 |
| | (0.086) | (0.027) | (0.021) | (0.024) | (0.019) | (0.024) |
| High Income | −0.003 | 0.055 | 0.008 | −0.010 | −0.037 | −0.013 |
| | (0.155) | (0.056) | (0.053) | (0.054) | (0.061) | (0.056) |
| Low Income | −0.177 | −0.008 | 0.016 | −0.036 | −0.029 | −0.022 |
| | (0.108) | (0.049) | (0.036) | (0.041) | (0.037) | (0.048) |
| log(Total Tweets) | −0.021 | 0.010 | 0.021*** | 0.012** | 0.012** | −0.015** |
| | (0.013) | (0.007) | (0.005) | (0.005) | (0.005) | (0.007) |
| Constant | 0.523*** | 0.178** | 0.140*** | 0.150*** | 0.249*** | 0.383*** |
| | (0.153) | (0.080) | (0.052) | (0.055) | (0.052) | (0.073) |
| Observations | 242 | 356 | 398 | 402 | 423 | 427 |
| Adjusted $R^2$ | 0.060 | 0.061 | 0.167 | 0.076 | 0.180 | 0.174 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 8.11: Correlates of District Tweets by Congress

| | *Dependent Variable:* | | | | | |
|---|---|---|---|---|---|---|
| | % District Tweets | | | | | |
| | 111th Congress | 112th Congress | 113th Congress | 114th Congress | 115th Congress | 116th Congress |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Party Leader | −0.028* | −0.032 | −0.023* | −0.023 | −0.042 | −0.044* |
| | (0.016) | (0.023) | (0.014) | (0.019) | (0.028) | (0.025) |
| Committee Chair | 0.013 | −0.082*** | −0.017 | −0.032 | −0.029 | −0.007 |
| | (0.027) | (0.025) | (0.030) | (0.027) | (0.028) | (0.020) |
| Republican | −0.029 | −0.009 | −0.036** | 0.032* | 0.042** | −0.016 |
| | (0.022) | (0.021) | (0.016) | (0.016) | (0.021) | (0.019) |
| Seniority | −0.003 | −0.003 | −0.002 | −0.003* | −0.003** | −0.002 |
| | (0.002) | (0.002) | (0.001) | (0.002) | (0.001) | (0.002) |
| Legislative Effectiveness | 0.005 | 0.0001 | −0.002 | −0.005 | −0.007 | −0.010 |
| | (0.010) | (0.009) | (0.007) | (0.008) | (0.008) | (0.008) |
| Extremism | −0.176** | −0.203*** | −0.245*** | −0.222*** | −0.185*** | −0.298*** |
| | (0.083) | (0.061) | (0.054) | (0.051) | (0.054) | (0.051) |
| Male | −0.014 | −0.016 | 0.017 | 0.0002 | −0.005 | −0.020 |
| | (0.020) | (0.019) | (0.012) | (0.012) | (0.014) | (0.014) |
| Black | −0.009 | 0.041 | 0.009 | 0.029 | 0.010 | 0.014 |
| | (0.038) | (0.039) | (0.022) | (0.020) | (0.018) | (0.019) |
| Latino | −0.026 | −0.002 | −0.013 | −0.026 | 0.012 | −0.002 |
| | (0.038) | (0.036) | (0.025) | (0.021) | (0.023) | (0.024) |
| District Copartisan | −0.072 | 0.012 | −0.070 | −0.092 | −0.217*** | −0.258*** |
| | (0.095) | (0.082) | (0.062) | (0.076) | (0.082) | (0.086) |
| District Independent | −0.056 | 0.260* | 0.032 | 0.012 | 0.046 | −0.176 |
| | (0.177) | (0.158) | (0.105) | (0.100) | (0.129) | (0.124) |
| District White | 0.059 | 0.094* | 0.091** | 0.030 | 0.081* | 0.096** |
| | (0.067) | (0.050) | (0.042) | (0.047) | (0.042) | (0.038) |
| High Income | −0.129 | −0.132 | −0.121 | −0.203* | −0.160* | −0.391*** |
| | (0.154) | (0.082) | (0.089) | (0.110) | (0.093) | (0.116) |
| Low Income | 0.039 | 0.029 | 0.135** | −0.008 | 0.102* | −0.171* |
| | (0.117) | (0.088) | (0.063) | (0.067) | (0.054) | (0.088) |
| log(Total Tweets) | −0.027* | −0.020* | −0.002 | −0.007 | 0.009 | −0.014 |
| | (0.014) | (0.011) | (0.008) | (0.008) | (0.006) | (0.010) |
| Constant | 0.352*** | 0.251** | 0.144* | 0.289*** | 0.175** | 0.580*** |
| | (0.119) | (0.104) | (0.083) | (0.110) | (0.088) | (0.109) |
| Observations | 242 | 356 | 398 | 402 | 423 | 427 |
| Adjusted $R^2$ | 0.129 | 0.127 | 0.150 | 0.140 | 0.202 | 0.236 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 8.12: Correlates of Advertising Tweets by Congress

| | *Dependent Variable:* | | | | | |
|---|---|---|---|---|---|---|
| | % Advertising Tweets | | | | | |
| | 111th Congress | 112th Congress | 113th Congress | 114th Congress | 115th Congress | 116th Congress |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Party Leader | −0.035 | −0.047** | −0.010 | 0.005 | −0.037 | −0.037 |
| | (0.038) | (0.023) | (0.021) | (0.020) | (0.025) | (0.025) |
| Committee Chair | 0.019 | −0.062 | −0.00002 | −0.044 | 0.015 | −0.036 |
| | (0.069) | (0.038) | (0.039) | (0.028) | (0.029) | (0.022) |
| Republican | −0.033 | −0.018 | −0.0004 | 0.011 | 0.120*** | 0.057*** |
| | (0.027) | (0.021) | (0.018) | (0.016) | (0.016) | (0.014) |
| Seniority | −0.003 | −0.006*** | −0.004** | −0.007*** | −0.006*** | −0.002 |
| | (0.003) | (0.002) | (0.002) | (0.002) | (0.001) | (0.001) |
| Legislative Effectiveness | −0.001 | 0.003 | 0.003 | −0.009 | −0.017** | −0.012* |
| | (0.013) | (0.009) | (0.009) | (0.008) | (0.008) | (0.007) |
| Extremism | −0.227*** | −0.164*** | −0.223*** | −0.201*** | −0.193*** | −0.169*** |
| | (0.085) | (0.059) | (0.052) | (0.055) | (0.052) | (0.044) |
| Male | −0.044* | −0.007 | 0.012 | 0.013 | 0.008 | −0.015 |
| | (0.026) | (0.018) | (0.017) | (0.014) | (0.014) | (0.011) |
| Black | −0.007 | 0.025 | 0.047* | 0.021 | 0.031 | 0.036** |
| | (0.061) | (0.030) | (0.028) | (0.023) | (0.020) | (0.016) |
| Latino | −0.061 | −0.039 | 0.004 | −0.037 | −0.027 | −0.020 |
| | (0.047) | (0.032) | (0.026) | (0.024) | (0.023) | (0.018) |
| District Copartisan | 0.098 | −0.026 | −0.037 | −0.064 | 0.026 | −0.087 |
| | (0.155) | (0.087) | (0.075) | (0.073) | (0.078) | (0.066) |
| District Independent | 0.366* | −0.058 | 0.210* | −0.169 | 0.173* | −0.019 |
| | (0.213) | (0.173) | (0.122) | (0.112) | (0.098) | (0.090) |
| District White | −0.101 | 0.017 | −0.015 | −0.019 | −0.016 | 0.002 |
| | (0.084) | (0.051) | (0.042) | (0.041) | (0.036) | (0.034) |
| High Income | −0.127 | −0.103 | 0.008 | −0.196** | −0.116 | −0.137* |
| | (0.174) | (0.105) | (0.106) | (0.098) | (0.088) | (0.075) |
| Low Income | 0.081 | −0.030 | 0.050 | 0.047 | 0.048 | −0.019 |
| | (0.132) | (0.093) | (0.069) | (0.073) | (0.050) | (0.065) |
| log(Total Tweets) | 0.025** | −0.006 | −0.021* | −0.015* | −0.025** | −0.009 |
| | (0.011) | (0.012) | (0.011) | (0.009) | (0.012) | (0.007) |
| Constant | 0.341** | 0.559*** | 0.556*** | 0.671*** | 0.498*** | 0.459*** |
| | (0.150) | (0.124) | (0.118) | (0.106) | (0.105) | (0.083) |
| Observations | 242 | 356 | 398 | 402 | 423 | 427 |
| Adjusted $R^2$ | 0.061 | 0.076 | 0.109 | 0.158 | 0.370 | 0.202 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

### 8.4 R Code for Chapter 3

To clean the text of tweets I used the following packages in R: `quanteda`, `tidyverse`. The following code block was used to clean the text data of representatives' tweets. To improve processing efficiency, tweets were separated and cleaned by congress. Only code from cleaning tweet text from the 111$^{th}$ congress is presented in the interest of brevity.

```
house111 <- readRDS(file.path) %>% # 111th Congress
            select(-lang, -source, -mentions, -context.annotations, -entities.
    annotations, -hashtags) %>%
            unique()


house111 <- house111 %>% mutate(text = iconv(text, to = 'ASCII', sub = " "), #
    convert to ASCII
            text = textclean::replace_contraction(text),#removes contractions
            text = str_remove_all(text, '(?<=HR|H.R.)\\s(?=[[:digit:]])'), #bill
    numbers to be formatted like HR1
            text = str_remove_all(text, '\\s(?<=S|S.)\\s(?=[[:digit:]])'),
            text = str_remove_all(text, "'s(?=\\s)"), #removes possession
            text = str_replace_all(text, "[[:punct:]]", " "), #remove punctuation
            text = str_remove_all(text, '(?<!\\sHR|\\sS)[[:digit:]]'), #removes
    numbers (except bill numbers)
            text = str_squish(text),  #remove extra white space
            congress = 111) %>%
            unique()


house111.dfm <-  corpus(house111, text_field = 'text') %>%
                 tokens(., remove_punct = T, remove_symbols = T,  remove_numbers = F
    , include_docvars = T, remove_url = T, remove_hypens = T) %>%
                 tokens_remove(., pattern = c(stopwords('en'), c("may", "shall", "
    can", "must", "upon", "without"))) %>% #removes stopwords
                 tokens_remove(., pattern = c("RT")) %>% #removed Twitter added "RT"
                 tokens_select(., min_nchar=2L) %>% #removes 1-2 character words
                 dfm(., tolower = TRUE, remove_padding = TRUE) %>% #create dfm
    object
                 dfm_wordstem(.) %>% #steams words
                 dfm_trim(., min_termfreq = 10) #word must appear at least 10 times


ndoc(house111.dfm) == length(house111$id) # checking doc lengths match
docnames(house111.dfm) <- house111$id #setting document names to match Tweet id
house111.dfm <- dfm_subset(house111.dfm, ntoken(house111.dfm) > 0) #removing
    documents with no features


sentiment <- dfm_lookup(house111.dfm, dictionary = data_dictionary_LSD2015) %>%
             convert(., "data.frame") %>%
             mutate(negative = negative - neg_negative,
                    positive = positive - neg_positive,
                    sentiment.score = positive - negative,
                    sentiment = case_when(positive - negative >= 1 ~ 1,
                                          negative - positive >= 1 ~ -1,
                                          TRUE ~ 0),
                    id = doc_id) %>%
```

```
            select(id,  sentiment.score, sentiment)


house111 <- left_join(house111, sentiment, by = 'id')
```

To apply a keyword assisted topic model to members' Tweets I used the `KeyATM` package in `R`. The following code block was used to create document-feature matrices (DFM) of random samples of 150,000 tweets and then apply a keyword assisted topic model to each of the 22 sample DFMs. Only code from estimating the model to identify policy tweets is presented in the interest of brevity, but an identical process was used for the position-taking, credit-claiming, and advertising Tweets.

```

total.documents <- ndoc(full.dfm)
n <- ceiling(total.documents/150000)
sampled <- c()
seed <- 250

#creating DFM of samples
for(i in 1:n){

  size <- ifelse(total.documents - length(sampled) < 150000, total.documents -
    length(sampled), 150000)
  assign(paste('dfm.', i, sep = ''), dfm_sample(full.dfm, size = size, replace = F))
  sampled <- c(sampled, docnames(get(paste('dfm.', i, sep = ""))))
  full.dfm <- dfm_subset(full.dfm, docnames(full.dfm) %nin% sampled)

}

#creating KeyATM docs

for(i in 1:n){

  keyATM_docs <- keyATM_read(texts = get(paste('dfm.', i, sep = '')), progress_bar =
     TRUE, keep_docnames = TRUE)

  saveRDS(keyATM_docs, paste(file.path, i, '.Rds', sep = ""))

}

# Running KeyATM

policy.labeled.tweets <- data.frame(matrix(ncol = 3, nrow = 0))

for(i in 1:n){
keyATM_docs <- readRDS(paste('file.path', i, '.Rds', sep = ""))

out <- keyATM(docs = keyATM_docs,       # text input
              no_keyword_topics = 1,    # number of topics without keywords
              keywords = keywords,      # keywords
              model = "base",           # select the model
              options = list(seed = 250))

saveRDS(out, paste('file.path', i, '.Rds', sep = ""))

tweets.ids <- docnames(get(paste('dfm.', i, sep = "")))

```

```
temp <- as.data.frame(cbind(tweets.ids, out$theta))
colnames(temp) <- c('id', 'policy', 'other')
temp <- temp %>% mutate(prob.policy = as.numeric(policy),
                        other = as.numeric(other),
                        topic = max.col(.[,2:3], ties.method = 'first'),
                        policy = ifelse(topic == 1, 1, 0)) %>%
                    select(id, prob.policy, policy)

policy.labeled.tweets <- rbind(policy.labeled.tweets, temp)
print(length(policy.labeled.tweets))

saveRDS(policy.labeled.tweets, file.path)

print(paste(i, 'Done!'))

}
```

# Chapter 9

# Chapter 4 Appendix

## 9.1 K-Means Clustering

Figure 9.1: Optimal Number of Clusters

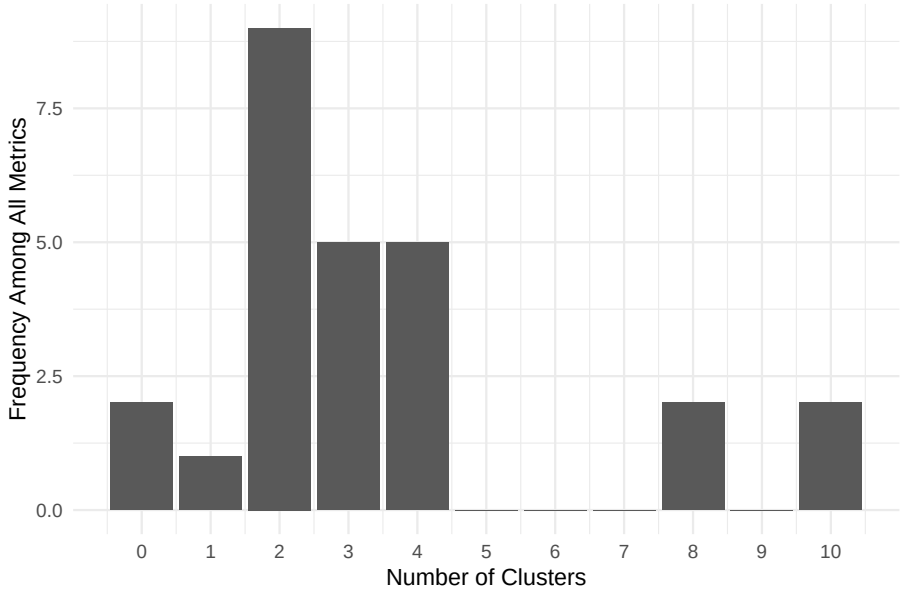



Figure 9.1: Displays the frequency each number of clusters was chosen among 30 indexes using the `NbClust` package in `R`.

Figure 9.2: Hubert Index for Determining Optimal Number of Clusters

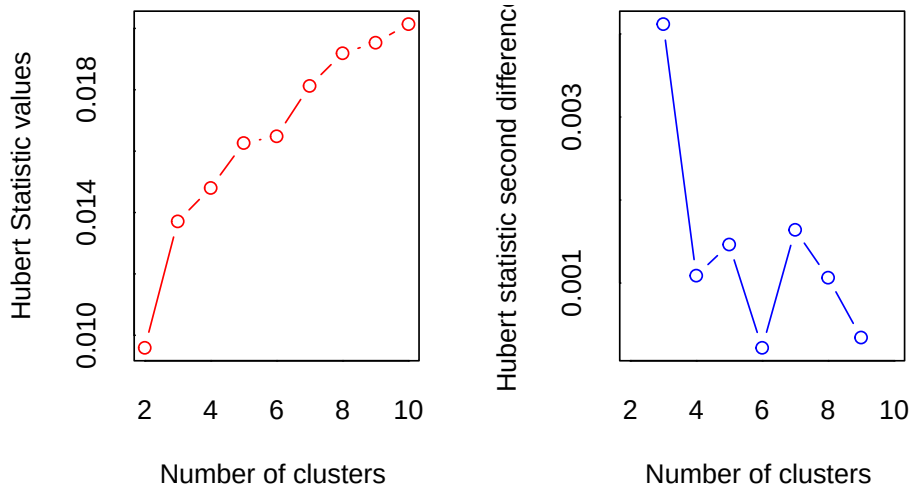
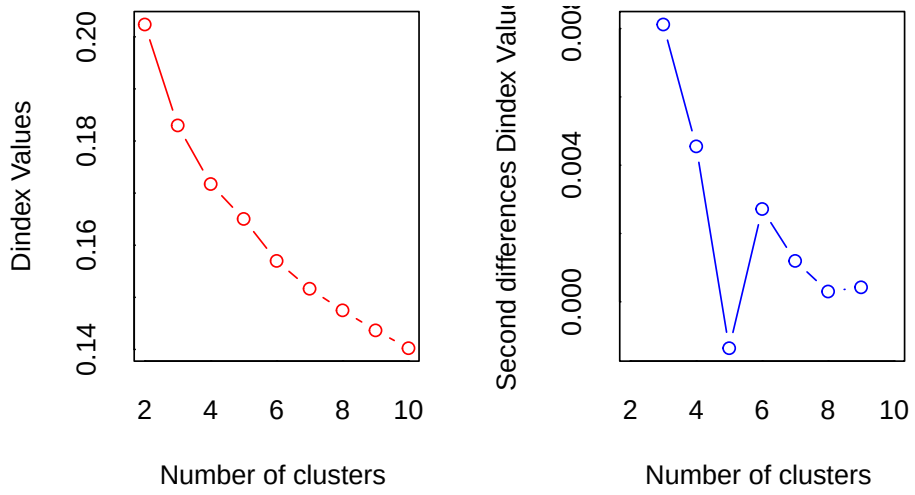



Figure 9.3: D-Index for Determining Optimal Number of Clusters



### 9.2 Metric Multidimensional Scaling

MDS uses the coordinate matrix $\mathbf{X}$ from $\mathbf{B} = \mathbf{X}\mathbf{X}'$ and $\mathbf{B}$ can be found using the distance matrix $\mathbf{D}$. The steps of Metric MDS is therefor as follows:

- squared proximity matrix $\mathbf{D}^{(2)} = [d_{ij}^2]$
- Using $\mathbf{C} = \mathbf{I} - \frac{1}{N}\mathbf{J}_n$ where $\mathbf{J}$ is $nxn$ matrix of all ones and $\mathbf{I}$ is $nxn$ identity matrix, apply double centering $\mathbf{B} = -\frac{1}{2}\mathbf{C}\mathbf{D}^{(2)}\mathbf{C}$
- Determine the $m$ largest eigenvalues $\lambda_1, ...\lambda_m$ and corresponding eigenvectors $e_1, ...e_n$ of $\mathbf{B}$, where $m =$ the number of dimensions
- Finally, $\mathbf{X} = \mathbf{E_{Lambda}}_m^{1/2}$, where $E_m$ is the matrix of $m$ eigenvectors and $\mathbf{\Lambda}_m$ is the diagonal matrix of $m$ eigenvalues of $B$

Minimize the stress function where $x_i$ is a vector in $m$ dimensional space for $N$ objects $i \neq j = 1, ..., N$, $x_i^T x_j$ denotes the scalar product between $x_i$ and $x_j$, and $b_{ij}$ are the elements of the matrix $\mathbf{B}$ defined above:

$$Stress_D(x_1, ...x_P) = (\frac{\sum_{i,j}(b_{ij} - x_i^T x_j)^2}{\sum_{i,j} b_{ij}^2})^{1/2}$$

The resulting dimensions produced from MDS explains 75.23% of the variance in the observed distances in members' expressed priorities.

## 9.3 Model Results for Chapter 4

Table 9.1: Correlates of MDS First Dimension Location

| | *Dependent Variable:* | | |
|---|---|---|---|
| | MDS 1st Dimension Location | | |
| | Pooled | Democrats | Republicans |
| | (1) | (2) | (3) |
| Majority | −0.073*** | | |
| | (0.009) | | |
| Copartisan President | −0.127*** | | |
| | (0.009) | | |
| Party Leader | 0.090*** | 0.048** | 0.140*** |
| | (0.017) | (0.021) | (0.026) |
| Committee Chair | 0.052*** | 0.057* | 0.041* |
| | (0.019) | (0.033) | (0.024) |
| Republican | −0.042*** | | |
| | (0.011) | | |
| Seniority | 0.007*** | 0.005*** | 0.009*** |
| | (0.001) | (0.001) | (0.002) |
| Legislative Effectiveness | 0.007 | 0.007 | 0.008 |
| | (0.005) | (0.007) | (0.007) |
| Extremism | 0.488*** | 0.663*** | 0.435*** |
| | (0.032) | (0.059) | (0.041) |
| Male | 0.0001 | 0.001 | 0.036* |
| | (0.010) | (0.011) | (0.019) |
| Black | −0.073*** | −0.094*** | 0.003 |
| | (0.016) | (0.017) | (0.068) |
| Latino | −0.007 | −0.008 | 0.002 |
| | (0.018) | (0.020) | (0.037) |
| District Copartisan | 0.098** | 0.188*** | −0.146* |
| | (0.047) | (0.065) | (0.078) |
| District Independent | −0.036 | 0.031 | −0.164 |
| | (0.075) | (0.102) | (0.109) |
| District White | −0.032 | −0.050 | 0.052 |
| | (0.027) | (0.035) | (0.047) |
| Low Income | −0.043 | −0.169*** | 0.034 |
| | (0.044) | (0.061) | (0.064) |
| High Income | 0.215*** | 0.214*** | 0.110 |
| | (0.060) | (0.076) | (0.094) |
| Congress Fixed Effects | YES | YES | YES |
| Constant | −0.019 | −0.192*** | −0.077 |
| | (0.047) | (0.067) | (0.066) |
| Observations | 2,092 | 1,000 | 1,092 |
| Adjusted $R^2$ | 0.347 | 0.467 | 0.206 |
| *Note:* | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 9.2: Correlates of MDS Second Dimension Location

| | *Dependent Variable:* | | |
|---|---|---|---|
| | MDS 2nd Dimension Location | | |
| | Pooled | Democrats | Republicans |
| | (1) | (2) | (3) |
| Majority | 0.017*** | | |
| | (0.006) | | |
| Copartisan President | 0.006 | | |
| | (0.005) | | |
| Party Leader | −0.013 | −0.001 | −0.026 |
| | (0.010) | (0.013) | (0.017) |
| Committee Chair | −0.006 | −0.001 | −0.004 |
| | (0.012) | (0.020) | (0.015) |
| Republican | −0.023*** | | |
| | (0.007) | | |
| Seniority | 0.001* | 0.002*** | −0.0002 |
| | (0.001) | (0.001) | (0.001) |
| Legislative Effectiveness | 0.003 | −0.002 | 0.007 |
| | (0.003) | (0.004) | (0.005) |
| Extremism | −0.159*** | −0.193*** | −0.167*** |
| | (0.020) | (0.035) | (0.026) |
| Male | −0.006 | −0.017** | 0.008 |
| | (0.006) | (0.007) | (0.012) |
| Black | −0.014 | −0.011 | −0.030 |
| | (0.010) | (0.010) | (0.043) |
| Latino | 0.009 | 0.023* | −0.051** |
| | (0.011) | (0.012) | (0.024) |
| District Copartisan | −0.090*** | −0.128*** | −0.031 |
| | (0.029) | (0.039) | (0.050) |
| District Independent | −0.064 | −0.146** | 0.042 |
| | (0.046) | (0.062) | (0.070) |
| District White | 0.096*** | 0.100*** | 0.094*** |
| | (0.017) | (0.021) | (0.030) |
| Low Income | 0.018 | 0.030 | 0.006 |
| | (0.027) | (0.036) | (0.041) |
| High Income | −0.079** | −0.140*** | 0.026 |
| | (0.037) | (0.046) | (0.060) |
| Congress Fixed Effects | YES | YES | YES |
| Constant | −0.022 | 0.033 | −0.096** |
| | (0.029) | (0.040) | (0.042) |
| Observations | 2,092 | 1,000 | 1,092 |
| Adjusted $R^2$ | 0.160 | 0.249 | 0.104 |
| *Note:* | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 9.3: Logit Regression of Party Loyalist

| | *Dependent Variable:* | | |
|---|---|---|---|
| | Party Loyalist | | |
| | Pooled | Democrats | Republicans |
| | (1) | (2) | (3) |
| Majority | −1.260*** | | |
| | (0.188) | | |
| Copartisan President | −1.863*** | | |
| | (0.186) | | |
| Party Leader | 1.354*** | 0.391 | 2.135*** |
| | (0.249) | (0.378) | (0.347) |
| Committee Chair | 0.346 | 0.729 | 0.100 |
| | (0.323) | (0.562) | (0.432) |
| Republican | −0.197 | | |
| | (0.198) | | |
| Seniority | 0.091*** | 0.078*** | 0.128*** |
| | (0.016) | (0.021) | (0.027) |
| Legislative Effectiveness | −0.089 | −0.044 | −0.124 |
| | (0.092) | (0.131) | (0.135) |
| Extremism | 6.094*** | 7.653*** | 6.013*** |
| | (0.605) | (1.119) | (0.823) |
| Male | 0.139 | 0.191 | 0.583 |
| | (0.176) | (0.206) | (0.449) |
| Black | −1.176*** | −1.305*** | −12.537 |
| | (0.273) | (0.310) | (509.663) |
| Latino | −0.502 | −0.517 | −0.055 |
| | (0.323) | (0.373) | (0.803) |
| District Copartisan | −0.150 | 0.827 | −2.869** |
| | (0.818) | (1.153) | (1.436) |
| District Independent | −0.043 | −0.031 | −0.372 |
| | (1.323) | (1.847) | (1.995) |
| District White | −0.837* | −1.090* | −0.371 |
| | (0.461) | (0.613) | (0.880) |
| Low Income | −1.593** | −3.310*** | −0.481 |
| | (0.798) | (1.102) | (1.229) |
| High Income | 1.287 | 1.684 | −0.929 |
| | (1.040) | (1.359) | (1.842) |
| Congress Fixed Effects | YES | YES | YES |
| Constant | −1.104 | −4.132*** | −1.187 |
| | (0.845) | (1.385) | (1.270) |
| Observations | 2,092 | 1,000 | 1,092 |
| Log Likelihood | −733.844 | −365.331 | −343.947 |
| Akaike Inf. Crit. | 1,511.688 | 768.662 | 725.895 |
| *Note:* | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 9.4: Logit Regression of Policy Loyalist with Race Interactions

| | *Dependent Variable:* |
|---|---|
| | Policy Loyalist |
| Party Leader | 0.363 |
| | (0.379) |
| Committee Chair | 0.769 |
| | (0.566) |
| Seniority | 0.082*** |
| | (0.021) |
| Legislative Effectiveness | −0.042 |
| | (0.132) |
| Extremism | 7.614*** |
| | (1.120) |
| Male | 0.201 |
| | (0.206) |
| Black | −2.478*** |
| | (0.743) |
| Latino | −0.687* |
| | (0.387) |
| District Copartisan | 0.905 |
| | (1.157) |
| District Independent | 0.072 |
| | (1.854) |
| District White | −1.578** |
| | (0.674) |
| Low Income | −3.280*** |
| | (1.106) |
| High Income | 1.614 |
| | (1.363) |
| Black*District White | 2.492* |
| | (1.417) |
| Congress Fixed Effects | YES |
| Constant | −3.896*** |
| | (1.396) |
| Observations | 1,000 |
| Log Likelihood | −363.800 |
| Akaike Inf. Crit. | 767.600 |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 |

Table 9.5: Logit Regression of Policy Wonk

| | *Dependent Variable:* | | |
|---|---|---|---|
| | Policy Wonk | | |
| | Pooled | Democrats | Republicans |
| | (1) | (2) | (3) |
| Majority | 0.017 | | |
| | (0.113) | | |
| Copartisan President | 0.078 | | |
| | (0.103) | | |
| Party Leader | −0.294 | 0.093 | −0.875** |
| | (0.205) | (0.264) | (0.356) |
| Committee Chair | 0.343 | −0.362 | 0.594** |
| | (0.226) | (0.429) | (0.277) |
| Republican | 0.060 | | |
| | (0.128) | | |
| Seniority | −0.002 | −0.004 | 0.015 |
| | (0.011) | (0.015) | (0.019) |
| Legislative Effectiveness | 0.193*** | 0.139 | 0.249*** |
| | (0.062) | (0.090) | (0.089) |
| Extremism | 1.038*** | 0.443 | 1.403*** |
| | (0.384) | (0.748) | (0.489) |
| Male | −0.064 | −0.179 | 0.212 |
| | (0.120) | (0.145) | (0.236) |
| Black | 0.143 | 0.111 | 1.202 |
| | (0.190) | (0.217) | (0.813) |
| Latino | 0.209 | 0.286 | −0.266 |
| | (0.212) | (0.253) | (0.479) |
| District Copartisan | 1.042* | 1.719** | 0.645 |
| | (0.561) | (0.836) | (0.927) |
| District Independent | −0.828 | 1.154 | −2.884** |
| | (0.911) | (1.305) | (1.330) |
| District White | 0.231 | 0.115 | 0.819 |
| | (0.324) | (0.442) | (0.574) |
| Low Income | 1.096** | 0.834 | 1.444* |
| | (0.533) | (0.772) | (0.766) |
| High Income | 0.935 | 0.352 | 1.556 |
| | (0.722) | (0.973) | (1.127) |
| Congress Fixed Effects | YES | YES | YES |
| Constant | −1.566*** | −1.802** | −1.937** |
| | (0.568) | (0.860) | (0.803) |
| Observations | 2,092 | 1,000 | 1,092 |
| Log Likelihood | −1,370.116 | −658.352 | −697.118 |
| Akaike Inf. Crit. | 2,784.233 | 1,354.704 | 1,432.236 |
| *Note:* | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 9.6: Logit Regression of Policy Wonk or Party Loyalist

| | *Dependent variable:* | |
|---|---|---|
| | Policy Wonk + Party Loyalist | |
| | Democrats | Republicans |
| | (1) | (2) |
| Party Leader | 0.460 | 0.775** |
| | (0.339) | (0.340) |
| Committee Chair | 2.183* | 0.566* |
| | (1.208) | (0.295) |
| Seniority | 0.044** | 0.073*** |
| | (0.019) | (0.020) |
| LES Rank | 0.223** | 0.202** |
| | (0.107) | (0.091) |
| Extremism | 6.587*** | 3.978*** |
| | (0.994) | (0.525) |
| Male | −0.140 | 0.446* |
| | (0.179) | (0.236) |
| Black | −0.894*** | 1.106 |
| | (0.264) | (0.851) |
| Latino | 0.136 | −0.307 |
| | (0.309) | (0.467) |
| District Copartisan | 2.546** | −0.731 |
| | (1.023) | (0.954) |
| District Independent | 0.639 | −3.414** |
| | (1.544) | (1.349) |
| District White | −0.517 | 0.633 |
| | (0.535) | (0.581) |
| Low Income | −1.014 | 1.175 |
| | (0.925) | (0.777) |
| High Income | 1.999* | 1.389 |
| | (1.180) | (1.159) |
| Congress Fixed Effects | YES | YES |
| Constant | −1.991* | −0.740 |
| | (1.040) | (0.815) |
| Observations | 1,000 | 1,092 |
| Log Likelihood | −489.710 | −674.835 |
| Akaike Inf. Crit. | 1,017.421 | 1,387.669 |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 | |

Table 9.7: Logit Regression of District Hero

| | *Dependent Variable:* | | |
|---|---|---|---|
| | | District Hero | |
| | Pooled | Democrats | Republicans |
| | (1) | (2) | (3) |
| Majority | 0.300 | | |
| | (0.189) | | |
| Copartisan President | 0.589*** | | |
| | (0.176) | | |
| Party Leader | −1.354** | −0.743 | −2.227** |
| | (0.605) | (0.891) | (1.025) |
| Committee Chair | −0.392 | −14.386 | −0.279 |
| | (0.409) | (631.426) | (0.417) |
| Republican | 0.126 | | |
| | (0.186) | | |
| Seniority | −0.045** | −0.040 | −0.027 |
| | (0.020) | (0.037) | (0.025) |
| Legislative Effectiveness | −0.193** | −0.397** | −0.073 |
| | (0.097) | (0.181) | (0.118) |
| Extremism | −4.736*** | −9.669*** | −3.475*** |
| | (0.599) | (1.538) | (0.674) |
| Male | −0.061 | −0.272 | −0.047 |
| | (0.193) | (0.288) | (0.297) |
| Black | −0.052 | 0.378 | −0.753 |
| | (0.384) | (0.472) | (1.153) |
| Latino | −0.275 | −0.288 | −0.405 |
| | (0.374) | (0.546) | (0.616) |
| District Copartisan | −2.591*** | −5.136*** | 0.584 |
| | (0.934) | (1.764) | (1.266) |
| District Independent | 1.517 | −1.755 | 4.852*** |
| | (1.335) | (2.338) | (1.710) |
| District White | 1.760*** | 1.940** | 1.063 |
| | (0.528) | (0.927) | (0.755) |
| Low Income | 0.230 | 1.816 | −0.367 |
| | (0.823) | (1.525) | (1.018) |
| High Income | −2.367* | −4.097* | −0.576 |
| | (1.213) | (2.262) | (1.507) |
| Congress Fixed Effects | YES | YES | YES |
| Constant | −3.334*** | −1.094 | −5.079*** |
| | (0.922) | (1.743) | (1.256) |
| Observations | 2,092 | 1,000 | 1,092 |
| Log Likelihood | −691.781 | −217.574 | −446.406 |
| Akaike Inf. Crit. | 1,427.562 | 473.149 | 930.811 |
| *Note:* | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 9.8: Logit Regression of Personal Advertiser

| | *Dependent variable:* | | |
|---|---|---|---|
| | Personal Advertiser | | |
| | Pooled | Democrats | Republicans |
| | (1) | (2) | (3) |
| Majority | 0.382** | | |
| | (0.156) | | |
| Copartisan President | 1.136*** | | |
| | (0.164) | | |
| Party Leader | −0.281 | −0.446 | −0.129 |
| | (0.237) | (0.332) | (0.345) |
| Committee Chair | −0.593* | −1.538 | −0.465 |
| | (0.304) | (1.124) | (0.327) |
| Republican | 0.668*** | | |
| | (0.200) | | |
| Seniority | −0.050*** | −0.043** | −0.067*** |
| | (0.014) | (0.020) | (0.022) |
| Legislative Effectiveness | −0.144** | −0.120 | −0.181* |
| | (0.073) | (0.112) | (0.099) |
| Extremism | −2.153*** | −2.286** | −2.054*** |
| | (0.449) | (1.008) | (0.540) |
| Male | 0.116 | 0.410** | −0.443* |
| | (0.147) | (0.195) | (0.237) |
| Black | 0.494** | 0.676** | −0.704 |
| | (0.240) | (0.288) | (0.913) |
| Latino | 0.154 | −0.012 | 0.487 |
| | (0.255) | (0.328) | (0.460) |
| District Copartisan | −0.609 | −1.071 | 0.543 |
| | (0.663) | (1.089) | (1.019) |
| District Independent | 0.370 | 0.561 | 0.511 |
| | (1.054) | (1.645) | (1.437) |
| District White | −0.553 | −0.188 | −1.481** |
| | (0.390) | (0.583) | (0.619) |
| Low Income | −0.539 | 0.314 | −0.876 |
| | (0.620) | (0.992) | (0.826) |
| High Income | −1.115 | −0.837 | −1.147 |
| | (0.862) | (1.243) | (1.240) |
| Congress Fixed Effects | YES | YES | YES |
| Constant | −0.116 | 0.773 | 1.531* |
| | (0.669) | (1.110) | (0.860) |
| Observations | 2,092 | 1,000 | 1,092 |
| Log Likelihood | −1,043.087 | −431.216 | −598.746 |
| Akaike Inf. Crit. | 2,130.173 | 900.432 | 1,235.492 |
| *Note:* | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 9.9: Logistic Regression of New Party Loyalist

| | *Dependent Variable:* |
|---|---|
| | New Party Loyalist |
| Change Leader | $0.879^{***}$ |
| | (0.333) |
| Change Extremism | 10.715 |
| | (7.165) |
| Change in District Copartisanship | $-0.573$ |
| | (0.998) |
| Change in District Independent | $-1.167$ |
| | (1.315) |
| Change in White District | $-1.505$ |
| | (1.023) |
| Change in High Income | $-0.940$ |
| | (1.208) |
| Change in Low Income | 0.102 |
| | (0.821) |
| Change in Log(Tweets) | $0.520^{***}$ |
| | (0.131) |
| 113 Congress | $-0.278$ |
| | (0.468) |
| 114 Congress | $-0.582$ |
| | (0.498) |
| 115 Congress | $1.341^{***}$ |
| | (0.428) |
| 116 Congress | $1.026^{**}$ |
| | (0.443) |
| Constant | $-2.495^{***}$ |
| | (0.443) |
| Observations | 1,257 |
| Log Likelihood | $-465.260$ |
| Akaike Inf. Crit. | 956.520 |
| *Note:* | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

### 9.4 R Code for Chapter 4

The following code block shows how I determined the number of clusters ($k$) and then applied the k-means clustering algorithm to members' tweets. To determine the proper number of clusters I used the `NbClust` package in `R`.

```
# Determining Number of Clusters
nbclust_out <- NbClust(
  data = mds.data[,3:8],
  distance = "euclidean",
  min.nc = 2, # minimum number of clusters
  max.nc = 10, # maximum number of clusters
  method = "kmeans",
  index = 'all',
)

nbclust_plot <- data.frame(clusters = nbclust_out$Best.nc[1, ])
nbclust_plot <- nbclust_plot %>% group_by(clusters) %>%
                dplyr::summarise(n = n())

# Number of Clusters: 4

# K-Means Clustering
id <- paste(mds.data$bioguide.id, mds.data$congress, sep="_")
result <- mds.data
result$id <- id
result <- left_join(result, moc, by = c('id'))
length(id) #estimating for 2097 member-congress pairings
table(mds.data$congress)/table(moc$congress) # % of Reps Estimated per Congress

mds.data <- mds.data %>% ungroup() %>% select(-congress, -bioguide.id)
rownames(mds.data) <- id

set.seed(100)
model.kmean <- kmeans(mds.data, centers = 4, nstart = 25)

cluster <- as.data.frame(cbind(names(model.kmean$cluster), unname(model.kmean$
    cluster)))
colnames(cluster) <- c('id', 'cluster')
result <- left_join(result, cluster, by = 'id')
```

The following code block shows how I applied the multidimensional scaling algorithm to members' tweets.

```
# MDS
d <- dist(mds.data, method = "euclidean")
set.seed(100)
fit <- cmdscale(d,eig=TRUE, k=2) # k is the number of dim

fit$GOF #variance explained by each dimension

result$dim1 <- fit$points[,1]
result$dim2 <- fit$points[,2]
result$dim1  <- result$dim1*-1
summary(result$dim2)
```

# Chapter 10

# Chapter 5 Appendix

## 10.1 Data & Variables for Chapter 5

Table 10.1: Independent Variables

| Variable | Description | Range | Mean | Std. Dev. |
|---|---|---|---|---|
| Speaker Bill[c] | Indicator for House bills 1-10 that are reserved for the Speaker of the House | $\{0, 1\}$ | | |
| Minority Leader Bill[c] | Indicator for House bills 11-20 that are reserved for the Minority Leader in the $112^{\text{th}}$-$116^{\text{th}}$ Congress | $\{0, 1\}$ | | |
| Cosponsors[a] | Total number of bill cosponsors, excluding the bill's sponsor | $[0, 432]$ | 15.81 | 34.55 |
| Copartisan Sponsor[a] | Indicator for if Tweeter shares a party with the bill's sponsor | $\{0, 1\}$ | .499 | .500 |
| Partisan Cosponsorship[a] | Indicator for if $\geq 75\%$ of bill's cosponsors are from the same party | $\{0, 1\}$ | .561 | .496 |
| Bipartisan Cosponsorship[a] | Indicator for if $< 75\%$ of bill's cosponsors are from the same party | $\{0, 1\}$ | .201 | .401 |
| Passed House[a] | Indicator for if bill passed the House | $\{0, 1\}$ | .115 | .319 |
| Remaining Congress Days[c] | The number of days between the day a bill was introduced and the last day of the current Congress | $[0, 730]$ | 448.4 | 209.89 |
| Partisan Support[b] | Indicator for if $\geq 80\%$ of party votes for and $\geq 80\%$ the other party votes against the bill | $\{0, 1\}$ | .06 | .236 |
| Partisan Oppose[b] | Indicator for if $\geq 80\%$ of party votes against and $\geq 80\%$ the other party votes for the bill | $\{0, 1\}$ | .06 | .234 |
| Split Opposing Party[b] | Indicator for if $\geq 80\%$ of member's party votes against $> 20\%$ and $< 80\%$ of the other party | $\{0, 1\}$ | .03 | .178 |
| Split Party[b] | Indicator for if $> 20\%$ and $< 80\%$ of party votes together against $\geq 80\%$ of other party | .03 | .178 | |
| Bipartisan[b] | Indicator for if $\geq 80\%$ of both parties voted together | $\{0, 1\}$ | .23 | .422 |
| Law[a] | | $\{0, 1\}$ | .407 | .491 |
| Days After RC[c] | The number of days between the day of the first roll call vote and the last day of the current Congress | $[1, 730]$ | 326.4 | 212.02 |
| Majority[b] | Indicator for if Tweet was sent by majority party member | $\{0, 1\}$ | | |
| Republican[b] | Indicator for if Tweet was sent by a Republican Representative | $\{0, 1\}$ | | |

*Data Sources:*
[a] Constructed by author using data collected from Congress.gov
[b] Constructed by author based using data from voteview.com
[c] Constructed by author

Table 10.2: Roll Call Vote Coding Rules

| | Dem Yea $\leq$ 20% (Dem Nay $\geq$ 80%) | 20% $<$ Dem Yea $<$ 80% (20% $<$ Dem Nay $<$ 80%) | Dem Yea $\geq$ 80% (Dem Nay $\leq$ 20%) |
|---|---|---|---|
| Rep Yea $\leq$ 20% (Rep Nay $\geq$ 80%) | Bipartisan Party Vote | Party Split Rep Party Vote | Partisan Party Vote |
| 20% $<$ Rep Yea $<$ 80% 20% $<$ Rep Nay $<$ 80%) | Party Split Dem Party Vote | Cross Party | Party Split Dem Party Vote |
| Rep Yea $\geq$ 80% (Rep Nay $\leq$ 80%) | Partisan Party Vote | Party Split Rep Party Vote | Bipartisan Party Vote |

## 10.2 The Legislative Agenda

Table 10.3: House Bills Progression

| | House Bills | In Committee | House Floor | Sent to Senate | Law | Vetoed |
|---|---|---|---|---|---|---|
| 111$^{\text{th}}$ Congress | 6,653 | 5,799 (87.2%) | 139 (2.09%) | 449 (6.75%) | 262 (3.97%) | 2 |
| 112$^{\text{th}}$ Congress | 6,845 | 6,138 (89.7%) | 215 (3.14%) | 286 (4.18%) | 206 (3.69%) | 0 |
| 113$^{\text{th}}$ Congress | 6,019 | 5,158 (85.7%) | 267 (4.44%) | 372 (6.18%) | 222 (3.69%) | 0 |
| 114$^{\text{th}}$ Congress | 6,634 | 5,598 (84.38%) | 265 (3.99%) | 544 (8.20%) | 223 (3.36%) | 4 |
| 115$^{\text{th}}$ Congress | 7,543 | 6,170 (81.80%) | 362 (4.80%) | 699 (9.27%) | 312 (4.14%) | 0 |
| 116$^{\text{th}}$ Congress | 9,175 | 8,058 (87.83%) | 323 (3.52%) | 560 (6.10%) | 230 (2.51%) | 4 |

Table 10.4: Senate Bills Progression

| | Senate Bills | In Committee | House Floor | Law | Vetoed |
|---|---|---|---|---|---|
| 111th Congress | 172 | 49 | 6 | 117 | 0 |
| | | (28.5%) | (3.49%) | (68%) | |
| 112th Congress | 146 | 67 | 3 | 71 | 0 |
| | | (45.9%) | (2.05%) | (52.1%) | |
| 113th Congress | 147 | 72 | 4 | 71 | 0 |
| | | (49%) | (2.72%) | (48.3%) | |
| 114th Congress | 183 | 77 | 2 | 100 | 4 |
| | | (42.08%) | (1.09%) | (54.64%) | |
| 115th Congress | 220 | 102 | 9 | 109 | 0 |
| | | (46.36%) | (4.09%) | (49.55%) | |
| 116th Congress | 254 | 137 | 1 | 109 | 7 |
| | | (53.94%) | (.39%) | (42.91%) | |

*Note:* Only includes Senate bills that passed the Senate and were sent to the House.

## 10.3 Model Results for Chapter 5

Table 10.5: Correlates of Post-Roll Call Legislative Tweets by Majority Status

| | *Dependent Variable:* | |
|---|---|---|
| | Tweets | |
| | Majority | Minority |
| | (1) | (2) |
| Speaker Bill | 45.176 | −45.063* |
| | (50.199) | (24.286) |
| Partisan Support | 73.104*** | 912.237*** |
| | (16.251) | (35.170) |
| Partisan Oppose | 1,971.187*** | 21.405*** |
| | (81.128) | (7.825) |
| Split Opposing Party | 23.580 | 55.648*** |
| | (21.320) | (21.086) |
| Split Party | 48.881 | 11.480 |
| | (43.632) | (10.259) |
| Bipartisan | 7.524 | 3.317 |
| | (11.813) | (5.666) |
| Only Passed House | 193.255*** | 83.094*** |
| | (40.068) | (19.169) |
| Law | 212.562*** | 92.398*** |
| | (40.591) | (19.417) |
| Republican | 10.752 | −11.705 |
| | (15.559) | (7.467) |
| Days After RC | 0.039* | 0.018* |
| | (0.023) | (0.011) |
| Congress Fixed Effects | YES | YES |
| Constant | −226.718*** | −84.984*** |
| | (41.953) | (20.006) |
| Observations | 4,950 | 4,945 |
| Adjusted $R^2$ | 0.114 | 0.124 |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 | |

Table 10.6: Correlates of Post-Roll Call Legislative Tweets by Majority Status and Party

| | *Dependent Variable:* | | | |
|---|---|---|---|---|
| | Tweets | | | |
| | Majority | | Minority | |
| | Democrats | Republicans | Democrats | Republicans |
| | (1) | (2) | (3) | (4) |
| Speaker Bill | 637.889*** | −162.436** | −85.662** | 59.348*** |
| | (67.346) | (64.648) | (33.679) | (14.266) |
| Partisan Support | 122.318*** | 41.794* | 1,005.239*** | 16.741 |
| | (19.198) | (22.116) | (44.895) | (33.621) |
| Partisan Oppose | 116.329 | 2,242.018*** | 20.302* | 15.228*** |
| | (158.767) | (97.375) | (11.430) | (4.090) |
| Split Opposing Party | 15.370 | 29.704 | 63.546** | 7.115 |
| | (20.870) | (32.185) | (27.262) | (17.441) |
| Split Party | 21.156 | 56.646 | 12.449 | 9.396** |
| | (82.363) | (52.459) | (16.690) | (4.419) |
| Bipartisan | 17.577 | 3.365 | 2.979 | 5.147* |
| | (13.530) | (16.148) | (8.324) | (2.865) |
| Only Passed House | 90.800** | 221.835*** | 100.569*** | 10.520 |
| | (42.306) | (58.368) | (30.007) | (8.964) |
| Law | 102.195** | 240.299*** | 109.830*** | 16.804* |
| | (42.899) | (59.029) | (30.342) | (9.095) |
| Days After RC | 0.016 | 0.044 | 0.020 | 0.007 |
| | (0.025) | (0.033) | (0.017) | (0.005) |
| Congress Fixed Effects | YES | YES | YES | YES |
| Constant | −119.504*** | −256.543*** | −123.140*** | −18.085** |
| | (43.382) | (60.446) | (31.086) | (9.195) |
| Observations | 1,705 | 3,245 | 3,242 | 1,703 |
| Adjusted $R^2$ | 0.091 | 0.144 | 0.138 | 0.027 |
| *Note:* | | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 10.7: Correlates of Democrats' Post-Roll Call Legislative Tweets by Congress

| | *Dependent Variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Tweets | | | | | |
| | $111^{th}$ | $112^{th}$ | $113^{th}$ | $114^{th}$ | $115^{th}$ | $116^{th}$ |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Speaker Bill | 61.640*** | −23.520 | −118.925* | −73.568*** | −427.817*** | 707.772*** |
| | (5.220) | (24.695) | (70.899) | (25.871) | (68.762) | (101.731) |
| Partisan Support | 5.139*** | 231.538*** | 1,025.226*** | 546.105*** | 5,224.733*** | 213.302*** |
| | (0.970) | (26.724) | (86.954) | (36.157) | (152.457) | (34.974) |
| Partisan Oppose | 4.599 | 8.406 | 9.234 | 7.888 | 39.489* | |
| | (5.524) | (10.032) | (25.928) | (7.734) | (22.361) | |
| Split Opposing Party | 0.013 | 5.536 | 124.344** | 113.366*** | 3.148 | 31.589 |
| | (0.894) | (16.723) | (62.401) | (18.577) | (80.895) | (46.274) |
| Bipartisan | 1.336 | 2.662 | 19.654 | 4.780 | 9.606 | −8.106 |
| | (3.702) | (12.564) | (36.508) | (13.094) | (32.244) | (167.999) |
| Split Party | 0.622 | −0.327 | −6.619 | 2.405 | 10.103 | 28.149 |
| | (0.611) | (7.505) | (19.373) | (5.894) | (15.124) | (27.912) |
| Only Passed House | 4.505** | 28.095 | 338.903*** | 3.575 | 22.307 | 144.061* |
| | (1.973) | (17.824) | (80.849) | (18.379) | (107.517) | (83.736) |
| Law | 5.142** | 30.718* | 348.566*** | 11.094 | 25.492 | 180.650** |
| | (1.992) | (18.192) | (81.084) | (18.850) | (107.653) | (85.025) |
| Days After RC | −0.001 | 0.012 | 0.051 | 0.008 | −0.001 | 0.024 |
| | (0.001) | (0.017) | (0.042) | (0.012) | (0.029) | (0.043) |
| Constant | −4.495** | −31.695* | −354.081*** | −8.944 | −22.889 | −164.320* |
| | (2.003) | (18.624) | (81.361) | (18.896) | (107.326) | (85.300) |
| Observations | 780 | 547 | 635 | 908 | 1,152 | 925 |
| Adjusted $R^2$ | 0.183 | 0.122 | 0.187 | 0.225 | 0.507 | 0.112 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 10.8: Correlates of Republicans' Post-Roll Call Legislative Tweets by Congress

| | *Dependent Variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Tweets | | | | | |
| | $111^{th}$ | $112^{th}$ | $113^{th}$ | $114^{th}$ | $115^{th}$ | $116^{th}$ |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Speaker Bill | 23.410 | −97.007 | −642.680** | −224.432*** | 167.593*** | 70.279*** |
| | (18.451) | (61.822) | (273.973) | (50.062) | (38.089) | (20.148) |
| Partisan Support | 12.053 | 22.899 | 43.961 | 26.104* | 36.179*** | |
| | (19.529) | (25.009) | (99.321) | (14.883) | (12.938) | |
| Partisan Oppose | 13.414*** | 781.065*** | 4,984.570*** | 1,696.720*** | 1,764.503*** | 16.198** |
| | (3.451) | (76.315) | (369.743) | (80.458) | (88.120) | (6.960) |
| Split Opposing Party | 3.798 | 12.708 | 93.526 | 12.600 | 34.649* | 5.907 |
| | (13.086) | (30.920) | (139.100) | (25.193) | (18.683) | (33.252) |
| Bipartisan | 0.787 | 11.852 | 245.467 | 101.057*** | −20.512 | 23.242** |
| | (3.162) | (41.717) | (240.620) | (35.741) | (44.005) | (9.159) |
| Split Party | −0.205 | 0.401 | −24.117 | 6.058 | 1.274 | 11.533** |
| | (2.159) | (18.723) | (74.559) | (11.340) | (8.761) | (5.525) |
| Only Passed House | 11.528* | 102.240** | 1,542.189*** | 13.337 | 18.322 | 13.676 |
| | (6.982) | (44.704) | (315.367) | (35.359) | (62.198) | (16.579) |
| Law | 13.921** | 112.417** | 1,573.315*** | 27.399 | 30.954 | 24.006 |
| | (7.054) | (45.632) | (316.317) | (36.268) | (62.292) | (16.843) |
| Days After RC | −0.002 | 0.048 | 0.194 | 0.026 | −0.002 | 0.012 |
| | (0.005) | (0.042) | (0.161) | (0.023) | (0.017) | (0.009) |
| Constant | −11.703* | −116.945** | −1,597.174*** | −26.183 | −21.493 | −20.557 |
| | (7.086) | (46.763) | (317.424) | (36.356) | (62.073) | (16.897) |
| Observations | 779 | 546 | 639 | 907 | 1,153 | 924 |
| Adjusted $R^2$ | 0.015 | 0.164 | 0.225 | 0.334 | 0.300 | 0.034 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

Table 10.9: Correlates of Post-Roll Call Legislative Tweets For Current Legislation by Majority Status

| | *Dependent Variable:* | |
|---|---|---|
| | Tweets | |
| | Majority | Minority |
| | (1) | (2) |
| Speaker Bill | 272.090*** | 48.024*** |
| | (18.206) | (5.991) |
| Partisan Support | 39.398*** | 7.682 |
| | (5.653) | (13.031) |
| Partisan Oppose | 26.339 | 8.402*** |
| | (39.603) | (1.862) |
| Split Opposing Party | 15.367** | 44.723*** |
| | (7.404) | (5.094) |
| Split Party | 31.034** | 6.698*** |
| | (15.479) | (2.440) |
| Bipartisan | 8.961** | 2.947** |
| | (4.094) | (1.347) |
| Only Passed House | 25.298* | 7.714* |
| | (14.044) | (4.621) |
| Law | 30.896** | 11.843** |
| | (14.247) | (4.689) |
| Republican | 6.626 | −2.526 |
| | (5.392) | (1.775) |
| Remaining Congress Days | −0.001 | 0.004 |
| | (0.008) | (0.003) |
| Congress Fixed Effects | YES | YES |
| Constant | −34.852** | −9.553** |
| | (14.733) | (4.829) |
| Observations | 4,925 | 4,923 |
| Adjusted $R^2$ | 0.066 | 0.037 |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 | |

Table 10.10: Correlates of Post-Roll Call Legislative Tweets with Re-coded ACA Tweets by Majority Status and Party

| | *Dependent Variable:* | | | |
|---|---|---|---|---|
| | Tweets | | | |
| | Majority | | Minority | |
| | Democrats | Republicans | Democrats | Republicans |
| | (1) | (2) | (3) | (4) |
| Speaker Bill | 637.889*** | 200.662*** | 68.118*** | 59.348*** |
| | (67.346) | (63.541) | (26.315) | (14.266) |
| Partisan Support | 122.318*** | 70.024*** | −3.705 | 16.741 |
| | (19.198) | (21.622) | (39.123) | (33.621) |
| Partisan Oppose | 116.329 | −87.776 | 34.639*** | 15.228*** |
| | (158.767) | (110.442) | (8.903) | (4.090) |
| Split Opposing Party | 15.370 | 6.835 | 46.239** | 7.115 |
| | (20.870) | (31.454) | (21.229) | (17.441) |
| Split Party | 21.156 | 12.747 | 1.436 | 9.396** |
| | (82.363) | (51.269) | (12.996) | (4.419) |
| Bipartisan | 17.577 | −1.559 | 0.005 | 5.147* |
| | (13.530) | (15.781) | (6.481) | (2.865) |
| Only Passed House | 90.800** | −30.182 | 1.208 | 10.520 |
| | (42.306) | (57.290) | (23.425) | (8.964) |
| Law | 102.195** | −28.525 | 2.433 | 16.804* |
| | (42.899) | (57.962) | (23.692) | (9.095) |
| Days After RC | 0.016 | 0.043 | 0.024* | 0.007 |
| | (0.025) | (0.032) | (0.013) | (0.005) |
| Congress Fixed Effects | YES | YES | YES | YES |
| Constant | −119.504*** | 14.086 | −12.572 | −18.085** |
| | (43.382) | (59.364) | (24.278) | (9.195) |
| Observations | 1,705 | 3,241 | 3,238 | 1,703 |
| Adjusted $R^2$ | 0.091 | 0.007 | 0.009 | 0.027 |
| *Note:* | | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 10.11: Tukey HSD Test of Mean Share of Partisan Bills in Post-Roll Call Legislative Tweets by Digital Presentation of Self

| Linear Hypotheses | Estimate | Std. Error | P-Value |
|---|---|---|---|
| Party Loyalist - Policy Wonk = 0 | 0.0496 | 0.001 | $< 0.001^{***}$ |
| District Hero - Policy Wonk = 0 | -0.1566 | 0.002 | $< 0.001^{***}$ |
| Personal Advertiser - Policy Wonk = 0 | -0.002 | 0.01494 | $< 0.001^{***}$ |
| District Hero - Party Loyalist = 0 | -0.2062 | 0.002 | $< 0.001^{***}$ |
| Personal Advertiser - Party Loyalist = 0 | -0.002 | 0.01625 | $< 0.001^{***}$ |
| Personal Advertiser - District Hero = 0 | 0.1247 | 0.002 | $< 0.001^{***}$ |

*Note:* $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01

### 10.4 R Code for Chapter 5

The following code block demonstrates how I accessed bill data from `Congress.gov` using the ProPublica API.[1] I used the following `R` packages: `ProPublicaR`, `jsonlite`, `httr`, `tidyverse`, `curl`.

```

bills.df <- data.frame(matrix(ncol = length(colnames), nrow = length(bill.names.df$
    bill)))
colnames(bills.df) <- colnames
bills.df$bill <- all.bill.numbers

set_config(use_proxy(url="10.3.100.207",port=8080))

for (i in 1:nrow(bills.df)){

  temp <- get_specific_bill(congress = bills.df$congress[i], bill_id = bills.df$bill
    [i], page = 1, myAPI_Key = key)

  #skipping download errors
  if(temp$status == 'ERROR') {
  print(i)
  next
  }

  #pauses for 15 minutes every 2000 interations
  if (i %in% c(seq(2000, nrow(bills.df), 2000))) {
   print('15 minute break')
   Sys.sleep(900)
   }

  bills.df$bill[i] <- temp$results[[1]]$bill_slug #bill number
  bills.df$congress[i] <- temp$results[[1]]$congress #congress
  bills.df$bill.title[i] <- ifelse(is.null(temp$results[[1]]$short_title), NA, temp$
    results[[1]]$short_title)  #formal bill title
  bills.df$sponsor.bioguide.id[i] <- temp$results[[1]]$sponsor_id #sponsor bioguide.
    id
  bills.df$introduced.date[i] <- temp$results[[1]]$introduced_date #introduction
    date
  bills.df$passed.house.date[i] <- ifelse(is.null(temp$results[[1]]$house_passage),
    NA, temp$results[[1]]$house_passage) #date passed house
  bills.df$passed.senate.date[i] <- ifelse(is.null(temp$results[[1]]$senate_passage)
    , NA, temp$results[[1]]$senate_passage) #date passed senate
  bills.df$law.signed.date[i] <- ifelse(is.null(temp$results[[1]]$enacted), NA, temp
    $results[[1]]$enacted) # date bill signed into law
  bills.df$vetoed[i] <- ifelse(is.null(temp$results[[1]]$vetoed), NA, temp$results
    [[1]]$vetoed) # bill vetoed data
  bills.df$dem.cosponsors[i] <- ifelse(is.null(temp$results[[1]]$cosponsors_by_party
    $D), 0, temp$results[[1]]$cosponsors_by_party$D) # D cosponsors
  bills.df$rep.cosponsors[i] <- ifelse(is.null(temp$results[[1]]$cosponsors_by_party
    $R), 0, temp$results[[1]]$cosponsors_by_party$R) # R cosponsors
  bills.df$last.action[i] <- temp$results[[1]]$latest_major_action #last action
  bills.df$last.action.date[i] <- temp$results[[1]]$latest_major_action_date #date
    of last major action

}
```

[1] https://projects.propublica.org/api-docs/congress-api/

The following code block demonstrates how I identified commonly referenced legislation names using collocation analysis using the `quanteda` package in `R`.

```
corpus <- corpus(house.tweets)
token <- tokens(corpus, remove_url = F, remove_punct = F, remove_symbols = F, remove_numbers = F, remove_hypens = F)
token <- tokens_select(token,
                       pattern = "^[A-Z]|\\s[:alpha:]{1,3}\\s|for|of|in|and",
                       valuetype = "regex",
                       case_insensitive = FALSE,
                       padding = TRUE)

# 6 word long proper noun phrases that appear at least 10 times
compound_token6 <- textstat_collocations(token, min_count = 10, size = 6, tolower = FALSE)
compound_token6 <- compound_token6  %>% filter(str_detect(collocation, 'Act$'))

token <- tokens_compound(token, pattern = compound_token6, case_insensitive = FALSE)

# 5 word long proper noun phrases that appear at least 10 times
compound_token5 <- textstat_collocations(token, min_count = 10, size = 5, tolower = FALSE)
compound_token5 <- compound_token5  %>% filter(str_detect(collocation, 'Act$'))

token <- tokens_compound(token, pattern = compound_token5, case_insensitive = FALSE)

# 4 word long proper noun phrases that appear at least 10 times
compound_token4 <- textstat_collocations(token, min_count = 10, size = 4, tolower = FALSE)
compound_token4 <- compound_token4 %>% filter(str_detect(collocation, 'Act$')) %>%
                   filter(str_detect(collocation, '^The') == F, str_detect(collocation, "_") == F)

token <- tokens_compound(token, pattern = compound_token4, case_insensitive = FALSE)

# 3 word long proper noun phrases that appear at least 10 times
compound_token3 <- textstat_collocations(token, min_count = 10, size = 3, tolower = FALSE)
compound_token3 <- compound_token3 %>% filter(str_detect(collocation, 'Act$')) %>%
                   filter(str_detect(collocation, '_') == F, str_detect(collocation, "^The") == F,
                          str_detect(collocation, '^[:lower:]'))

token <- tokens_compound(token, pattern = compound_token3, case_insensitive = FALSE)

# 2 word long proper noun phrases that appear at least 10 times
compound_token2 <- textstat_collocations(token, min_count = 10, size = 2, tolower = FALSE)
compound_token2 <- compound_token2 %>% filter(str_detect(collocation, 'Act$')) %>%
                   filter(str_detect(collocation, '_') == F, str_detect(collocation, '^The') == F)


billname.collocations <- rbind(compound_token6, compound_token5, compound_token4, compound_token3, compound_token2) %>%
                         as.data.frame(.) %>%
```

```
                        select(collocation, id, congress)
```

The following code block demonstrates how I searched Tweets for bill numbers using the `tidyverse` package in `R`.

```

pattern <- 'HR[[:digit:]]+|S[[:digit:]]+|HRES[[:digit:]]+|SRES[[:digit:]]+|HJRES[[:digit:]]+|SJRES[[:digit:]]+|HCONRES[[:digit:]]+|SCONRES[[:digit:]]+'


house.tweets <- house.tweets %>%
                mutate(chamber = 'House',
                       bill = str_extract_all(text, pattern, simplify = T)[,1],
                       mentioned.bill = ifelse(bill == "", F, T)) %>%
              select(id, created.at, congress, bill, mentioned.bill, bioguide.id, chamber) %>%
              arrange(bill)
```

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